AN INVESTIGATION INTO THE STATE OF THE HEART IN GALL-BLADDER DISEASE.

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SUBMITTED BY

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C O N T E N T S.

AN INVESTIGATION INTO THE STATE OF THE HEART IN GALL BLADDER DISEASE.

INTRODUCTION.

It is probable that disease of the heart was recognised by the ancient physicians and for generations many aspects of its pathology have been described and taught. Illness referable to a departure from normal in the structure and function of the gall-bladder is likewise no recent conception. The possible association of heart disease in cases with gall-bladder pathology appears, however, an essentially modern view and one which so far has not received unequivocal proof. This possibility has only assumed importance during the past half century since the pioneer work of Lister in antisepsis and later asepsis made abdominal surgery a relatively safe and life-saving measure and transformed disease of the abdominal viscera into a field of triumph rather than of defeat for the surgeon. Previous to Lister most patients must have succumbed to sepsis after operation and it was only after this factor was eliminated that the condition of the heart, in patients in whom operative measures were contemplated, assumed its present day importance. Thus with increasing experience in the surgery of the gall-bladder and biliary-tract an impression was gradually formed that these patients somtimes constituted bad operative "risks" owing, in some cases, to the

state of the heart. It thus became the practice to assess carefully the general condition of the patient and, in particular, the state of the cardio-vascular system. This practice resulted in some cases of gall-bladder disease being excluded from the undoubted benefit of gall-bladder surgery on account of some departure from normal in the heart. Within the past decade this rule has been seriously questioned and in some cases in which lesions of the heart and gall-bladder co-existed it has been suggested that the heart condition is benefited by the removal of the (pathology) in the gall-bladder. If this view is correct a definite advance can be made in our treatment of gall-bladder disease by extending the benefits of surgical intervention to those who previously would have been condemned, because of their heart condition, to a life of ill-health punctuated at variable intervals by incapacitating attacks of one of the severest colics to which man is heir.

The present thesis, based on an analysis of a series of cases studied personally together with a survey of similar reported work, is an attempt to assess the truth of this view that heart disease is associated with disease of the gall-bladder.

SURVEY OF THE LITERATURE.

The association of heart lesions and gall-bladder disease is a subject about which the standard text books of medicine, with few exceptions, remain silent. Osler, (1) describing the symptomatology of biliary colic, mentions that "Palpitation and distress about the heart may be present, and occasionally a mitral murmur occurs during the paroxysm, but the cardiac conditions described as coming on acutely in biliary colic are due to pre-existent myocardial degeneration, not infrequent in patients with gall-stones". No explanation is advanced as to the cause of this pre-existing myocardial degeneration in the subjects of cholelithiasis. Holleston and McNee (2) mentioned that "reflex constriction of the vessels in the lungs with rise of blood pressure in the pulmonary artery, as shown by accentuation of the pulmonary second sound, has been described and is supported by the experimental observation that irritation of the bile-duct induces constriction of the pulmonary vessels(Francois-Franck and Arloing). They also describe dilatation of the right side of the heart due to rise of pulmonary blood pressure (Potain) or, in some measure, to poisons absorbed from the bile ducts, or in some cases to the effect of bile-salts". They quote, in addition, from Gangolphe (3) and Riesman (4) (vide infra) and conclude by stating that myocarditis,

auricular fibrillation and cardiac failure may result from chronic infection of the gall-bladder.

Reference to the available publications reveals that this subject has attracted increasing attention since the earliest contribution was recorded in 1875.

Gangolphe (3) published in 1875 nine cases of disease of the biliary-tract in which cardiac murmurs occurred. Gueneau de Mussy (5) in 1878 stated that the cardiac murmur found in gall-bladder disease was due to the paralysing effect of bile salts upon the vasomotor and general circulatory system. Fabre (6) considered the principal lesion in the heart was a myocarditis due to the accumulation of bile salts in the blood. In 1883 Rendu (7) reported a case of biliary colic in which a systolic murmur developed; another case of colic and icterus with marked arrhythmia, and another of catarrhal jaundice with gallop rhythm but no arrhythmia. Leva (8) in 1892 reported two cases of ulcerative endocarditis resulting from gall-bladder disease, summarised as follows :-

(1) Multipara. Aged 50. Suffered from icterus and gall-stones. Suddenly developed signs of endocarditis, death occurring shortly afterwards. Autopsy showed stones in common bile duct, dilatation of the biliary passages and recent

ulcerative endocarditis of the tricuspid valve.

(2) A woman aged 44 years was admitted to hospital in a moribund state and died three days later. Autopsy revealed a recent ulcerative enocarditis superimposed on an old mitral lesion; gall-stones with dilatation of the biliary passages; pancreatic abscess and meningitis.

Leva was unable to demonstrate a definite connection between the gall-bladder lesion and the endocarditis but no other cause for the heart lesion was found. He believed that the pancreatic abscess and meningitis were definitely secondary to the gall-bladder infection. He was unable to find a description of any similar cases in the German literature but quoted from the French literature a case of multiple abscesses with biliary gravel scattered along the intra-hepatic ducts of the right lobe of the liver and an ulcerative endocarditis of the mitral valve. A common organism was isolated from each lesion. This case was reported by Martineau (9) and Netter and Martha (10). In 1893, Oddo (11), of Marseilles, reported a case of pericarditis and arrhythmia, which developed two days after an attack of biliary colic.

Tessier (12), in 1897, classified cardiac disturbances due to gastro-hepatic diseases as follows :-

(1) Intensification of the second heart sounds.

(2) Doubling of the second heart sounds.

(3) A tricuspid murmur.

(4) Complete tricuspid incompetence with a venous pulse.

In 1898 Brockbank (13), analysing the post-mortem records of Manchester Royal Infirmary for the period 1891 to 1897, found that gall-stones were present in 5.4% of the 1347 autopsies. In many of these cases the gall-stones were unsuspected during life. In the cardiac cases included in this series gall-stones were found in 10.9%. He, therefore, concluded that gall-stones were frequently met with as a secondary affection in severe cardiac lesions and attributed their production, in such cases, to passive congestion of the mucous membrane of the gall-bladder and the enforced inactivity of the patient. The incidence of gall-stones in cases of mitral stenosis was striking, being 25% in females and 16.1% in males. Burton (14) disagreed with these figures suggesting that the general incidence of cholelithiasis in Brockbank's series was far below normal, and he stated that, in a series of 3,650 consecutive autopsies at Glasgow Royal Infirmary, the incidence of cholelithiasis in cases of chronic heart disease, being 9.5%, was not greater than in other conditions.

Bard (15), in 1902, reported two cases of catarrhal jaundice with bradycardia and doubling of the second sound,

which disappeared a few days after the jaundice had cleared.

Riesman, in 1907 (16) and in 1911 (4) reported cases in which during an attack of biliary colic there developed mitral systolic murmurs which were not present previously and which disappeared after the subsidence of the pain. These he interpreted as due to temporary cardiac dilatation, due to strain and increased tension. Quincke (17), quoted by Riesman, recognised a systolic murmur at the pulmonic area in patients with jaundice but doubted whether they occurred more frequently in such cases than in other states associated with anaemia.

In 1909, Babcock (18) published the first of two interesting communications. He reported thirteen cases of gall-bladder disease with cardiac manifestations, classified clinically in the following four groups :-

(1) Five cases of pronounced cardiac incompetence showing definite dilatation with arrhythmia and feeble heart sounds accompanied by murmurs.

(2) Two cases with attacks of anginoid pain followed by evidence of myocardial insufficiency and one case exhibiting arrhythmia, moderate dyspnoea on exertion, some cardiac enlargement and dull infra-cardiac pain.

(3) Three cases of long standing intermittence of pulse

without dyspnoea or other subjective symptoms of myocardial insufficiency, two of which were much benefited by operation and thereafter showed greater freedom from intermittences of pulse.

(4) Two cases of valvular disease of the heart in which cardiac compensation was destroyed by severe attacks of biliary colic.

Babcock suggested that those cases in which cardiac signs or symptoms developed during attacks of gall-bladder disease had pre-existing myocardial damage, as chronic cholecystitis occurs in patients at or past middle age when the myocardium may well have a lowered reserve and resistance. He advanced four theories in explanation of the cardiac manifestations :-

(a) The presence of bacteria or their toxins circulating in the blood.

(b) The depressing influence of the constituents of the bile on the myocardium.

(c) The disturbance of the splanchnic circulation and secondarily of the systemic circulation and heart.

(d) The reflex inhibition of the heart by irritation of the fibres of the vagus which supply the gall-bladder.

An important section of the relevant literature is formed by the contributions of Rosenow (19) on septic foci and the elective localisation of streptococci. In a paper

entitled "Bacteriology of Cholecystitis and its Production by Injection of Streptococci" he stated that "The common presence of streptococci in the wall of the infected gall-bladder and in the centre of gall-stones, often in pure culture, while absent from the bile, and their affinity for the gall-bladder in animals is strong evidence that streptococci are the cause of cholecystitis in man far more frequently than believed and serves to explain the good results reported by some as following cholecystectomy in cases of myocarditis, arthritis and other conditions." Billings has stressed the clinical significance of Rosenows bacteriological work and it appears to be accepted generally in America.

Lichty (20) in 1915 stated that while in appendicitis the cardiac disturbance was functional, in gall-bladder disease the heart was more seriously affected. Sir Humphrey Rolleston (21) was later to confirm this view in 1920.

In 1919 Babcock (22) published his second paper in which he discussed the diagnosis of cholecystitis in some considerable detail, including useful points in its differentiation from heart disease and peptic ulcer. He made a plea for the investigation of the gall-bladder in cases of chronic heart disease. He considered that typhoid fever in earlier life was an important aetiological factor

and guardedly mentioned that Rosenow's theory of the elective nature of streptococcal infection might here have its counterpart. He included three illustrative cases, briefly summarised as follows :-

(1) Myocardial incompetence, mitral insufficiency, hepatic congestion and obesity. Auricular fibrillation present. Failed to respond to digitalis and rest in bed. Developed acute cholecystitis and was operated on four months later. Hundreds of small calculi removed and drainage established. Heart remained irregular in rhythm, but dyspnoea was less, the gastric symptoms were no longer present and the patient was able to perform the daily household duties. The strength of the myocardium thus appeared to have been increased after operation.

(2) A case of decompensated mitral stenosis with chronic cholecystitis, unrecognised until acute cholecystitis developed. Operated on in the acute stage with drainage and removal of two calculi. Cardiac compensation was restored and the patient was able to resume work.

(3) A young man with aortic regurgitation, decompensation and cholecystitis. Operation advised but refused.

Flint (23) in 1920 explained the irritability of the heart, described by Moynihan in cases of cholecystitis,

on a physico- chemical basis. He stated that bile salts increased the permeability of the lining membrane of the myocardial cells and increased the irritability of the heart muscle. The toxic action of biliverdin on the myocardium and the effect of bile salts in raising the blood pressure was demonstrated by Stewart and King. The last two papers support Babcock's suggestion referred to on page 8 (b).

Willius and Brown (24) in 1924 published a paper entitled "Coronary Sclerosis : An Analysis of 86 Necropsies". This study comprised 86 unselected, consecutive, proved cases of coronary sclerosis. At one point they stated

"Chronic cholecystitis, with or without stones, had occurred in 22 cases(26%). This high incidence is probably partly coincidental, and partly due to the fact that the disease so often manifests itself in middle or later life, when arterial degenerative changes become evident. The association of disease of the gall-bladder with sclerosis of the coronary arteries sometimes renders a correct diagnosis difficult, especially if the anginal attacks are atypical as regards the distribution of pain."

In 1924 also, Straus and Hamburger (25), writing on "The Significance of Cardiac Irregularities in reference to the opprability of cases of cholelithiasis, cholecystitis and duodenal ulcer" described cases with gall-bladder

pathology of which two showed complete disappearance of extra-systoles following cholecystectomy; and one showed at least temporary increase in the irritability of the heart muscle after operation. Straus emphasised the importance of a complete examination of the cardio-vascular system both as regards signs and symptoms and concluded that :-

"If a larger experience shows that these irregularities occurring in gall-bladder disease may be considered due to toxic effects of the gall-bladder infection and that cholecystectomy is followed by their disappearance, an additional indication for this operation will have been demonstrated."

It is disappointing that Blalock (26) in a clinical study of 735 cases of benign diseases of the biliary tract confirmed at operation performed in the Johns Hopkins Hospital between 1889 and 1924 made no mention of the cardiac condition of the patients.

In 1924 also Ransohoff (27) stated that the association of cholecystitis and myocarditis was so common as to demand serious attention. In this year also Mayo (28) quoted cases of myocarditis and various types of cardiac arrhythmias in which the cardiac manifestations were relieved or improved after surgical treatment of the biliary tract.

Cunliffe Shaw (29) in 1925 described an experimental

study of "Nerve Irritation and Aortic Lesions" and stated that "operative irritation of vagi in rabbits produced endarteritis of aorta, more particularly of the first part of the aortic arch in the region of the aortic valve. These pathological changes appear constant and progress through a definite sequence." He did not suggest that this observation has any clinical application but thought it an interesting possibility. This experimental finding appears to support Babcock's explanation of the presence of cardiac manifestations in gall-bladder disease-page 8 (d).

Olch (30) in 1927 reviewed the end results in 100 consecutive cases of chronic cholecystitis, diagnosed by cholecystography and treated by cholecystectomy but remained silent on the state of the cardio-vascular system. Later, in 1928 Young (31) in a similar study evaded the same issue.

In 1928 Moynihan (32) in a long discussion on the gall-bladder and its infections omitted any reference to the cardio-vascular system in the symptomatology of early cholecystitis but made a plea for the earlier performance of cholecystectomy.

The year 1929 yielded several interesting contributions to the question of gall-bladder disease and focal infection. No doubt this resulted from the stimulus which the whole study of the clinical manifestations of gall-bladder dysfunction received by the introduction of cholecystography by Graham and his colleagues. These investigators published their experience in this direction in book form

in 1929(33) and in discussing the value of cholecystography in differential diagnosis stated "we have observed brilliant results in cases of heart disease following cholecystectomy, in which cholecystography had revealed a pathological gall-bladder. We know of suspected cases of angina pectoris receiving complete and permanent relief following cholecystectomy after it had been determined that there was a pathological gall-bladder. In these pathological conditions which may be ascribed to a hidden focus of infection, cholecystography will often reveal a diseased gall-bladder which is symptomless."

In 1929 D.P.D. Wilkie (34) published "Remarks on the Gall-Bladder in Relation to Focal Infection". He was convinced, from the work of Rosenow (19) and from his personal experience in association with Illingworth(35) and A.L. Wilkie (36) in Edinburgh, that gall-bladder infection was a definite blood-borne infection of the wall of the gall-bladder by a streptococcus which had a specific affinity for this tissue. It was shown in the Edinburgh investigation that whilst the bile was usually sterile there could be isolated from the wall of the gall-bladder, and still more readily from the cystic gland, a streptococcus which was killed or inhibited by bile. This streptococcus was of the "viridans" variety and on intravenous injection of an emulsion of this organism chronic cholecystitis was produced in rabbits. B.coli was rarely found in chronic gall-bladder disease but was present more commonly in acute obstructive cholecystitis.

It was stated that:-

"The conception of chronic cholecystitis as a blood-borne streptococcal infection situated within the wall of the gall-bladder, indolent, slow, tenacious, causing at first little interference with the bile storage and concentrating functions of the organ, but permitting of streptococcal invasion of the lymph stream, as evidenced by the frequent presence of the organism in the cystic lymph gland and thence possibly infection of the blood stream— this conception, now a proven reality, establishes the important role which the gall-bladder may play as a focus of infection. There is now a considerable body of truth that a chronic streptococcal infection may have an intimate aetiological relationship to many of the so-called chronic rheumatic conditions of joints and of fascial planes, to myocardial degeneration, to certain renal conditions, and to some affections of the central nervous system."

The clinical details of illustrated cases were recorded.

Illingworth (37), in 1929, described a clinical and experimental study of cholesterosis (the "Strawberry" Gall - Bladder of Moynihan) but made no mention of the state of the cardio-vascular system.

In 1929 also Leech (38) introducing the report on an investigation of "The Association of Gall-Bladder Disease and Heart Disease" stated :-

"There long has been a general impression among surgeons and internists that there is more than a casual association between diseases of the gall-bladder and diseases of the heart or disturbances of its mechanism. It has been thought that gall-bladder operations are complicated more often by post-operative deaths and cardiac accidents than are other operative procedures of similar gravity."

This study by Leech appears, from the report, to have been thorough and impartial, but his method of bacteriological investigation and its negative results appears open to criticism, as material for culture and guinea-pig inoculation was obtained from the contents of the gall-bladder only, which, as shown by the work of Rosenow, and confirmed by Illingworth and A.L.Wilkie, was usually sterile due to the inhibitory effect of the bile on the growth of organisms. His general conclusion was :-

"that there is no definite relationship between gall-bladder disease and disease of the cardio-vascular system. The patient with gall-bladder disease who also has organic lesions of the heart is no poorer risk than he would be for any other operative procedure of similar severity. A small percentage of patients with gall-bladder disease may show the effect upon the heart muscle of increase or diminution of the bile-salts in the blood. There is a suggestive relationship between obesity and gall-bladder disease."

Schwartz and Herman (39) in 1931 published a paper of outstanding interest and importance. It is introduced as follows:-

"Instances in which infections of the gall-bladder are complicated by affections of the heart are numerous and most physicians have had more or less experience with the association. It is well known that an existing cardiac infection may be greatly aggravated by a superimposed acute or chronic cholecystitis, and, likewise, the idea is gaining ground that a chronically diseased gall-bladder may act as a focus of infection, initiating baneful changes upon organs and tissues unassociated with the gastro-intestinal tract".

They summarised their results and conclusions thus :-

"(1) 109 patients with chronic cholecystitis were studied.

(2) 63.3% had associated myocardial disease, of which 56.5% were combined with obesity.

(3) 52.2% of the entire group were obese.

(4) 68% of the obese patients had heart disease.

(5) In the fourth and fifth decades the incidence of heart disease was greater in the obese.

(6) Hypertension was present in 28.1% of the cardiac cases with obesity and in 16% of the cardiac cases without obesity.

(7) 62.3% of the cardiac cases were of the chronic

myocardial variety and were not accompanied by arterio-sclerosis or hypertension.

(8) 71% of the cardiacs were well marked cases of which 15.9% were decompensated.

(9) Clinically severe cholecystitis did not differ from clinically mild cholecystitis in its effect upon the heart.

(10) Males are less frequently subject to cholecystitis than females, and in this series were older, ran a more severe course, and had greater cardiac damages.

(11) It is adduced, from data obtained in this study that the infected gall-bladder and obesity are equally responsible for the myocardial damage of patients with chronic cholecystitis".

The question of focal sepsis was also discussed. It was found to be present in 106 of this series of 109 gall-bladder cases in the form of diseased tonsils, chronic sinusitis, dental caries, endocervicitis or mild prostatic disease. The group of patients without gall-bladder lesions, used as a control, had a similar incidence of focal infection.

A similar investigation to that of Leech (38) and to that of Schwartz and Herman (39) was reported earlier by Willius and Fitzpatrick(40) in 1925.

In 1932, Miller (41), writing on "The Gall-Bladder and Cardiac Pain" concluded that :-

(1) Disorders of both organs may be present in the same patient.

(2) Cases have been quoted in which surgical treatment of the gall-bladder has been followed by relief from both types of pain.

(3) If there is any reason to suspect the gall-bladder in any patient who has cardiac pain a full investigation of the gall-bladder should be made, and if sufficient evidence is found, operation should be advised.

(4) A study of morbid anatomy reveals the fact that in subjects with diseased gall-bladders the degree of arterial degeneration was higher and the cases of severe arterial degeneration were more numerous than in those whose gall-bladders were healthy.

(5) That being so, it would appear to be rational to deal thoroughly with cases of cholecystitis or gall-stones as soon as diagnosed."

D.P.D.Wilkie (42) writing in 1933 again stressed the importance of the distant toxic effect of intramural infection of the gall-bladder on the myocardium.

In 1935 Finney and Mohr (43) published an excellent paper on "Coronary Occlusion Simulating an Acute Abdominal Emergency" and mention that the connection between chronic gall-bladder disease and myocardial damage must be regarded as fairly well established.

FitzHugh and Wolferth (44) in 1936 described the electrocardiographic evidence in cases of associated heart and gall-bladder disease. Reference to "a growing conviction that chronic gall-bladder disease may either initiate or aggravate actual heart disease" and to "the successful removal of gall-stones, preferably by cholecystectomy, being followed by :-

(a) Restoration of cardiac compensation in a few cases of congestive heart failure.

(b) Restoration of normal rhythm in certain cases of chronic or paroxysmal auricular fibrillation and paroxysmal tachycardia.

(c) Marked amelioration and sometimes apparent cure of a more or less incapacitating syndrome of angina pectoris or of what at first seemed to be a major coronary occlusion " was made. The electrocardiograms and clinical details of the six cases with gall-bladder disease and cardiac symptoms, which were benefited after operation, followed and the conclusion was drawn that gall-bladder disease may injure the myocardium and that patients with findings suggestive of myocardial or coronary disease in addition to gall-stones

were usually benefited by cholecystectomy. It was also stated, however,

" (a) that many patients with gall-stones failed to present evidence of heart disease.

(b) that not all patients with associated gall-stones and heart disease are benefited by gall-bladder surgery.

(c) That occasionally a catastrophic coronary occlusion may occur during an attack of smouldering calculous cholecystitis."

This paper was reviewed in the Medical Annual of 1936 by Gibson (45) who concluded "that there must be a close connection between the two conditions which is deserving of further study."

In 1936 Boyd Campbell (46) reported 9 cases in which coronary thrombosis occurred in patients the subjects of cholelithiasis and cholecystitis. Willius and Brown(24), already quoted, found this association in 24% of their cases. Barker, Wilson and Coller (47) mention one case in which both coronary disease and cholelithiasis were present. Miller (41), quoted previously, from a study of morbid anatomy found an increase in degree and incidence of arterial degeneration in cases of gall-bladder disease, while FitzHugh and Wolferth (44) also suggest the association. John Hay (48) in an article on "Certain Aspects of Coronary Thrombosis" made no reference to it. The experimental work by Cunliffe Shaw (29) described on page 12 is of interest in this connection.

The difficulty in differentiating angina pectoris or coronary thrombosis from acute upper abdominal lesions, in some cases, has been given prominence in many papers, including, amongst others, those by Willius and Brown (24); Miller (41); Finney and Mohr (43); FitzHugh and Wolferth(44); Barker, Wilson and Coller(47); Hay (48); McNee (49); Akana, Greeley and Farr (50); Parkinson and Bedford (51); Hamman (52); Mackenzie (53); Vest (54); Hall (55); Gould(56); Katz (57); Brown (58); Weiner (59); Boyd Campbell (46) and Graham, Cole, Copher and Moore (33). The classical case is probably that of John Hunter who died of coronary thrombosis after numerous anginoid attacks, the earliest of which, according to Mackenzie (53), should be attributed to the gall-stones found post-mortem.

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CONCLUSIONS BASED ON BIBLIOGRAPHY.

From the preceding survey of the literature the following conclusions seem possible:-

(1) Myocardial degeneration is not infrequently found in cases of cholecystitis and/or cholelithiasis. (1,3,4, 7,13,16,18,19,20,22,25,27,28,34,39,41 and 43).

(2) The clinical manifestations of gall-bladder disease may simulate closely disease of the heart, particularly coronary artery disease, and the reverse is equally true. (24,33,41,43,44,46,47,48,49,50,51,52,53,54,55,56,57,58 and 59).

(3) The cardiac condition has been benefited by surgical treatment of the gall-bladder lesion, in a proportion of these cases. (18,19,22,25,28,33,34,41,44 and 45). It is difficult, in assessing these cases, to decide whether to attribute this amelioration of the cardiac manifestations to the removal of the noxious influence of a pathological gall-bladder or to the beneficial effect of the period of enforced rest in bed, a measure which must always favour a return to normal on the part of the myocardium.

(4) Although a few examples of infective endocarditis occurring in cases of gall-bladder infection have been reported (8,9,and 10), there has been no unequivocal proof that the endocarditis was secondary to the invasion of the gall-bladder with pathogenic organisms and any murmurs

developing during an attack of cholecystitis are to be regarded as belonging to the so-called "functional" class, dependent upon dilatation of the chambers of the heart, and thus, indirectly, on the state of the myocardium.

(5) Associated factors e.g. obesity, age, and etc. must be considered in assessing the possibility of any direct relation between gall-bladder lesions and heart disease (38 and 39).

(6) The theory of submural streptococcal infection arising in the gall-bladder substance and thence spreading to the myocardium via the lymphatic and blood channels, as sponsored by Rosenow and supported by D.P.D.Wilkie and others, constitutes the most generally accepted explanation of the relationship between lesions of the gall-bladder and heart (19,34,35 and 36).

(7) There is some evidence to suggest an increased incidence of lesions of the coronary arteries in the subjects of gall-bladder disease (24,29,41,44,46 and 47).

(8) The operative treatment of gall-bladder lesions, by cholecystectomy where possible, should not be delayed long and is not contra-indicated by the presence of a cardiac lesion provided the state of the heart is compatible with the patient surviving the operation (25,32, and 41).

DESCRIPTION OF PRESENT INVESTIGATION.

The present investigation is based on a personal study of 65 consecutive cases of gall-bladder disease admitted to the wards of Mill Road Infirmary, Liverpool. The patients were either diagnosed as suffering from cholecystitis or cholelithiasis on admission or were found, on investigation, to have gall-bladder lesions. The cases, therefore, varied considerably in the acuteness and duration of symptoms and may be claimed as widely representative.

To facilitate uniformity and completeness of the records special tabulated case-sheets were prepared, as set out below :-

MILL ROAD INFIRMARY
LIVERPOOL.

THE ASSOCIATION OF CHOLECYSTITIS WITH HEART DISEASE.

Name..... Age.....

Address..... Ward.....

Admitted..... Discharged.....

Complaint :

Previous Health:

1. Previous Attacks of Complaint:
2. Rheumatism; Scarlet Fever; Chorea; Tonsillitis;
3. Diphtheria; Syphilis;
4. Obstetric History;
5. Jaundice;
6. Any other illness.

History of Present Complaint:

Nausea

Vomiting — Colour

Heartburn

Flatulence

Constipation — Colour of stools

Dysuria

Frequency

Polyuria — Colour of urine

Cough

Sputum

Dyspnoea — On exertion — At rest

Oedema

Palpitation

Weight — Stationary. Increasing. Decreasing.

Date of increase of weight.

Pain — Distribution

Nature

Relation to food
Relation to exercise
Relieved by vomiting
Relieved by alkalies
Relieved by eructation
Relieved by rest

Intolerance of fats

Jaundice

Itchiness of Skin

Headaches — Distribution. — Nature.

Nasal catarrh

Habits — Alcohol — Tobacco

Family History.

CLINICAL EXAMINATION OF PATIENT.

Nutrition

Weight

Dyspnoea

Cyanosis

Oedema

Clinical Evidence of Anaemia

Mucous membranes

Koilonychia

Clubbing of Fingers and Toes

Thyroid

Tongue

Teeth

Jaundice

Fibrositis

ABDOMEN.

General Configuration

Pain

Tenderness

Rigidity

Murphy's Sign

Liver Dulness

Gall-bladder	Palpable.	Not palpable.
Kidneys	ditto	ditto
Spleen	ditto	ditto

Ascites

CARDIO-VASCULAR SYSTEM.

Pulse Rate Quality

Arterio-sclerosis

Area of Cardiac Dulness

Apex beat

Heart sounds Quality

Accentuation

Rhythm

Murmurs

Pericardial friction

Pulsation in great veins of neck.

RESPIRATORY SYSTEM.

Emphysema

Bronchitis

Any other condition

GENITO-URINARY SYSTEM.

Leucorrhoea

Any other condition

CENTRAL NERVOUS SYSTEM.

Investigation of case

Blood Pressure

Wassermann Reaction

Optic Fundi

Exercise Test

Electro-cardiograms

Urea Clearance Test

Urine

Cholecystogram

Icterus Index

Blood Examination

IMPRESSION.

COURSE OR OPERATIVE FINDINGS.

CONDITION ON DISCHARGE.

FOLLOW-UP.

CONCLUSION.

In recording the patient's history special importance was attached to the duration of symptoms referable to the gall-bladder and heart, such as pain, nausea, vomiting, flatulence, jaundice, intolerance of fats, dyspnoea on exertion, palpitation, oedema and date of increase in weight; rheumatic fever, scarlet fever, chorea, recurrent tonsillitis, diphtheria, syphilis and the obstetric record were carefully noted when enquiring into the patient's previous health. The family history was recorded accurately in all cases and attention paid to the patient's consumption of alcohol and tobacco.

Full routine clinical examination included a study of the optic fundi with special reference to the state of the blood vessels. Attention was directed to the detection of focal sepsis in teeth, tonsils, accessory sinuses and genito-urinary tract. The co-existence of other conditions in which focal sepsis may play a part e.g. rheumatoid and osteo-arthritis, fibrositis and thyrotoxicosis was noted.

The mucous membranes, conjunctivae and finger nails were closely inspected for evidence of anaemia and a blood count was carried out in all cases where these examinations suggested its utility. The state of nutrition was also noted.

The assessment of the condition of the cardio-vascular system was based on the symptoms, clinical findings and electrocardiographic evidence. Importance was attached to the presence or absence of dyspnoea on exertion, or, in extreme cases, of orthopnoea; of oedema of the feet occurring after exercise; cardiac pain and palpitation. Clinical examination laid emphasis on the area of cardiac dulness as detected by percussion, the situation and nature of the apex beat, the quality of the heart sounds, the presence of irregularities of rhythm and the condition of the peripheral vessels. In auscultation and percussion allowance was made as far as possible for such factors as emphysema and obesity where these conditions were present. The cardiac reserve was investigated by using a simple exercise test in which the patient moved from the sitting position to the dorsal decubitus and then returned to the sitting position on six occasions at short and equal intervals. The change in pulse rate, the time required for the pulse to return to its resting rate and the presence and degree of orthopnoea were used in assessing the patient's tolerance to this exercise. An electrocardiogram was obtained shortly before operation and another before discharge after convalescence from the

operation, whilst in cases in which operative measures were not used one electrocardiogram only was obtained, unless further records were specially indicated. The Urea Clearance Test was carried out in most cases before operation and, where indicated, was repeated before the patient was discharged.

The assessment of the state of the gall-bladder was founded on a careful analysis of the symptomatology, physical signs, direct radiology and Graham's cholecystography. Flatulent dyspepsia, intolerance of fats, severe colic or dull ache in the right hypochondrium, epigastrium or beneath the right scapula with tenderness over the region of the gall-bladder, Murphy's sign and the presence of a palpable gall-bladder were the criteria searched for. Lesions of the stomach, duodenum, liver, renal tract, appendix, reproductive organs, lungs, pleura and coronary arteries, in addition to such conditions as edentulous, or other forms of gastritis, tabes dorsalis, osteo-arthritis of the spine, fibrositis, diabetes mellitus, visceroptosis and etc. were differentiated as carefully as possible. Routine cholecystography was employed, the dye being administered orally. The intravenous technique was used on several occasions in which the findings obtained after the oral technique, were equivocal. Lyon's duodenal intubation method was not employed as many of the patients were only too prone to leave hospital against medical advice before operative measures could be carried out, and

it was felt that the embarrassment of this investigation would not be tolerated as a routine measure. Gastric analysis and radiological examination of the gastro-intestinal tract were made where necessary and especially to exclude, as far as possible, the presence of atypical peptic ulcer.

The icterus index and Van den Bergh reaction were estimated in all cases with jaundice, whilst the Wassermann Reaction was a routine investigation. After studying the literature (60 and 61) it was decided that nothing would be gained from making a routine estimation of the blood cholesterol, as the estimates of its normal value vary within wide limits and as it is influenced by various factors unrelated to gall-bladder disease.

Operation was advised in the following types of cases:-

(1) Cases with symptomatic, clinical and radiological evidence of a pathological gall-bladder. In these cases slight or moderate myocardial damage was not considered a contra-indication to operation.

(2) Cases with symptomatic and clinical evidence of myocardial damage, which, on investigation, revealed clinical and/or radiological evidence of a pathological gall-bladder.

Gross cardiac failure, extreme old age or severe respiratory disease constituted contra-indications to operation in both groups of cases.

Cholecystectomy was the treatment employed in all cases in which this was possible. In a few cases of cholecystitis

the adhesions found at operation were of such a nature as tomake cholecystotomy the operation of choice. Cases with lesions of the biliary passages received such operative measures as the local conditions dictated.

The gall-bladder and its contents were examined personally after removal, the condition of the wall and contents of the gall-bladder and the nature of any calculi, together with any other feature, being noted. Microscopic sections of the removed gall-bladders were made and examined.

All cases treated by surgery were seen from time to time during convalescence and received a full examination at the beginning of the fourth week after operation just prior to discharge. This time was chosen as the patient had then been up and walking, and thus the beneficial effect on the myocardium of rest in bed was to some extent excluded.

In an attempt to follow up all the cases, both operated and unoperated, each patient was requested to report at hospital. The response to this appeal was satisfactory and each patient, who reported, was examined with special reference to the relief, or otherwise, of previous symptoms and to the state of the cardio-vascular system. Electrocardiograms were also obtained. The period elapsing between admission to hospital and the follow-up examination is variable and ranges from two months to over one year.

Throughout the whole investigation all the clinical

examinations were carried out personally and thus comparability of clinical notes can be claimed.

EPITOME OF CASE RECORDS.

From considerations of space and for the sake of brevity the following case records are presented in summary form. A list of the abbreviations used is appended below. Negative findings are not included, except where considerable importance is attached to them. The figures following notes on the area of cardiac dulness refer to the distance of the left border of the area of cardiac dulness from the mid-sternal line, the unit used being inches. All blood pressure figures are expressed in milligrammes of mercury.

LIST OF ABBREVIATIONS.

P.H.	=	Previous Health.
H.P.C.	=	History of Present Complaint.
F.H.	=	Family History.
G.B.	=	Gall-Bladder.
C.V.S.	=	Cardio-Vascular System.
B.P.	=	Blood Pressure.
C.N.S.	=	Central Nervous System.
N.A.D.	=	No Abnormality Detected.
W.R.	=	Wassermann Reaction.
E.C.G.	=	Electrocardiogram.
U.C.T.	=	Urea Clearance Test.
I.S.Q.	=	In Statu Quo.
F.T.M.	=	Fractional Test Meal.
L.V.P.	=	Left Ventricular Preponderance.
R.V.P.	=	Right Ventricular Preponderance.
C.B.D.	=	Common Bile Duct.

Case No.1. Sex: Female. Age: 59 years.

Complaint: Attacks of pain in the left epigastrium accompanied by vomiting and diarrhoea for years.

Previous Illness: Rheumatic Fever at 16 years.
Scarlet Fever at 16 years.
Obstetric History- multiparous.

H.P.C. Numerous attacks for many years of pain in the left epigastrium passing through to the back, severe in nature and accompanied by nausea, vomiting and moderate flatulence. Intolerance of fats. Stout since girlhood, but has reduced in weight during the past 6 months. No history of jaundice, oedema, breathlessness or upset in micturition.

Habits: Mild consumption of alcohol and tobacco.

F.H: Nil significant.

Clinical Findings: Obese patient. Slight dental sepsis. Fibrositis

Abdomen: Prominent and obese. Tender over G.B. Murphy's sign positive. G.B. just palpable.

C.V.S.: Arterio-sclerosis present. Heart sounds of fair quality. Rhythm normal. Systolic murmur at the apex and base due to atheroma. B.P. 138/96.

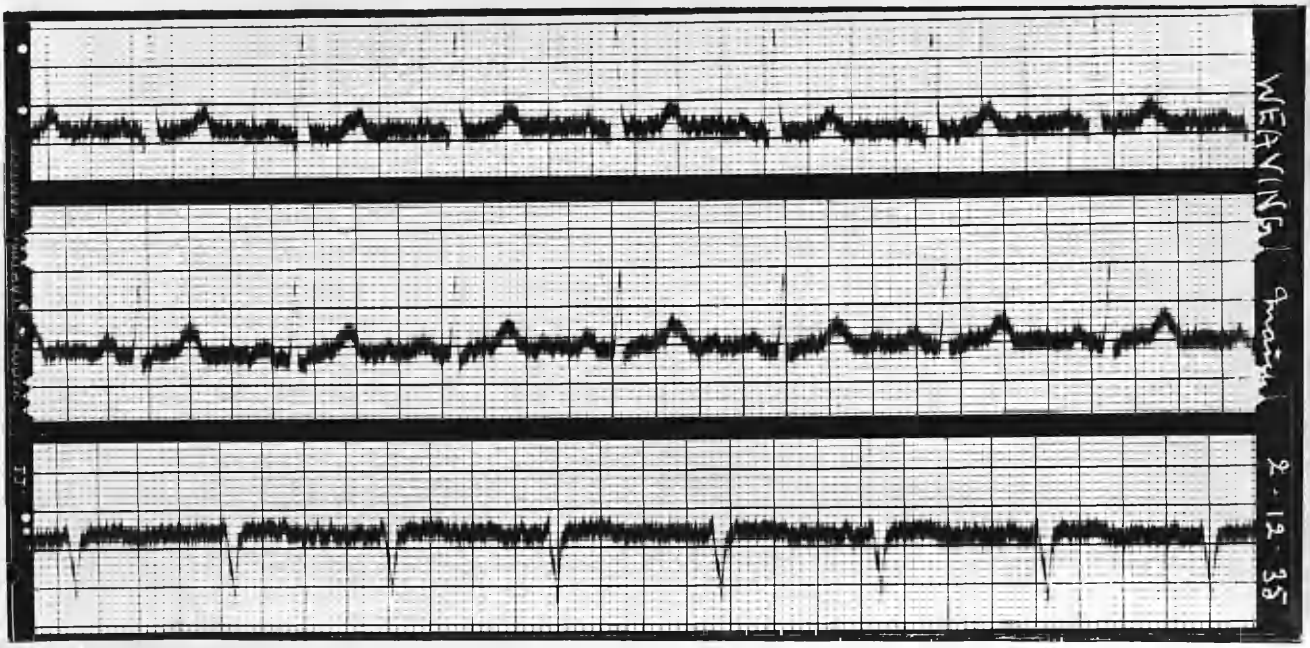
Respiratory System: N.A.D. C.N.S: N.A.D.

Genito-Urinary System: N.A.D.

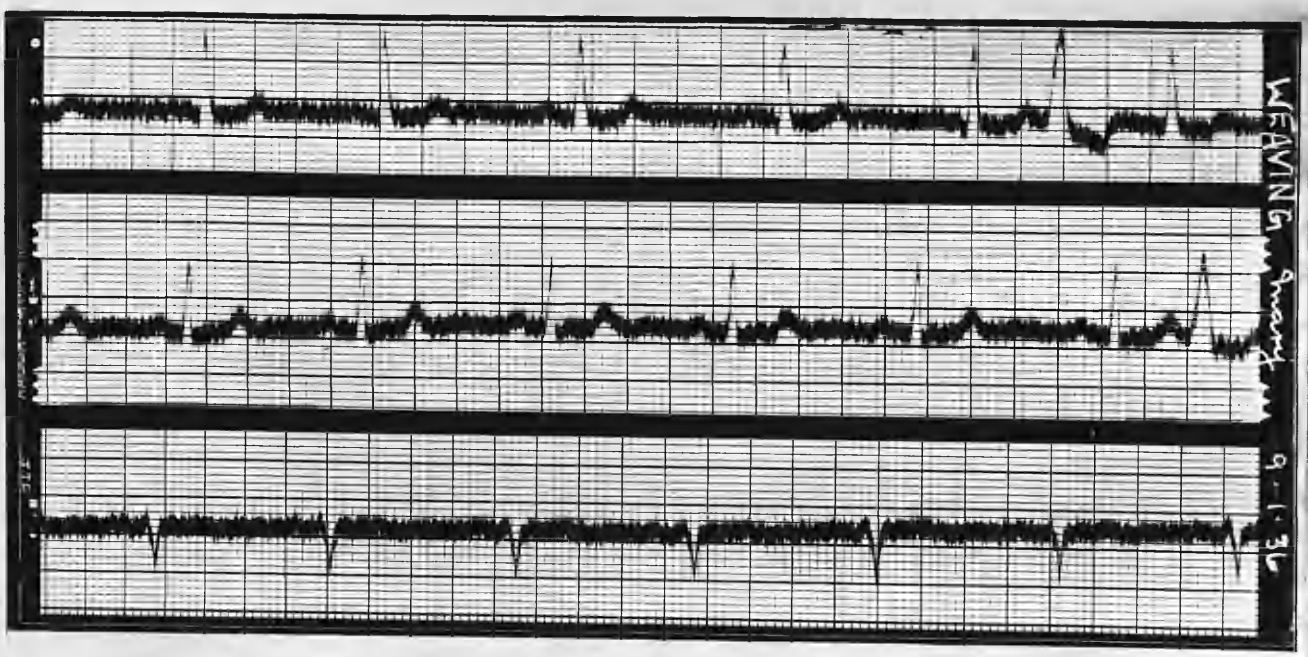
Osteo-arthritis of knees and shoulders.

Case No.1

Pre-operative E.C.G.



Post-operative E.C.G.



Investigations: W.R. negative. Exercise Test: Moderate increase in pulse and respiration. Slight delay in return to normal. Pre-operative E.C.G: Left Ventricular Preponderance. Poor P.1. U.C.T.: Moderate renal function. Urine: Normal. Icterus Index and Blood Cholesterol: Normal. Cholecystogram: Subnormal function of G.B. No evidence of stones.

Impression: Cholelithiasis. No myocardial lesion.

Operative Findings: G.B. adherent to duodenum, making cholecystectomy impossible. Stone has perforated into duodenum. Cholecystectomy performed.

Condition on Discharge: General condition improved.

C.V.S: I.S.Q.

Post-operative E.C.G. L.V.P. P.1 still poor. Extra-systoles.

Case No.2. Sex: Female. Age: 33 years.

Complaint: Acute attack of pain in the right hypochondrium with vomiting.

P.H: No previous attacks.

Obstetric History: Twins born almost 5 years ago.

H.P.C: Nausea and vomiting during the attack of pain. Flatulence for one week. Pain occurred in right hypochondrium and spread between scapulae, and was partially relieved by eructation. Intolerant of fats for two weeks. Frequency of micturition 1 week. No other symptoms.

Habits: Very small tobacco consumption. No alcohol.

F.H: Nil significant.

Clinical Findings: No obesity or obvious focal sepsis. No jaundice.

Abdomen: Tender over G.B. Murphy's sign negative. Liver dulness normal. G.B. not definitely felt, but right kidney palpable.

C.V.S: Quality of sounds slightly poor. B.P. 100/70. Nil else abnormal.

Other Systems: N.A.D.

Investigation: W.R: negative. Exercise Tolerance Test: Within normal limits. U.C.T: Some impairment of renal function. Urine: N.A.D. Cholecystogram: (I.V.) Pathological G.B.

Icterus Index and Blood Cholesterol: Negative.

Case No.2

Post-operative E.C.G.

Follow-Up E.C.G.

Barium Meal: Stomach and bowel normal.

Pre-operative E.C.G.: Not done.

Impression: Cholecystitis. No cardiac lesion.

Operative Findings: Cholecystectomy and appendicectomy. G.B. thickened and adherent. Stomach and duodenum normal.

Report: Chronic fibroid G.B. Little active inflammation now. Simple subacute appendicitis.

Condition on Discharge: General condition excellent. No symptoms.

C.V.S: Normal. Heart sounds improved in quality.

Post-operative E.C.G: Left Ventricular Preponderance. Low voltage lead 3. Poor P.1 and P.2 waves. T.1 and T.2 large.

Follow-Up: Nine months after operation: No pain or dyspepsia. On ordinary diet. No dyspnoea or oedema.

On examination: General condition satisfactory.

C.V.S: N.A.D.

E.C.G: Low voltage lead 3. P.1 improved. P.2 poor. T.1 and T.2 large.

Conclusion: Subacute appendicitis and chronic cholecystitis. Symptoms probably referable to appendix. No cardiac lesion.

Case No.3: Sex: Female. Age: 38 years.

Complaint: Pain in right hypochondrium spreading through to right angle of scapula.

P.H.: Nil important.

H.P.C: Two attacks of severe pain in right hypochondrium passing through to angle of right scapula and accompanied by nausea and vomiting. No jaundice. No other symptoms.

Clinical Findings: Slight cyanosis. No jaundice.

Abdomen: Tender in right hypochondrium. G.B. enlarged and palpable.

C.V.S: N.A.D.

Other Systems: N.A.D.

Investigation: Urine: Trace of albumin and pus but no renal elements. Cholecystogram: Pathological G.B.

Impression: Cholelithiasis and mucocele of G.B.

Operative Findings: Cholecystectomy performed. G.B. full of calculi, very oedematous, and shows recent inflammatory adhesions.

Post-Operative Course: First Day: General condition poor. Pulse 154/minute. Temperature 97°. Condition of heart unsatisfactory. Digitalin prescribed.

Third Day: Sudden collapse with cyanosis and death in 10 minutes.

No autopsy permitted.

Conclusion: Cholelithiasis treated by cholecystectomy. Death on third day after operation from cardiac collapse, ? pulmonary embolism.

Case No.4. Sex: Female. Age: 42 years.

Complaint: Attacks of severe pain in right hypochondrium.

P.H: "Influenza" seven years ago. ? Jaundice at twelve years.

Obstetric History: Three normal pregnancies. No miscarriages.

H.P.C. Attacks of severe pain in right hypochondrium and spreading through to lower angle of right scapula and to both arms, over the past nine years. Nausea, severe flatulence, and vomiting of bile-stained material during the attacks of pain. Intolerant of fats for six years. No other symptoms.

Habits: No alcohol, or tobacco.

F.H. Nil significant.

Clinical Findings: Nutrition normal. No anaemia or jaundice. Some dental sepsis.

Abdomen: No tenderness. Murphy's sign negative. Liver dulness normal. G.B. not palpable.

C.V.S. No cardiac enlargement. First sound poor, with slight accentuation of the second sound at the base. B.P. 140/96.

Other Systems: N.A.D.

Investigation: Exercise Tolerance: satisfactory.

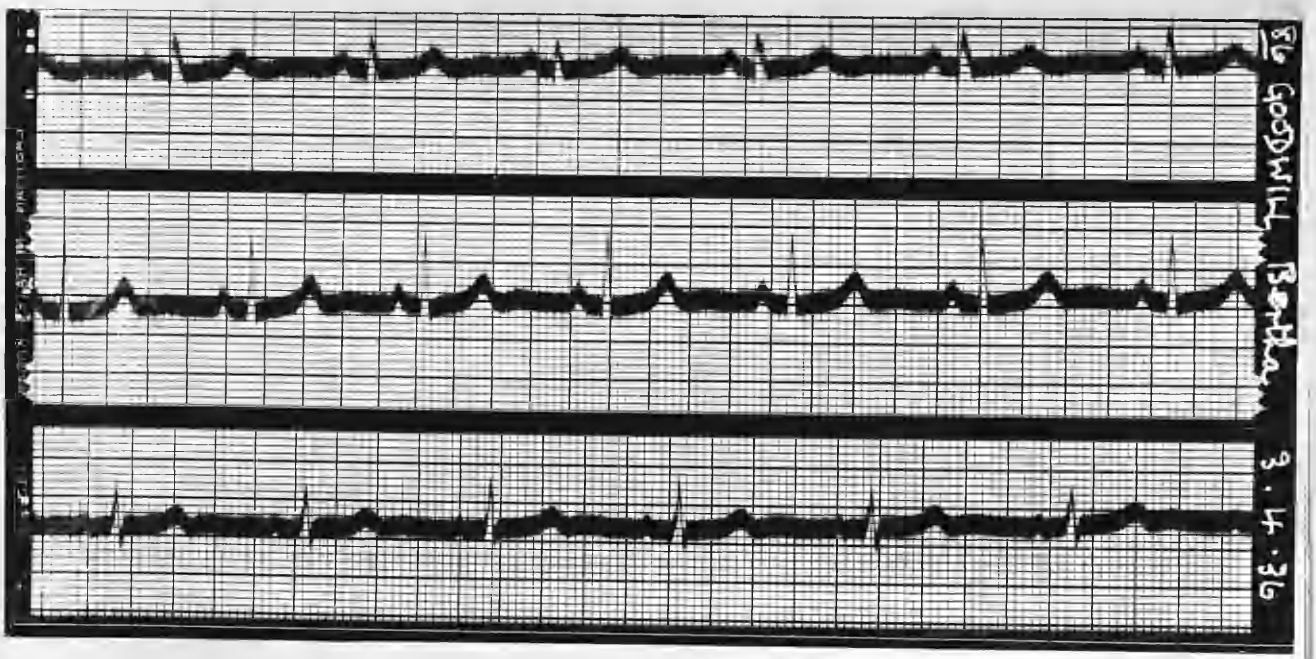
Pre-operative E.C.G. Low voltage lead 1.

U.C.T. Moderate renal function. Urine: Normal.

Cholecystogram: G.B. pathological and contains multiple stones.

Case No.4.

Pre-operative E.C.G.



Post-operative E.C.G.

Impression: Cholelithiasis.

Operative Findings: G.B. slightly thickened. Mucosa ulcerated at one area. Two generations of calculi totalling 17.

Report on G.B. Thin wall with slight leucocytic infiltration.

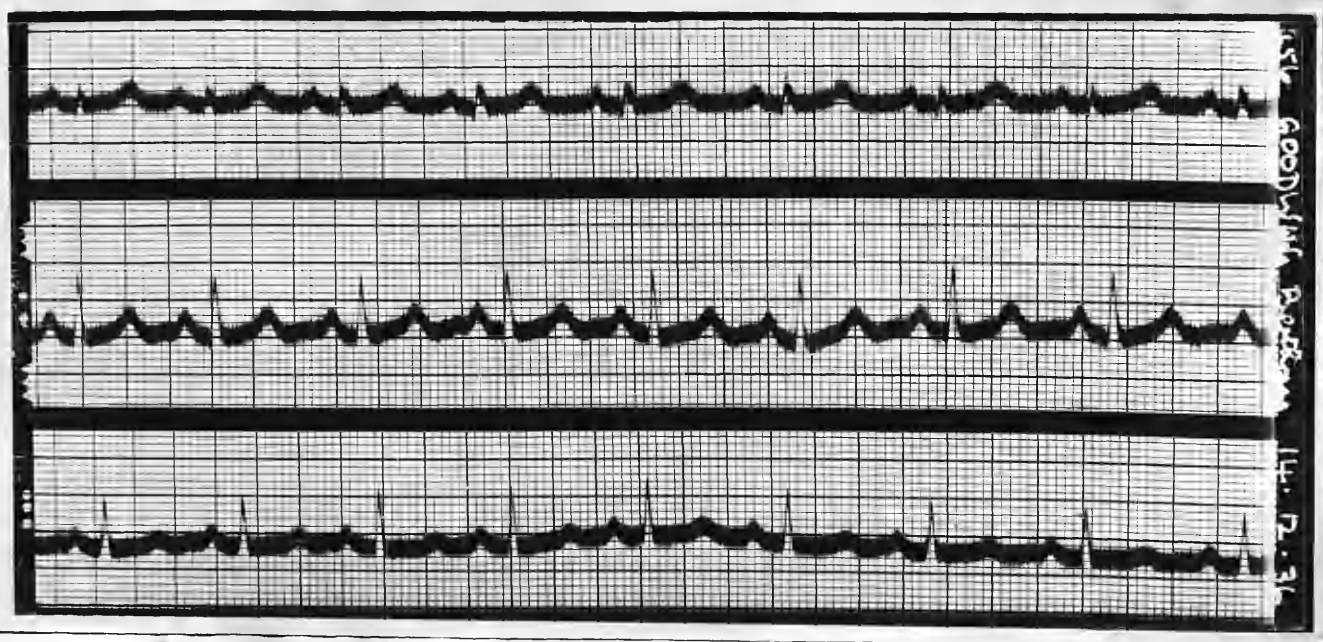
Condition on Discharge: General condition satisfactory. Previous symptoms absent. C.V.S. Normal. Post-Operative E.C.G: Low voltage lead 1. P.3 and T.3 poor.

Follow-Up: 35 weeks later patient very well and has no symptoms. Dental sepsis present.

C.V.S: N.A.D. B.P. 150/110.

E.C.G: Low voltage and splaying of QRS in lead 1 Lead 3 improved.

Conclusion: Cholelithiasis benefited by cholecystectomy. No manifest cardiac lesion.



Case No.5. Sex: Female. Age:35 years.

Complaint: Attacks of colic in right hypochondrium.

P.H. "Influenza" five months before admission.

Obstetric History: Three normal pregnancies. One miscarriage.

H.P.C. Attacks of severe colic in the right hypochondrium during the past two years. Pain occasionally spread through to the back and across the epigastrium and was slightly relieved by vomiting and eructation. Nausea, vomiting, and severe flatulence during each attack. Intolerant of fats for one year. No other symptoms. No jaundice.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Nutrition normal. No evidence of anaemia or jaundice. Slight dental sepsis.

Abdomen: Tender over G.B. which is palpable with negative Murphy's sign.

C.V.S. N.A.D. B.P. 158/80.

Other Systems: Normal.

Investigation: Exercise Tolerance: Satisfactory.

Urine: Normal. Blood Cholesterol: Normal.

Straight X-ray of Abdomen: G.B. packed with stones, one of which is impacted in the cystic duct.

F.T.: Hypochlorhydria with delay in emptying.

Impression: Cholelithiasis. No cardiac lesion.

Case No.5.

Post-operative E.C.G.

Follow-Up E.C.G.

Operative Findings: Cholecystectomy and appendicectomy performed. Large thickened G.B. projecting below liver margin. Well marked hepatitis around G.B. with considerable oedema in related structures. Large stone in cystic duct. Common bile duct normal. Two types of calculi-

(a) Small pigmented facetted calculi

(b) A series of larger stones containing calcium and cholesterol. Appendix normal.

Condition on Discharge: General condition excellent. Previous symptoms absent. C.V.S.: Normal. B.P. 140/90. Post-Operative E.C.G. Normal.

Follow-Up. Three months after operation: Patient feels very well. No symptoms. C.V.S. Normal. Eight months later very well. No symptoms. C.V.S. Normal. E.C.G. T.1. and T.2. Large.

Conclusion: Cholelithiasis cured by cholecystectomy. No cardiac lesion.

Case No.6. Sex: Female. Age: 41 years.

Complaint: Attacks of pain in right hypochondrium.

Pneumonia twenty years ago. Scarlet Fever thirty-three years ago.

Obstetric History: Three healthy children. No miscarriages.

Gynaecological Operation: Year not remembered.

H.P.C: About thirty attacks of severe colic during the past seven years in the right hypochondrium and passing through to the back. The pain is partially relieved by vomiting and eructation which are marked features of the attacks. Jaundice present in some of the attacks. Occasional frequency of micturition with dysuria during the attacks of biliary colic. Dyspnoea on exertion for three years with palpitation, most marked in the past year.

Habits: Mild cigarette smoker. No alcohol.

F.H. Nil significant.

Clinical Findings: Thin nervous patient with some anaemia. No jaundice or dental sepsis.

Abdomen: Mid-line sub-umbilical scar. Tender in right hypochondrium. Murphy's sign present. Liver dulness normal.

C.V.S: No cardiac enlargement-$3\frac{1}{4}$".

Quality of heart sounds normal with slight accentuation of A.2 and P.2. B.P. 210/110. (Emotional).

Other Systems: Slight leucorrhoea.

Investigation: Exercise Tolerance: Definitely impaired.

Pre-operative E.C.G. L.V.P. Low voltage 2 and 3.

Urine normal.

Cholecystogram: Some concentration of dye in G.B.

F.T.M: Achlorhydria. X-ray of renal tract: No stones present. Blood Count: Moderate secondary anaemia.

Impression: Cholelithiasis. Secondary anaemia and leucorrhoea with no manifest cardiac lesion.

Operative Findings: Cholecystectomy and appendicectomy. Previous ventral fixation of uterus. Appendix and G.B. normal to naked eye.

Report on G.B: Fibrotic G.B. Mucosa necrotic. Appendix much inflamed.

Condition on Discharge: General condition satisfactory. No pain or dyspepsia. Anaemia has responded to treatment.

C.V.S. Cardiac enlargement-4¼". Heart sounds of normal quality at the apex but weak at base. No murmurs. B.P. 120/73.

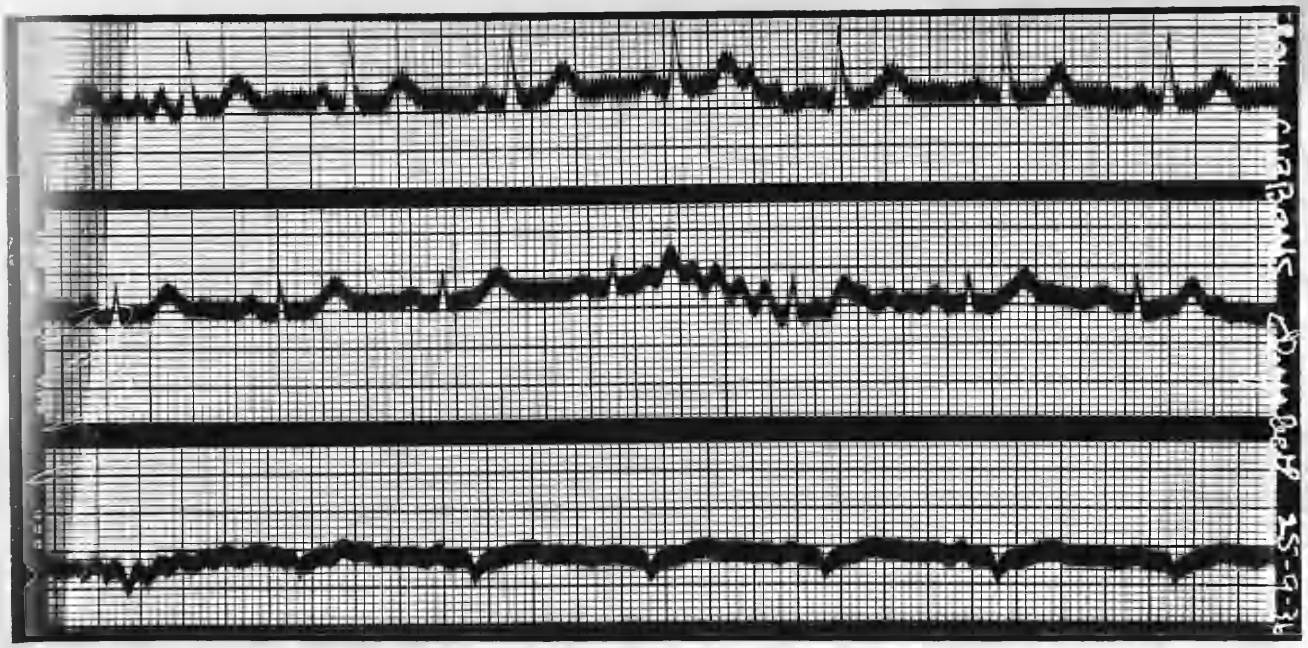
Post-Operative E.C.G: L.V.P. Improved voltage. Shows greater approach to normal than before.

Follow-Up: Ten weeks: Pain and vomiting still present. No flatulence. Very slight dyspnoea on exertion.

C.V.S: No enlargement. Heart sounds slightly weak at base. Persistence of pain and vomiting due to multiple adhesions from gynaecological operation.

Case No.6.

Pre-operative E.C.G.



Post-Operative E.C.G.

E.C.G. L.V.P. T.1. and T.2. large.

Conclusion: Cholecystitis and appendicitis. No definite cardiac lesion.

Follow-Up E.C.G.

Case No.7. Sex: Female. Age: 32 years.

Complaint: Attacks of pain in right lumbar region and right iliac fossa.

P.H. Scarlet Fever in childhood.

Obstetric History: Two normal pregnancies.

H.P.C. Frequent attacks of severe pain in the right lumbar region, R.I.F. and passing through to the back, during the past 8 years. Slight nausea, vomiting and frequency of micturition during the attacks. No flatulence or intolerance of fats. No jaundice. Inter-menstrual dysmenorrhoea.

Clinical Findings: No obesity, anaemia, jaundice, or focal sepsis. Abdomen: Tender in right lumbar region. Murphy's sign negative. Liver and G.B. not palpable. C.V.S. N.A.D. B.P. 155/105. Gynaecological Examination: Normal. Other Systems: N.A.D.

Investigation: Urine-Normal. X-ray of Renal Tract: Urosel-ectan: both kidneys excrete the dye equally and normally. Slight hydronephrosis of right renal pelvis. Calcified stones in G.B.

Impression: Cholelithiasis. No cardiac lesion.

Operative Findings: Cholecystectomy and appendicectomy. G.B. and appendix normal to naked eye. Several G.B. calculi of calcium and pigment. Kidney

Kidney appeared normal.

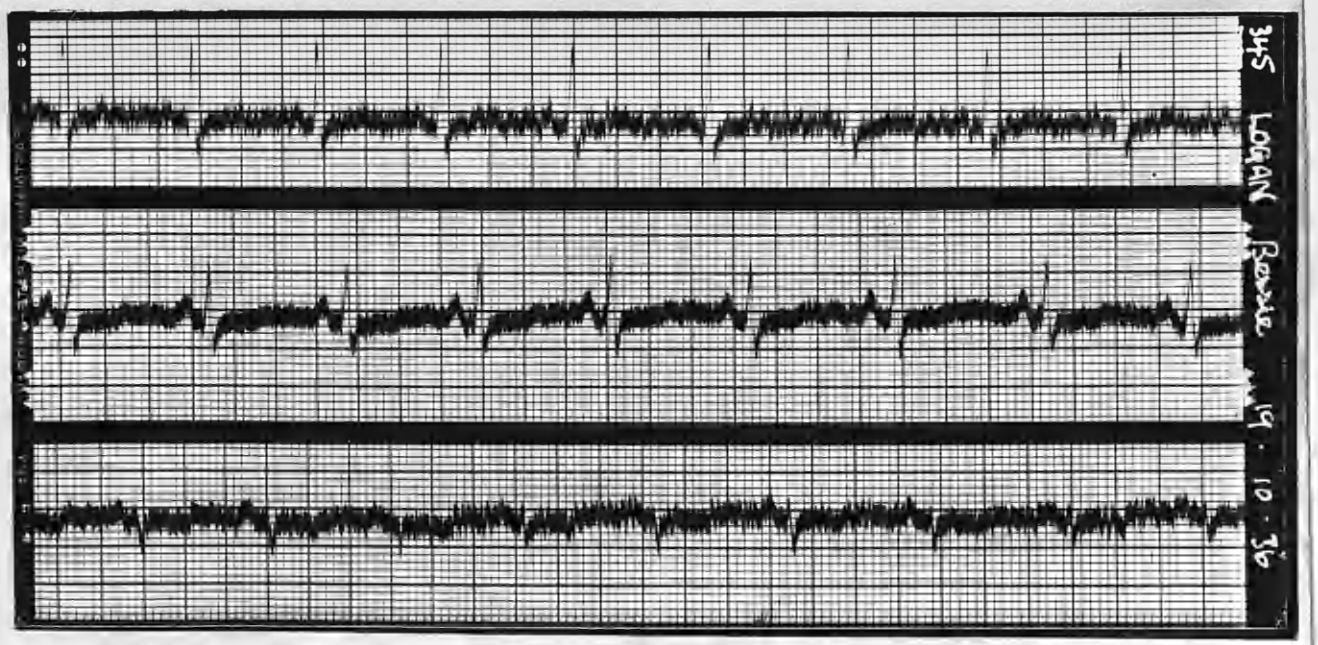
Report on G.B: Thin walled G.B. with small-celled infiltration and desquamation of epithelium. Muscle coats atrophic. Report on Appendix: Chronic appendicitis.

Condition on Discharge: General condition satisfactory. No pain or indigestion.

C.V.S. N.A.D.

B.P. 120/86.

E.C.G.



Case No 8. Sex: Female. Age: 29 years.

Complaint: Attacks of pain in the right hypochondrium.

P.H. Four healthy children. One miscarriage.

H.P.C. About 24 attacks of severe colic in the right hypochondrium and passing through to the right scapula during the past eighteen months. Flatulence well-marked throughout the whole period, but nausea and vomiting confined to the attacks of colic. No definite intolerance of fats. Mild jaundice in more recent attacks. Evening oedema of feet for past two months. Two months previously was in hospital with biliary colic. Anaemia following on miscarriage and some albuminuria.

Habits. No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis.

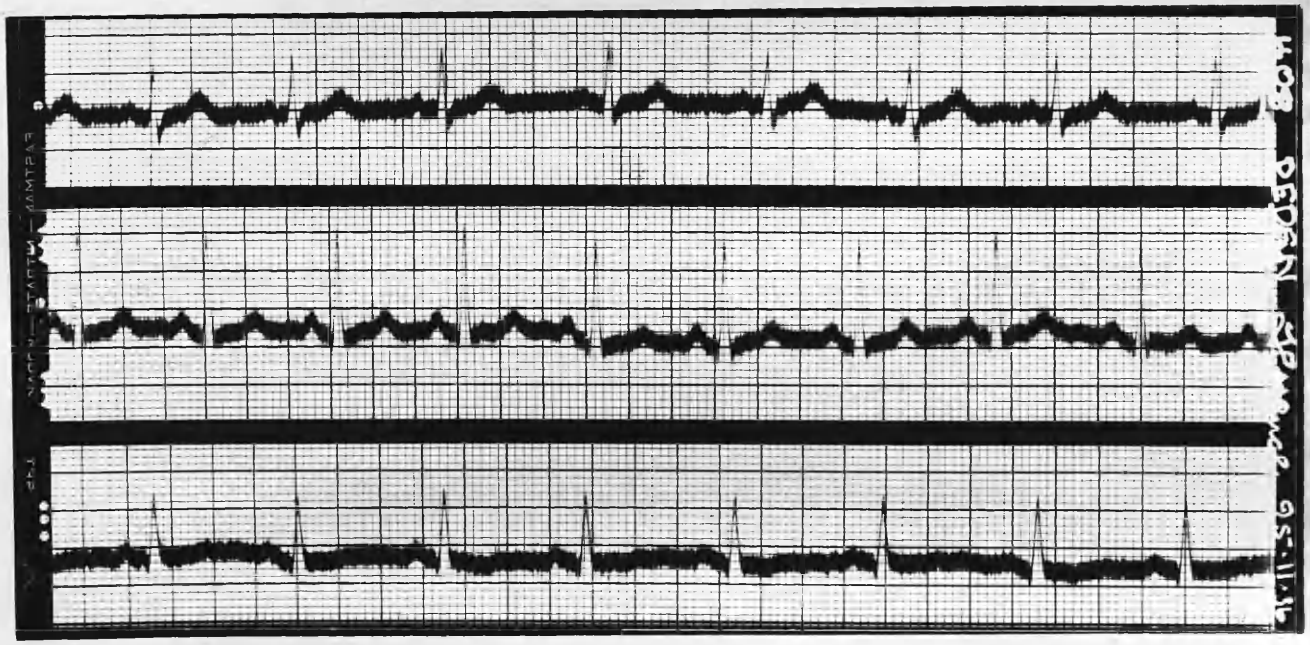
Abdomen: Thin abdominal wall. No tenderness. G.B. not palpable. C.V.S. No arterio-sclerosis. No cardiac enlargement, $3\frac{3}{4}$". Heart sounds normal. B.P. 120/90.

Investigation: Exercise Tolerance- satisfactory.

U.C.T. Poor renal function. Urine: Trace of albumin. Hyaline casts. Cholecystogram; G.B. fills with dye and shows hour-glass contraction and several translucent negative shadows due to

Case No.8.

Post-operative E.C.G.



presence of gall-stones.

X-ray with uroselectan: Both kidneys show normal pyelographic appearance and function.

Impression: Cholelithiasis. Impaired renal function. No cardiac lesion.

Operative Findings: Cholecystectomy. G.B. contained twenty to thirty cholesterol calculi and was much inflamed. Cavity of G.B. almost completely divided into two compartments by several cusp-like adhesions forming an arrangement like at aortic valve.

Report on G.B: Chronic cholecystitis.

Condition on Discharge: General condition excellent. No pain or dyspepsia.

C.V.S. Normal. B.P. 118/80.

Post-operative E.C.G: P.1 and T.3 poor, otherwise normal.

Conclusion: Cholelithiasis cured by cholecystectomy. Some degree of chronic nephritis with impaired renal function as shown by U.C.T. No cardiac lesion.

Case No.9. Sex. Female. Age: 60 years.

Complaint: Attacks of pain in right hypochondrium.

P.H. Operation for haemorrhoids three years ago. Hysterectomy for fibroids and removal of ovarian cyst two years ago.

Obstetric History: Six normal pregnancies. No miscarriages.

H.P.C. Many attacks of severe colic affecting the right hypochondrium and passing through to between the scapulae and to inner aspect of right arm during the past six years. Attacks accompanied by nausea and vomiting. Flatulence severe and constantly present, and the pain is partly relieved by eructation. Very marked intolerance of fats for first two years. Dyspnoea on exertion for past year and palpitation for two years. Has been stout for many years.

Habits: Occasional mild consumption of alcohol. No tobacco.

F.H. Nil significant.

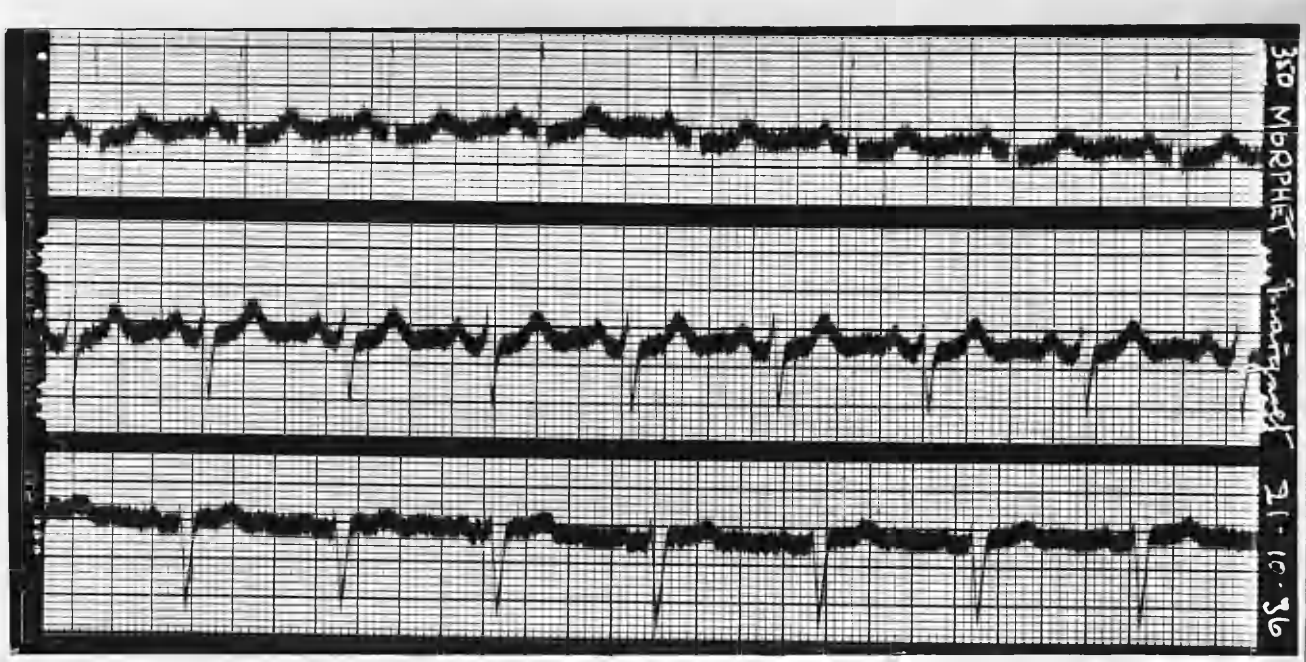
Clinical Findings: Obese patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby abdominal wall with fibrositis. Old operation scar. Tender in right hypochondrium over palpable G.B. Murphy's sign positive.

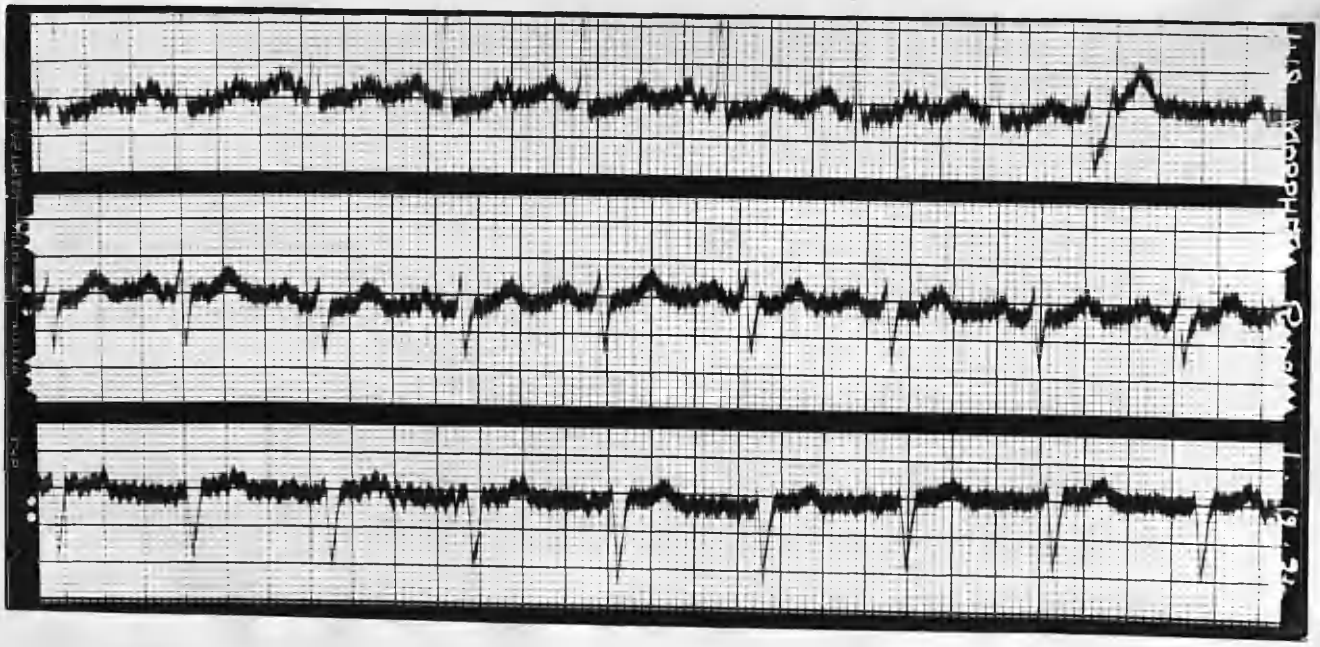
C.V.S. Moderate arterio-sclerosis. Slight cardiac enlargement - 4½". Heart sounds satisfactory.

Case No.9.

Pre-operative E.C.G.



Post-Operative E.C.G.



A.2. accentuated. B.P. 165/100. Other Systems: Osteo-arthritis of knees. Nil else abnormal.

Investigation: Exercise Tolerance- Satisfactory. Pre-Operative E.C.G. L.V.P. Urine normal. U.C.T. Good kidney function, but cardiac element impaired. Gall-stones diagnosed at previous operation.

Impression: Cholelithiasis and obesity. No definite cardiac lesion.

Operative Findings: Cholecystectomy. G.B. has thickened wall, with numerous polypi and contained one large mulberry calculus. Report on G.B. Thin G.B. wall with fibrosis and the mucosa is atrophic and mostly fibrous tissue- chronic cholecystitis.

Condition on Discharge: General condition satisfactory. No pain or dyspepsia. C.V.S. Area of cardiac dulness: 4½". Heart sounds normal. A.2. accentuated. B.P. 138/89. Post-operative E.C.G. L.V.P. Ventricular extra-systoles.

Conclusion: Chronic cholecystitis, cholelithiasis and obesity. G.B. lesion cured by cholecystectomy. No definite cardiac lesion.

Case No.10. Sex: Female. Age: 40 years.

Complaint: Attacks of severe pain in the right hypochondrium.

P.H. Rheumatism twenty-two years ago.

Obstetric History: One still-birth eight years ago. No miscarriages.

H.P.C. Seven attacks of severe colic in the right hypochondrium passing through to the back during the past five months. Attacks of nausea, vomiting and flatulence for three years. No history of jaundice. Marked intolerance of fats for two years. Slight palpitation and headache during the bilious attacks.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Well-nourished patient with no evidence of anaemia or jaundice. Slight dental sepsis.

Abdomen: Tender in right hypochondrium. G.B. not palpable. Murphy's sign negative. Liver dulness normal. C.V.S. N.A.D. B.P. 128/80.

Other Systems: N.A.D.

Investigation: Exercise Tolerance: Satisfactory.

Pre-operative E.C.G. Inverted T.3. QRS slightly bifid in lead 3. Urine: Normal.

Cholecystogram: Pathological G.B.

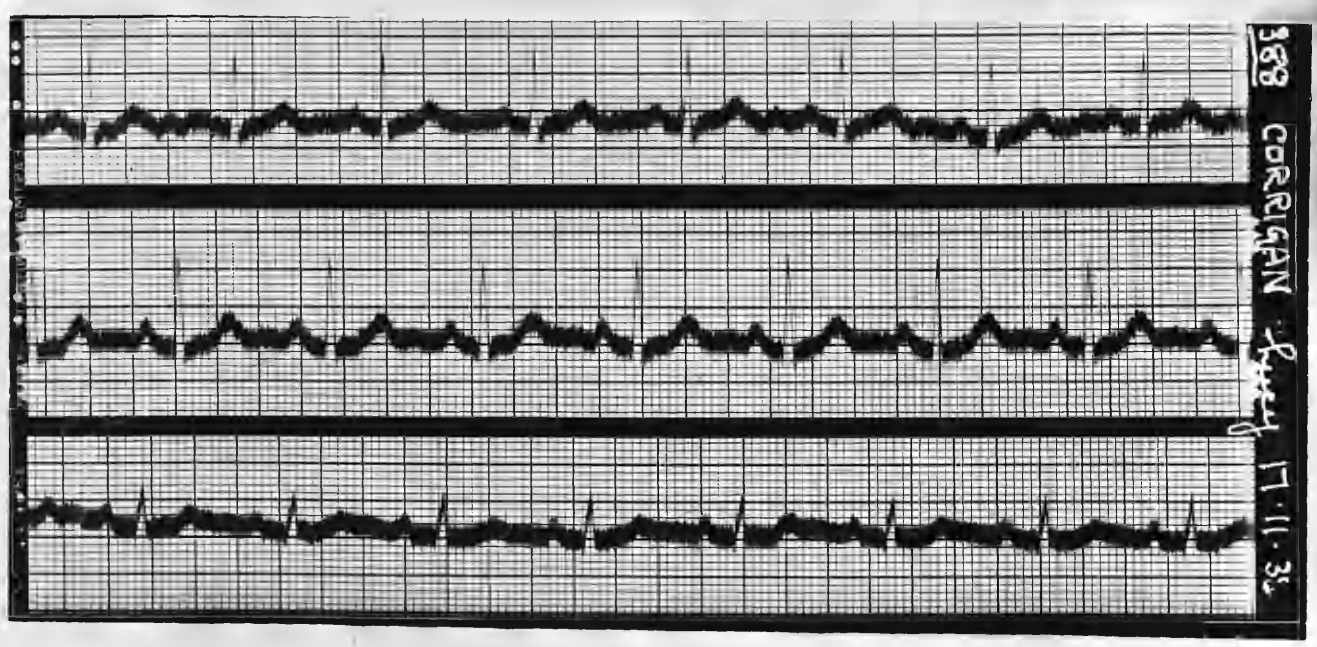
Impression: Cholelithiasis. Slight dental sepsis. No cardiac lesion.

Operative Findings: Cholecystectomy. G.B. wall thickened and mucosa shows thickening and area of necrosis with a few polypi.
Two moderately large pigment calculi.

Condition on Discharge: No pain or indigestion. Feels very well. Wound satisfactory.
C.N.S. N.A.D. B.P. 110/70.
No cardiac enlargement-3½".
E.C.G. Not obtained.

Conclusion: Chronic cholecystitis and cholelithiasis. Cured by cholecystectomy. No cardiac lesion.

E.C.G.



Case No.11. Sex: Female. Age: 30 years.

Complaint: Severe epigastric pain.

P.H: Nil.

Obstetric History: One normal pregnancy nine years ago. No miscarriages.

H.P.C. Several attacks of severe pain in both hypochondria, and passing through to beneath both scapulae during the past six months. Pain accompanied by nausea, flatulence and vomiting of yellowish material. Intolerance of fats for some time. Slight jaundice during present attack and also three months ago.

Habits: Very mild consumption of alcohol and cigarettes.

F.H. Nil significant.

Clinical Findings: No obesity, anaemia or focal sepsis. Mild jaundice. Abdomen: Slightly tender over palpable G.B. and right hypochondrium. Murphy's sign positive. C.V.S. N.A.D. B.P. 110/70.

Investigation: Exercise Tolerance: Satisfactory.

Pre-operative E.C.G. L.V.P. Inverted P.3.

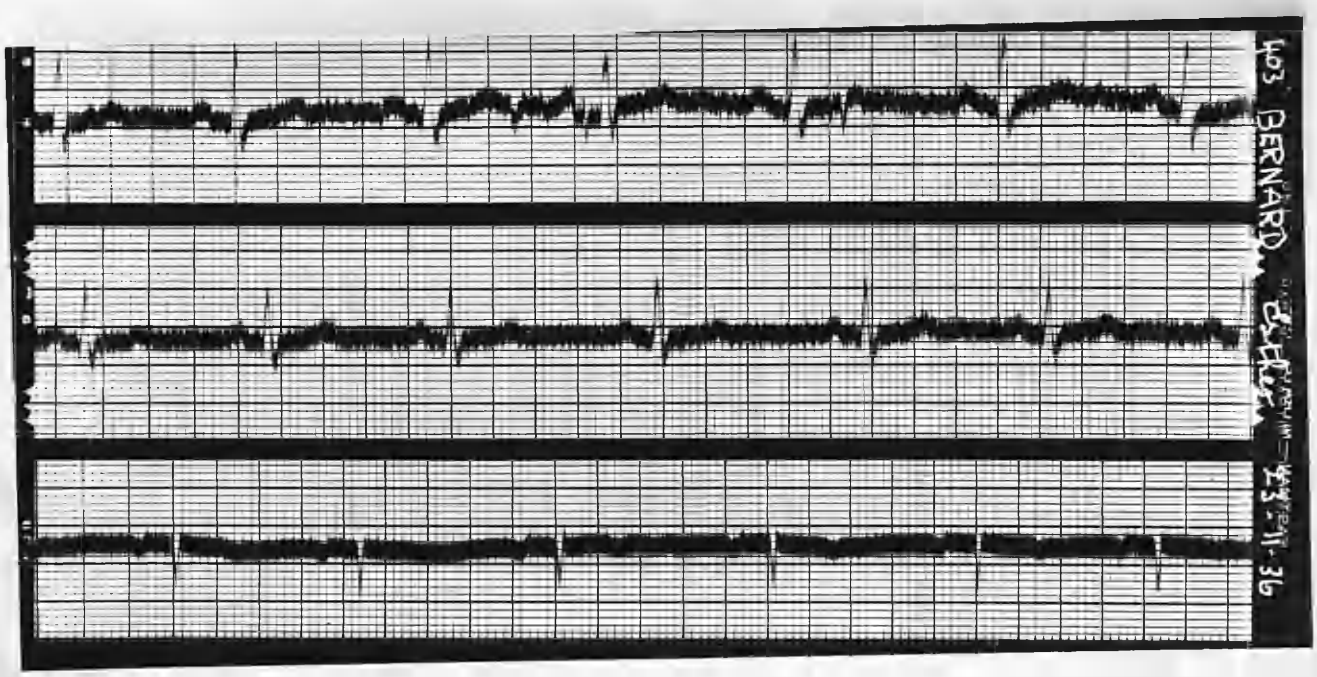
Urine : Normal. Cholecystogram: Pathological G.B. with large gall-stone.

Impression: Cholelithiasis. No cardiac lesion.

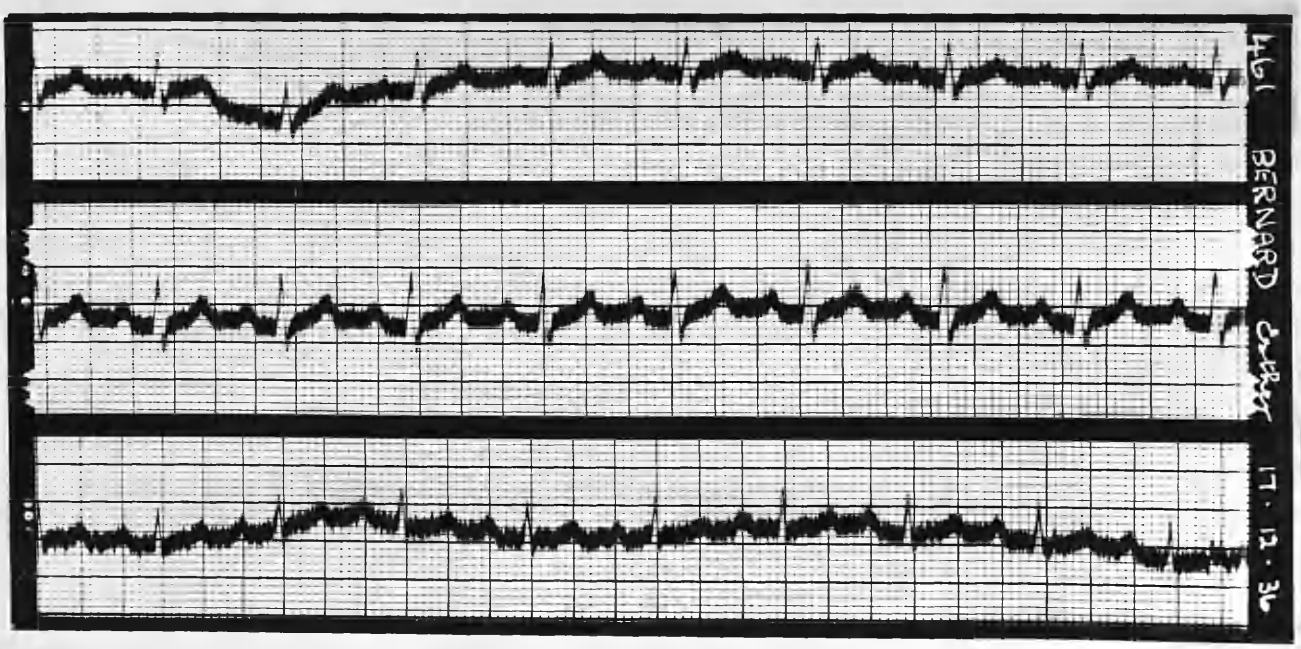
Operative Findings: G.B. thickened and acutely inflamed with haemorrhagic necrosis in parts of mucosa, contains one large calculus and twenty-two smaller ones belonging to two generations. Appear to consist largely of cholesterol and pigment .

Case No.11.

Pre-operative E.C.G.



Post-operative E.C.G.



Report on G.B: G.B. wall lined by fibrous tissue with very little mucosa. Chronic cholecystitis.

Condition on Discharge: Patient very well and previous symptoms are absent.

C.V.S: N.A.D. B.P. 105/70.

Post-operative E.C.G: Some improvement in P and T waves.

Conclusion: Cholelithiasis and cholecystitis. Cured by cholecystectomy. No cardiac lesion.

Case No.12. Sex: Female. Age 60 years.

Complaint: Pain in right hypochondrium.

P.H. Removal of right breast eight years ago.

H.P.C. Frequent attacks of severe pain in the right hypochondrium for past twenty years associated with nausea, vomiting and flatulence. No jaundice but marked intolerance of fats.

Clinical Findings: Obese patient. No jaundice, anaemia, or focal sepsis. C.V.S. N.A.D. Scoliosis of spine. Mild bronchitis.

Investigation: Urine: a trace of albumin. Cholecystogram: pathological G.B. F.T.M. Normal. Barium Meal: hypertonic stomach which empties rapidly- No evidence of ulcer.

Impression: Chronic cholecystitis. No cardiac lesion.

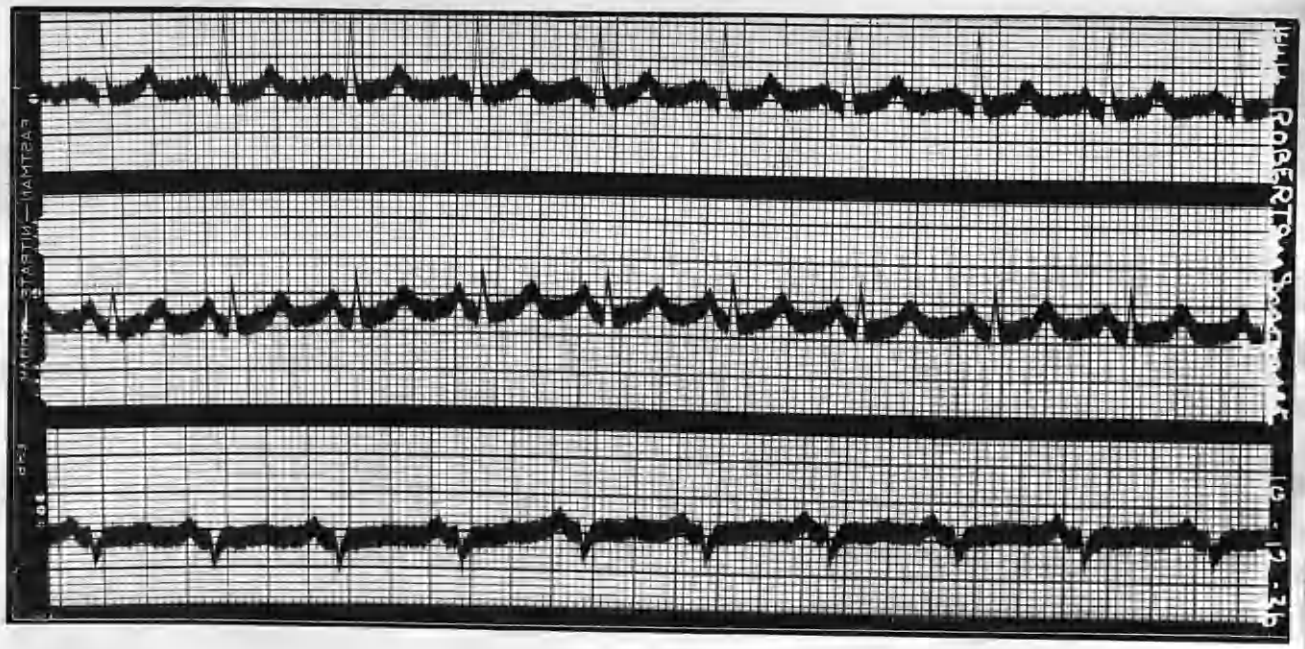
Course: Operation contra-indicated due to age and bronchitis and obesity. Discharged home.

Follow-Up. Eight months later: no attacks of pain. Dyspepsia improved. Some dyspnoea on exertion. On examination, general condition satisfactory. C.V.S. A.2. accentuated. Heart sounds moderate. B.P. 130/140. G.B. not palpable or tender. E.C.G. L.V.P. T.3. inverted.

Conclusion: Chronic cholecystitis for twenty years. Obesity. No cardiac lesion. Mild bronchitis.

Case No.12.

Follow-Up E.C.G.



Case No.13. Sex. Female. Age: 54 years.

Complaint: Pain in right side of abdomen.

P.H. Nil important. Three pregnancies. All alive. No miscarriages.

H.P.C. Single attack of pain in right lumbar region. before admission. Attacks of nausea, vomiting and flatulence for six years. No jaundice or intolerance of fats. Frequency of micturition for several years. Dyspnoea on exertion for six months.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Slightly obese patient with no anaemia, jaundice or dental sepsis. Fibrositis of abdominal wall present.

Abdomen: Flabby abdominal wall. Tender in right hypochondrium and right lumbar region.

C.V.S. Slight arterio-sclerosis. Quality of heart sounds moderate. B.P. 150/90.

Other systems: Cystocele and Rectocele.. Osteo-arthritis of knees.

Investigation: Urine: normal. Cholecystogram: G.B. fills with dye. Concentrates, and shows delay in emptying. F.T.M. normal. X-ray of renal tract: No renal stone shadow shown.

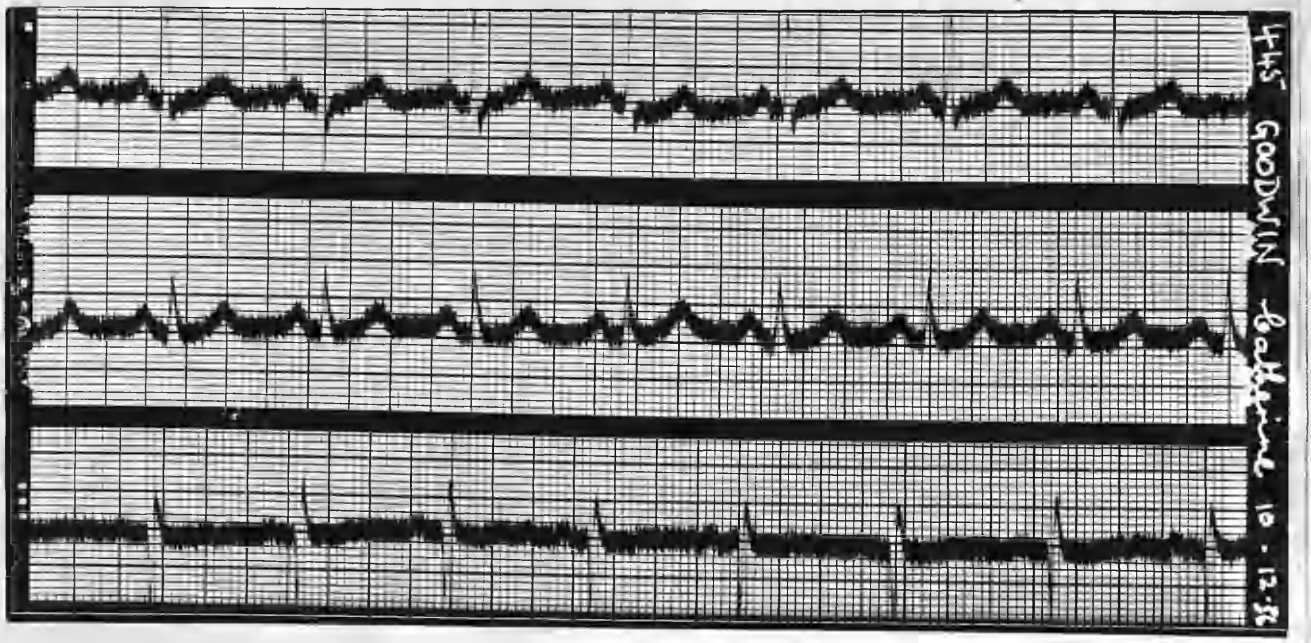
Impression: Chronic cholecystitis, cystocele and rectocele. No definite cardiac lesion.

Course: Improved while in hospital and refused operation.

Follow-Up. Four months later: still has attacks of pain, sometimes severe, in right lumbar region. Flatulence and vomiting associated. No dyspnoea or oedema. C.V.S. N.A.D. B.P. 175/125. Tender over G.B. E.C.G. L.V.P.

Conclusion: Cholecystitis for six years. No cardiac lesion. Mild obesity. Cystocele and Rectocele and osteo-arthritis of knees.

Follow-Up E.C.G.



Case No.14. Sex: Female. Age 60 years.

Admitted to hospital with a history of jaundice of three months' duration with attacks of severe pain in the epigastrium and accompanied by vomiting during the same period. Intolerance of fats but appetite satisfactory until onset of present illness. Clay-coloured stool and dark-coloured urine throughout the period of jaundice. Bilateral radical removal of breast twenty-years ago.

Patient was deeply jaundiced. The liver was palpable and the G.B. was much enlarged and tender. The heart was normal on clinical examination. X-ray examination showed no evidence of calculus. Icterus Index 100. E.C.G. L.V.P. P.3. poor. T.3. inverted. Faeces- upset of protein and fat metabolism. Urine. Bile pigments present. Blood Examination- Mild hypochromic anaemia. W.R. negative.

Clinical diagnosis was carcinoma of C.B.D. or of head of pancreas.

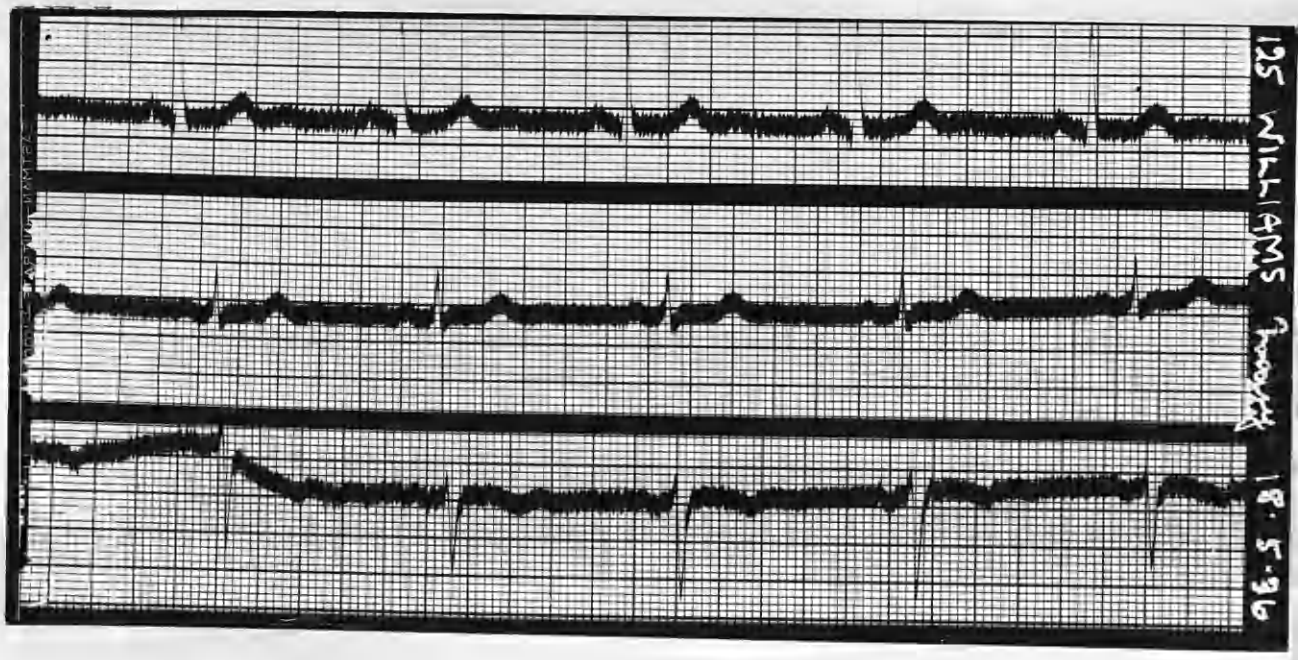
At operation: Carcinoma of the lower end of C.B.D. was found with glands palpable behind the duodenum. Pancreas and liver normal. G.B. very distended with black tarry bile, which was aspirated. G.B. anastomosed to second part of duodenum.

11 days after this operation patient developed atrangulated right inguinal hernia. This was dealt with surgically and patient made a good recovery. Discharged from hospital.

Conclusion: Carcinoma of C.B.D. No cardiac lesion.

Case No.14.

Pre-operative E.C.G.



Case No.15. Sex: Female. Age:54 years.

Complaints: Attacks of epigastric pain.

P.H. Cholecystectomy eleven months previously for chronic cholecystitis. Operative findings were:- Large G.B. with thin wall. One large stone palpated in Hartman's Pouch. Large dilated C.B.D. exposed, palpated and explored. No stone palpated. Cholecystectomy performed. C.V.S. Normal at this time.

H.P.C. For the past six months patient has experienced about twelve attacks of severe colic in the right hypochondrium spreading across the epigastrium and through to the back. The pain is associated with nausea, vomiting and flatulence and jaundice occurred in a previous, and in the present, attack. No intolerance of fat.

Clinical Findings: Thin patient. Slightly jaundiced with no evidence of anaemia or focal sepsis. Abdomen: Tender in right hypochondrium. Liver dulness normal. C.V.S. Slight arterio-sclerosis. No cardiac enlargement. Heart sounds rather weak but the second is accentuated at all areas. Other systems N.A.D.

Case No.15.

Follow-Up E.C.G.

Investigations: Urine- Moderate amount of bile. Straight X-ray of G.B. Area- No stone shadow shown. Barium Meal- stomach and duodenum normal.

Impression: Stone in C.B.D. No cardiac lesion.

Operative Findings: C.B.D. explored. Four soft, recent pigment stones found in C.B.D. No sign of G.B. or cystic duct. C.B.D. washed out with saline and dilators passed easily. Abdomen closed. C.B.D. drained.

Post-Operative Course. Patient made an uninterrupted recovery and was discharged.

Follow-Up. Seven months later: no pain, occasional flatulence, vomited twice since discharge. Back at work, nursing.
C.V.S. Heart sounds slightly weak.
Exercise tolerance: satisfactory.
B.P. 190/130. E.C.G. L.V.P. P.2. poor. P.3. and T.3. inverted.

Conclusion: Chronic cholecystitis. Treated by Cholecystectomy. Recurrence within six months of biliary colic and jaundice due to stones in C.B.D. No cardiac lesion present.

Case No.16. Sex: Female. Age:56 years.

Complaint: Attacks of epigastric pain.

P.H. Pneumonia at twenty years. Scarlet Fever as a child.

Obstetric History: Three normal pregnancies.

H.P.C. One attack of severe colic in the right hypochondrium and epigastrium associated with nausea, flatulence and vomiting of green material. Similar attack eight years ago. Pain partially relieved by vomiting and eructation. Jaundice present in first attack. Severe flatulence since first pregnancy thirty-five years ago. Dyspnoea on exertion with palpitation and oedema of ankles for one year. Increase in weight one year ago.

Habits: No alcohol or tobacco.

F.H. Mother and one sister suffered from "bilious" attacks and died at forty and twenty-nine years respectively.

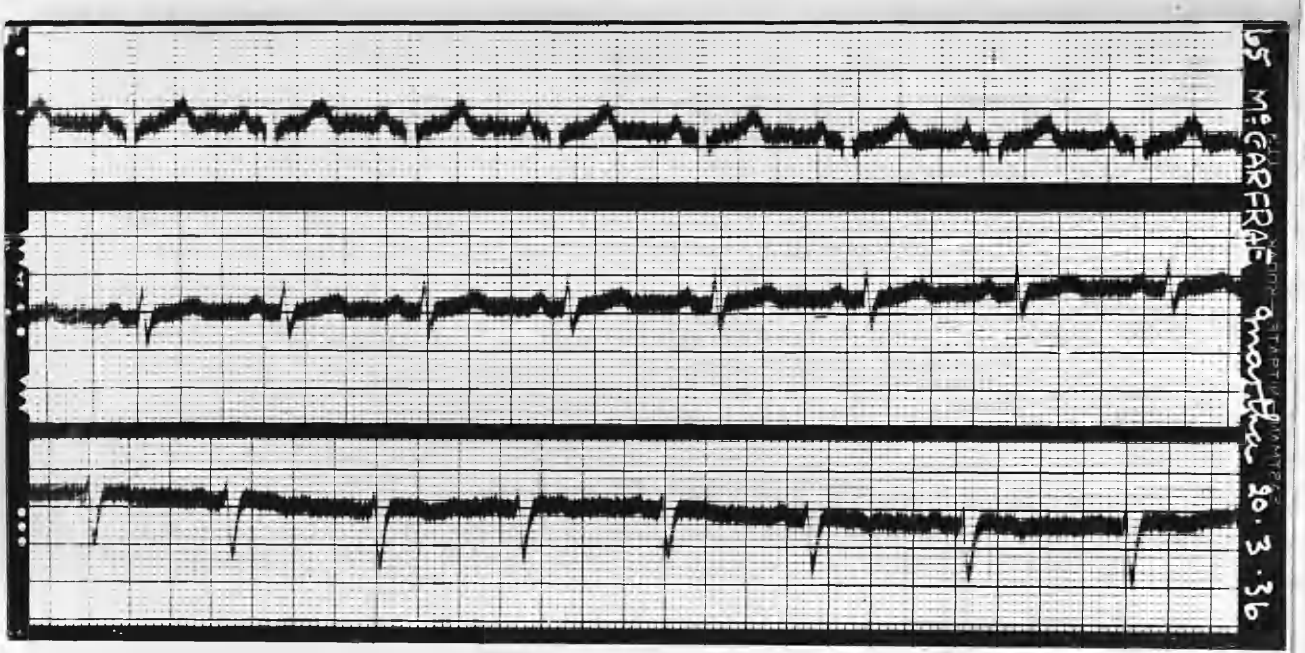
Clinical Findings: Stout patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby abdominal wall. Slightly tender in right hypochondrium. Murphy's sign negative. G.B. not palpable.

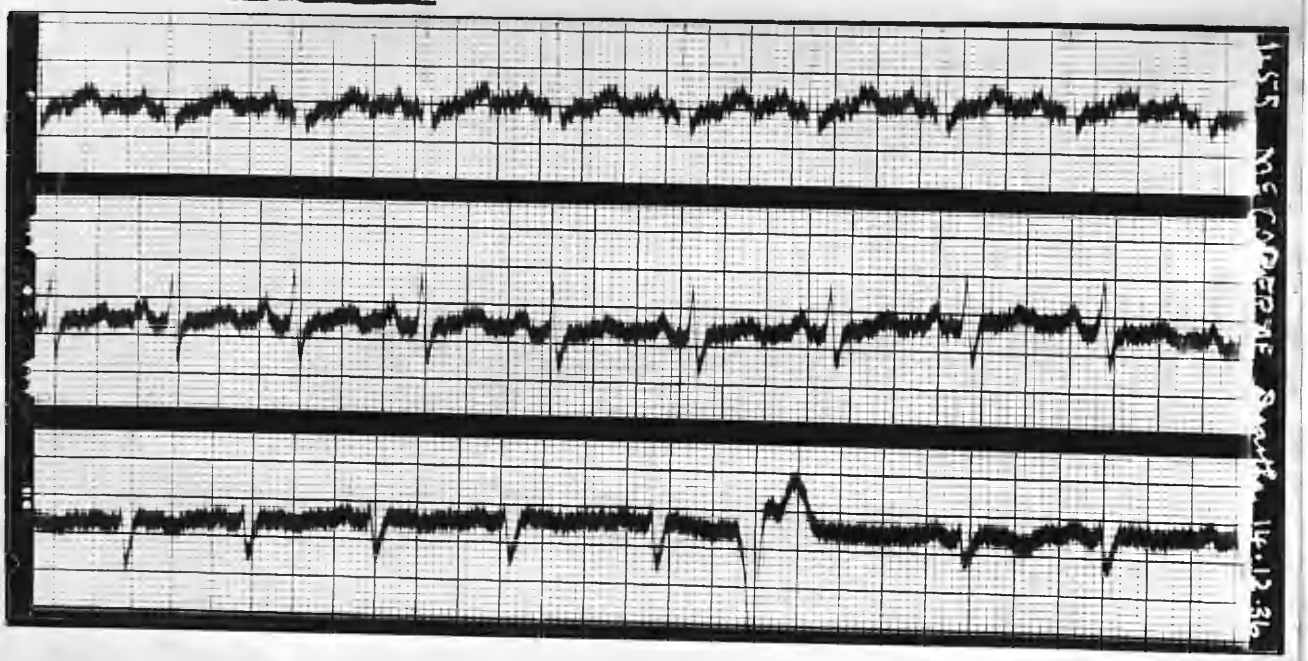
C.V.S. Some arteriosclerosis. Cardiac enlargement: $4\frac{3}{4}$". Heart sounds of poor quality. A.2. accentuated. No murmurs. B.P. 138/80.

Case No.16.

First E.C.G.



Follow-Up E.C.G.



Other Systems: N.A.D.

Investigation: Exercise Tolerance: unsatisfactory.
E.C.G. L.V.P., P and T waves poor in lead 3.
U.C.T. Renal function impaired. Urine- some albumin and occasional red corpuscles and hyaline casts. Cholecystogram: Pathological gall-bladder. Straight X-ray of G.B: Weak shadow in right upper abdomen- probably due to gall-stone.

Impression: Chronic cholecystitis. Cardio-renal degeneration. Obesity.

Course: Operation not advised. Discharged home.

Follow-Up: Nine months later: Still has flatulent dyspepsia and intolerance of fats. Still obese. Dyspnoea on exertion. Oedema of ankles still occurs but less often than before. On examination: Obesity. C.V.S. No cardiac enlargement. Heart sounds of moderate quality. No murmurs. No oedema. B.P. 175/110. E.C.G. Splaying of Q.R.S. in lead 3 and slightly in lead 2. Ventricular extra-systole in lead 3.

Conclusion: Chronic cholecystitis and obesity. Temporary myocardial lesion during an acute attack of biliary colic, showing amelioration after the acute G.B. symptoms had subsided.

Case No.17. Sex: Male. Age: 52.

Complaint: Praecordial pain at intervals for four weeks.

P.H. "Rheumatism" ten years ago. Right inguinal hernia repaired twenty years ago.

H.P.C. Nausea and vomiting for four weeks. Flatulence for five years. Praecordial pain involving also the left hypochondrium, left arm and forearm. Pain increased on exertion and completely relieved by rest. Marked intolerance of fats for two years. Dyspnoea on walking fifty yards. during past few months. No jaundice.

Habits: Moderate smoker and beer drinker.

F.H. Nil significant.

Clinical Findings: Spare build. Slight orthopnoea even while propped up in bed. Marked dental sepsis. No anaemia.

Abdomen: Tender over G.B. with slight rigidity.

C.V.S. Moderate arteriosclerosis. Heart: enlarged to left. First sound poor. Second sound accentuated at all areas. Faint systolic murmur at all areas. B.P. 134/78.

Other Systems: Nil abnormal, except for slight prostatic hypertrophy.

Investigation: W.R.negative. Exercise Tolerance: Very poor.

E.C.G: Low voltage and poor P wave in lead 1.

U.C.T. Moderate renal function. Urine: Normal.

Case No.17.

Pre-operative E.C.G.

Cholecystogram: Pathological G.B.

Impression: Cholecystitis; cardio-vascular degeneration with anginal syndrome.

Operative Findings: Cholecystectomy performed. G.B. appears normal.

Report on G.B: Scar tissue at distal end. Catarrhal changes with slight leucocytic infiltration.

Condition on Discharge: Cardiac dulness normal. First sound still poor. Second sound slightly accentuated at all areas. Soft aortic systolic murmur- Probably due to atheroma. Cardiac compensation improved. No anginal symptoms.

Follow-Up: Patient died six weeks after discharge from hospital from lobar pneumonia.

Conclusion: Cardio-vascular degeneration with anginal symptoms aggravated by flatulent dyspepsia. Cardiac compensation improved and anginal symptoms absent after cholecystectomy.

Case No.18. Sex: Female. Age:43 years.

Complaint: Attacks of epigastric pain with flatulence for one year.

P.H. Good.

Obstetric History: Five normal pregnancies. One miscarriage.

H.P.C. Attacks of severe pain in epigastrium and right shoulder accompanied by severe flatulence and heart-burn for one year. Jaundice in last and in present attack. Some dyspnoea on exertion for the past month.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Moderate dulness. No obesity or septic foci.

Abdomen: Tender over G.B. which is not palpable.

C.V.S. Soft systolic murmur at all areas.

B.P. 144/82.

Other Systems: N.A.D.

Investigation: Pre-operative E.C.G: Within normal limits.

U.C.T: Satisfactory renal function. Cholecystogram: (intravenous) Pathological G.B. Icterus Index:100.

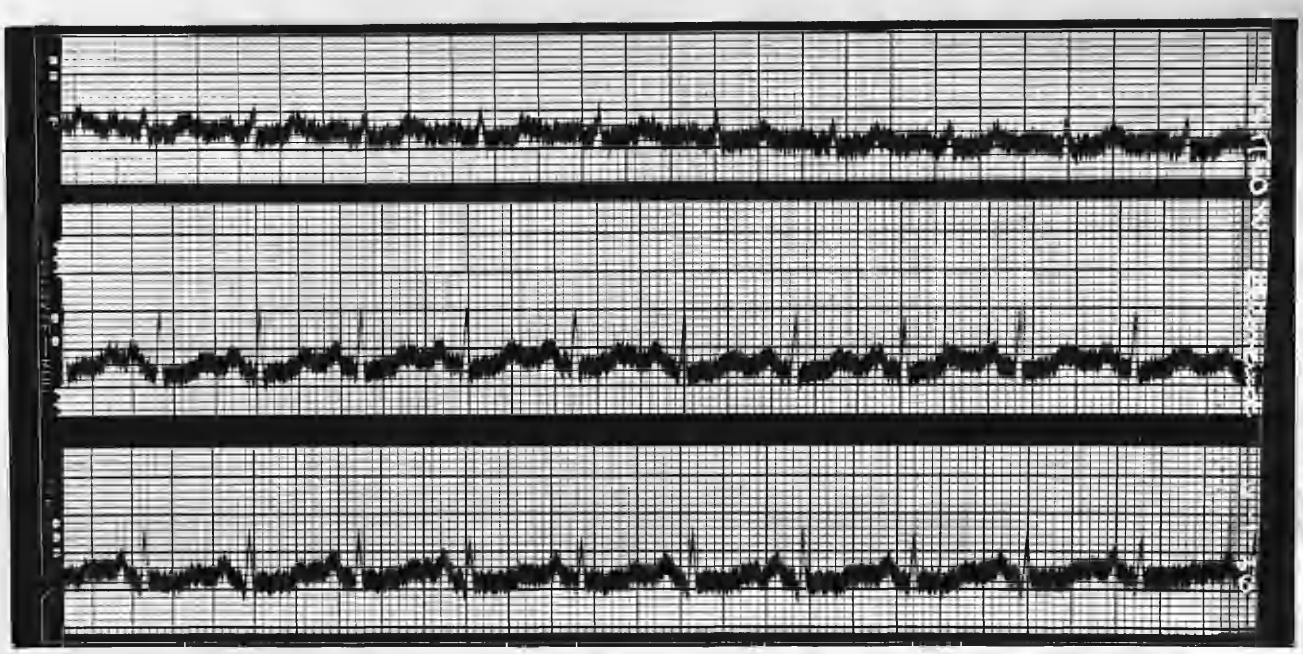
Van den Bergh Reaction: Direct Positive.

Impression: Cholecystitis. No cardiac lesion.

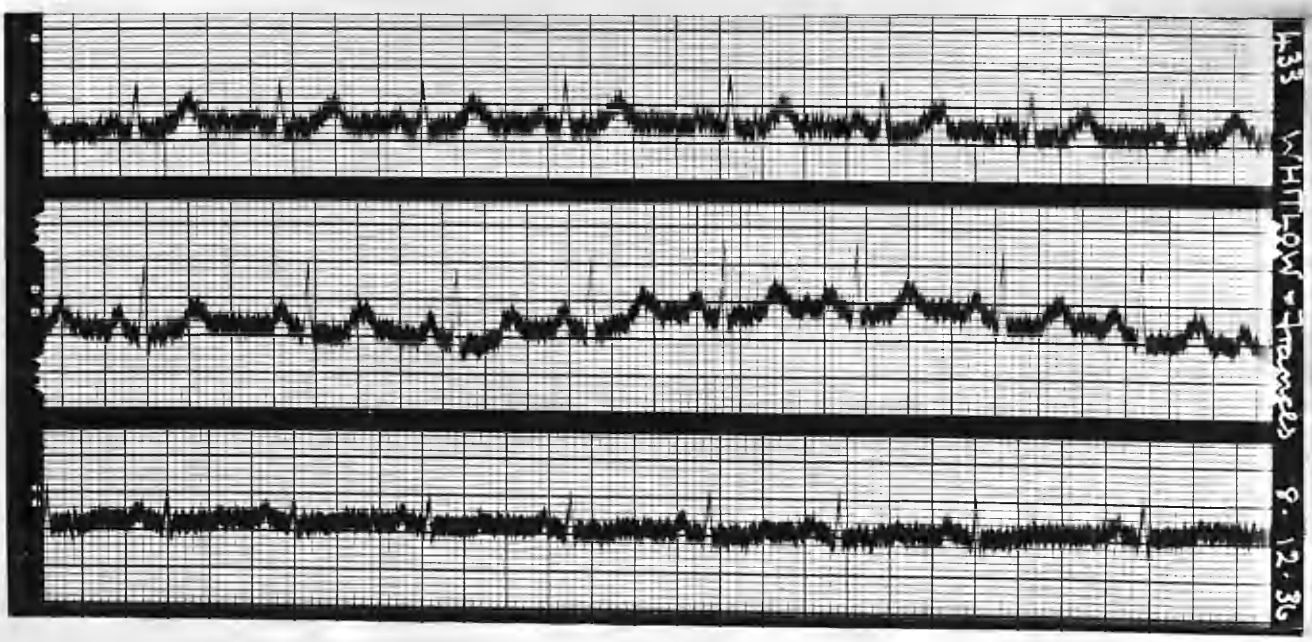
Operative Findings: No evidence of peptic ulcer. C.B.D. normal. Cholecystectomy and appendicectomy performed. Appendix normal. G.B:- Thin-walled, ulceration of mucosa with round-celled infiltration in sub-mucosa.

Case No.18.

Pre-operative E.C.G.



Follow-Up E.C.G.



Condition on Discharge: Discharged well with no cardiac lesion.

Follow-Up: Eleven months after operation: No pain or dyspepsia. Slight flatulence occasionally. Dyspnoea on exertion more pronounced. No oedema.

On examination: General condition satisfactory. Cardiac enlargement 5". Diffuse apex beat. First sound poor. P.2. accentuated. Systolic murmur at tricuspid area. Extra-systoles present.

Exercise Tolerance: Impaired. B.P. 175/120.

Follow-Up E.C.G: Low voltage and poor T wave in lead 3.

Conclusion: Cholecystitis cured by cholecystectomy. No cardiac lesion clinically at time of operation, but eleven months later definite myocardial insufficiency had made its appearance.

Case No.19. Sex: Female. Age: 47 years.

Complaint: Attacks of colic in right upper abdomen.

P.H. Nil significant.

H.P.C. Three attacks during the past two years of severe colic in the right hypochondrium associated with nausea, vomiting and flatulence. Pain in legs for past year like "toothache".

Clinical Findings: No obesity, jaundice, anaemia or evidence of focal sepsis.

Abdomen: Tender over G.B. Murphy's sign positive. G.B. ? palpable.

C.V.S: Slight cardiac enlargement. Heart sounds weak.

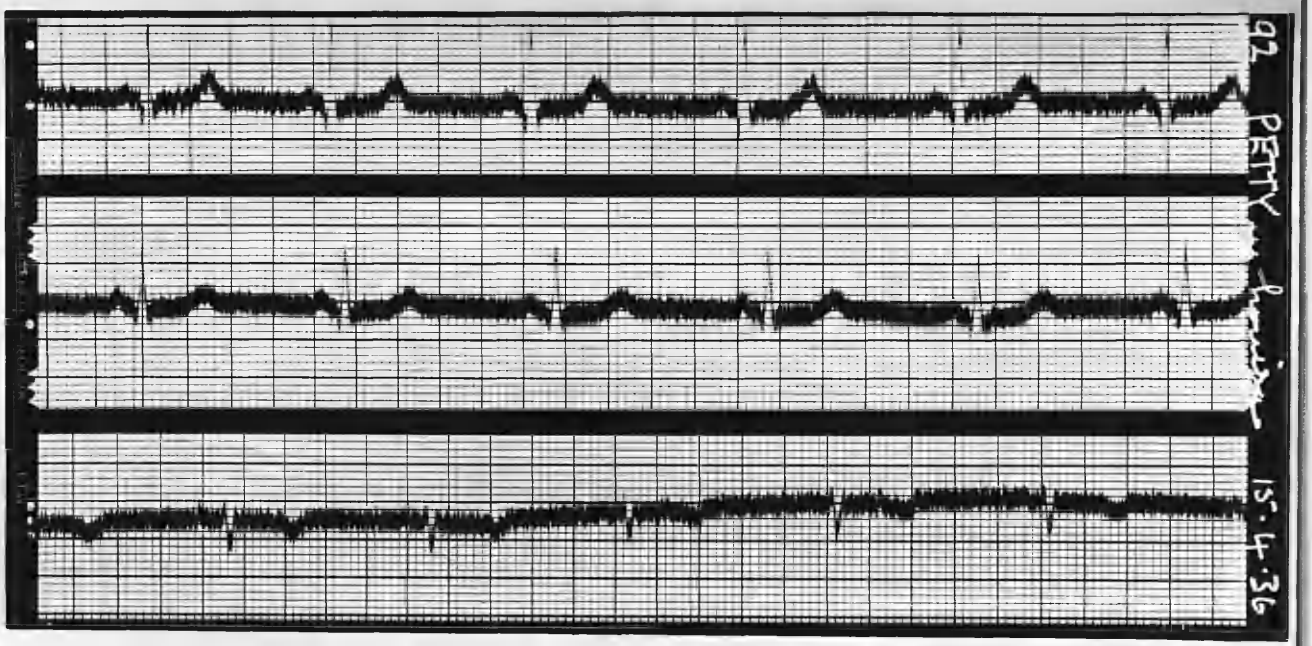
Other Systems: N.A.D.

Investigation: W.R: strongly positive. Exercise Tolerance: satisfactory. Pre-operative E.C.G: L.V.P. Poor P wave in lead 1. Lead 3 shows low voltage, P.3 poor, T.3 inverted. U.C.T: Moderate renal function. Urine: Normal. Cholecystogram: G.B. ptosed, but normal in appearance. Barium Meal: Gastroptosis only. F.T.M: Hyperchlorhydria. Cerebro-spinal Fluid: Clear fluid under normal pressure. Cell count, total protein, globulin and sugar: Normal. Lange Curve: 0000000000. W.R: negative in all dilutions.

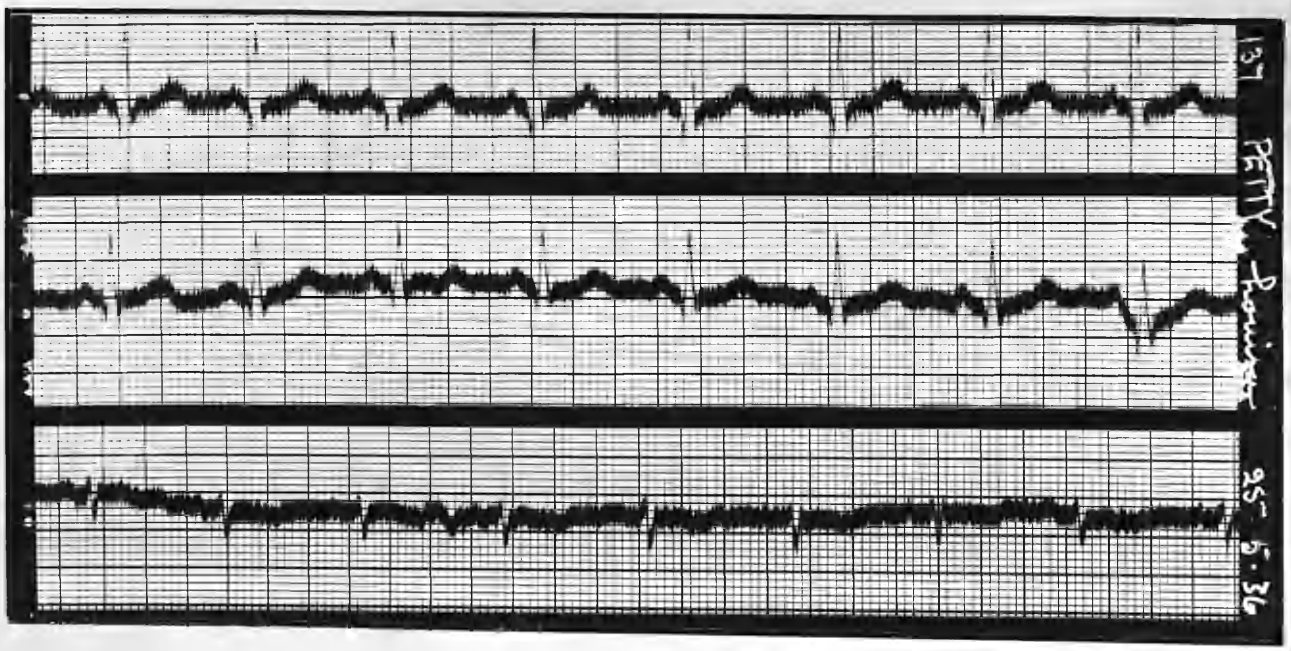
Impression: Cholecystitis. Asymptomatic syphilis. Slight myocardial insufficiency.

Case No.19.

Pre-operative E.C.G.



Post-Operative E.C.G.



Operative Findings: Cholecystectomy and appendicectomy performed. G.B. showed several areas where the mucous membrane was absent. No calculi present. Liver soft and oedematous. No evidence of syphilis. Appendix slightly thickened.
Report on G.B. Chronic cholecystitis.

Condition on Discharge. Patient very well and has no symptoms.
C.V.S. and other Systems:- N.A.D.
Post-operative E.C.G: L.V.P. lead 3 indistinct.

Follow-Up: Three months after operation:- Patient very well. Previous symptoms absent. C.V.S. N.A.D. W.R. strongly positive. Attending for anti-specific treatment.
Seven months after operation: patient well and has no symptoms. C.V.S. N.A.D.

Conclusion: Chronic cholecystitis cured by cholecystectomy. Temporary myocardial insufficiency during an attack of acute cholecystitis with complete return to normal after operation.

Case No.20. Sex: Female. Age:32 years.

Complaint: Attacks of pain in right hypochondrium for eight months.

P.H. "Nephritis"at fourteen years. Pleurisy nine years ago. Operation for prolapse four years ago.

Obstetric History: Four normal pregnancies. One miscarriage.

H.P.C. Twelve attacks of severe colic in the right hypochondrium, epigastrium and between the shoulder-blades during the past eight months. Flatulence, nausea, retching and vomiting associated with the pain. Jaundice present in first attack only. Palpitation and increasing dyspnoea on exertion for nine months. Intolerance of fats for eight months.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: No obesity or focal sepsis.

Abdomen: Tender over gall-bladder. Murphy's sign negative. No rigidity. G.B. just palpable.

C.V.S. First sound rather poor and second sound accentuated at all areas. B.P. 140/90.

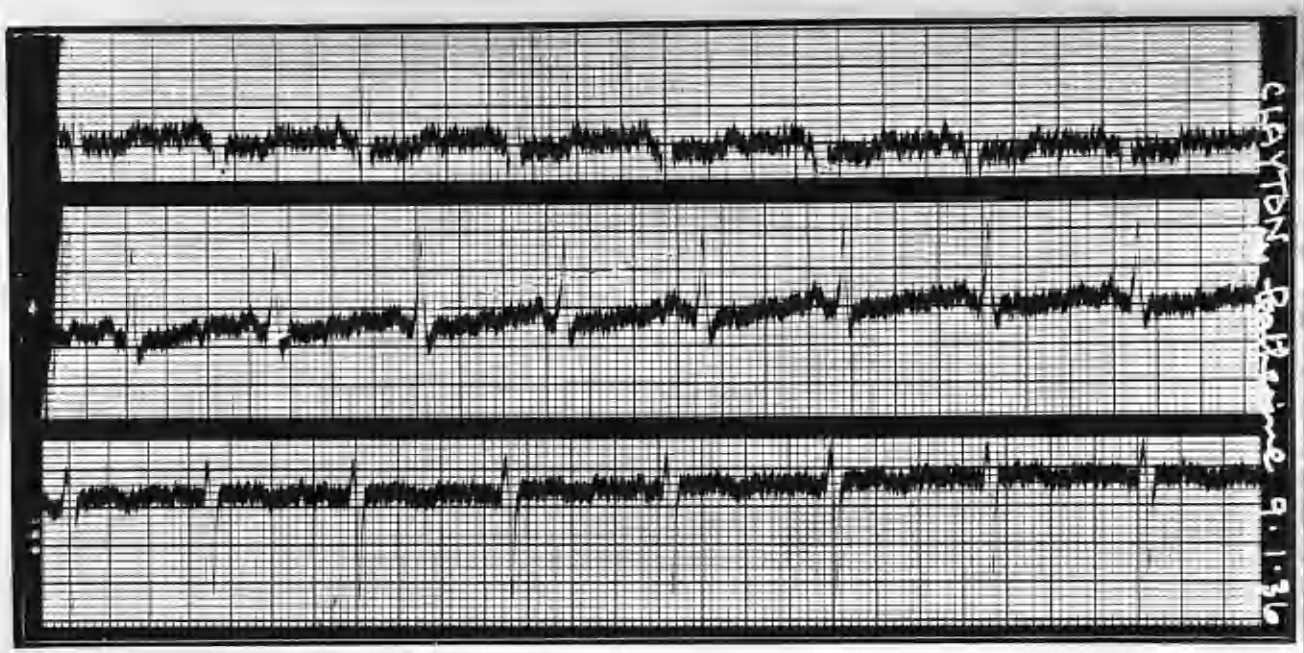
Other Systems: N.A.D.

Investigation: Exercise Tolerance: Impaired. Pre-Operative E.C.G:- L.V.P. P and T wave poor in all leads.

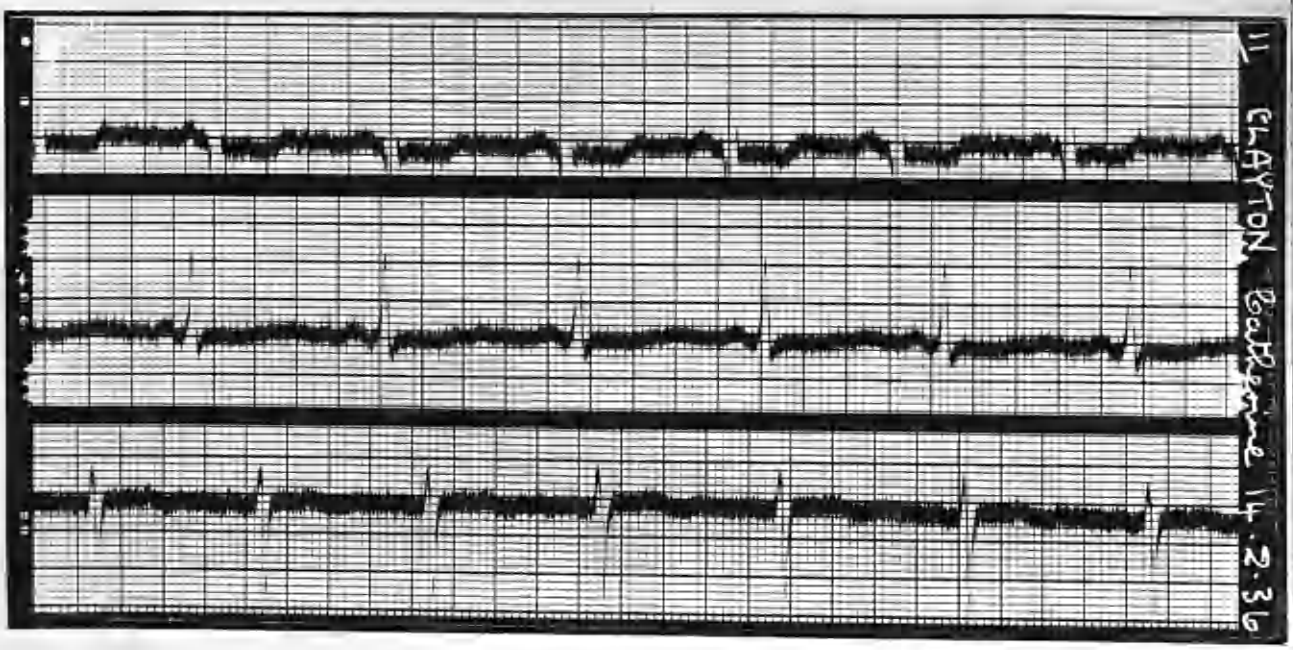
U.C.T. satisfactory renal function.

Case No.20.

Pre-operative E.C.G.



Post-operative E.C.G.



Urine- Normal. Icterus Index and Blood Cholesterol: Normal. Cholecystogram: Radiologically normal gall-bladder. No stones visible.

Impression: Cholelithiasis- probably cholesterol stones. Some myocardial insufficiency.

Operative Findings: Cholecystectomy performed. G.B. small and appears normal. 205 small, facetted, cholesterol calculi removed.

Condition on Discharge: General condition much improved. No dyspnoea on exertion. First sound of moderate quality. A.2. accentuated. Post-Operative E.C.G. L.V.P. P wave in lead 1 slightly improved. T wave in lead 1 inverted.

Follow-Up: Three months after operation:- Previous symptoms absent and patient very well.

Conclusion: Cholelithiasis and myocardial weakness. Definite improvement in cardiac reserve after operation. The latter was still maintained after three months.

Case No.21. Sex: Female. Age: 55.

Complaint: Attacks of severe colic in the right hypochondrium for three months.

P.H. Mild toxic hyperthyroidism for eight years, treated medically. Acute appendicitis operated on six weeks previously, at which cholelithiasis was found.

H.P.C. Severe colic in the right hypochondrium with praecordial discomfort during the attacks for the past three months, associated with nausea and vomiting. Flatulence present for fifteen years and intolerance of fats for one year. Dyspnoea on exertion for one year with oedema of ankles and palpitation. During her convalescence in Hospital following appendicectomy the patient had four typical attacks of cholecystitis. The patient on admission suffered from cardiac decompensation which had not been regained and was consistently aggravated by the attacks of cholecystitis, in spite of control with digitalis and rest in bed.

Habits: No alcohol or tobacco.

F.H. Nil significant.

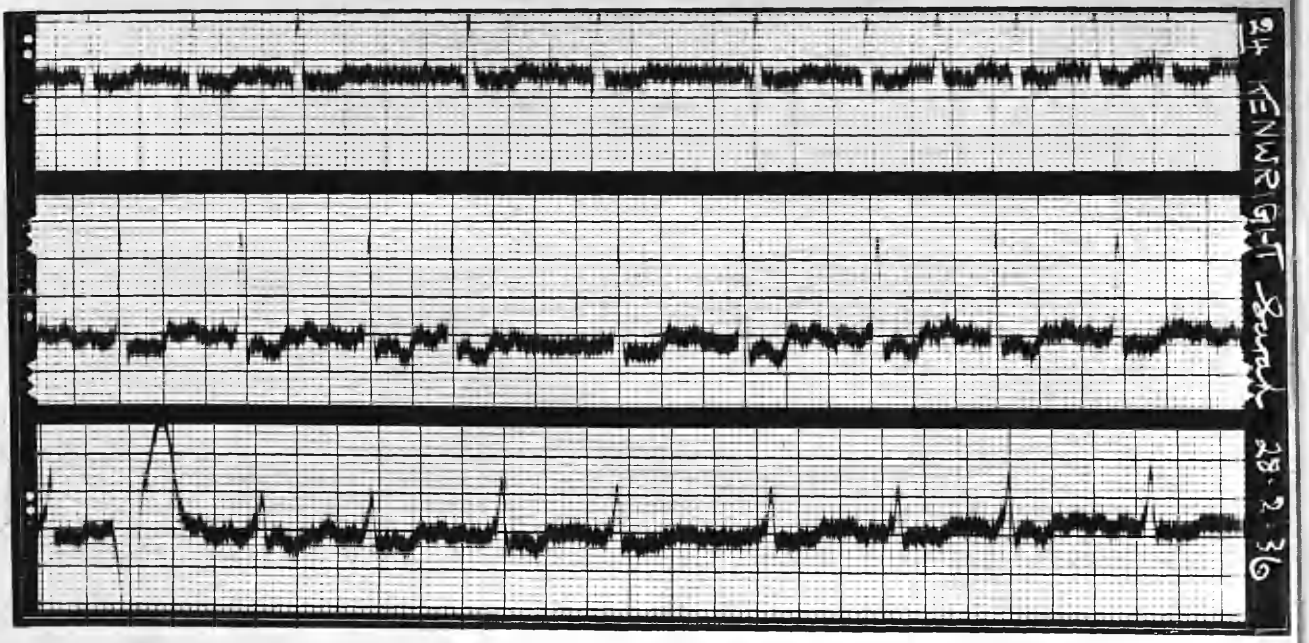
Clinical Findings: Patient was thin and slightly nervous. No dyspnoea at rest. A few septic teeth and slight thyroid enlargement. No tremor of hands or eye signs of hyperthyroidism.

Abdomen: Tender over an enlarged and palpable G.B.

Case No.21.

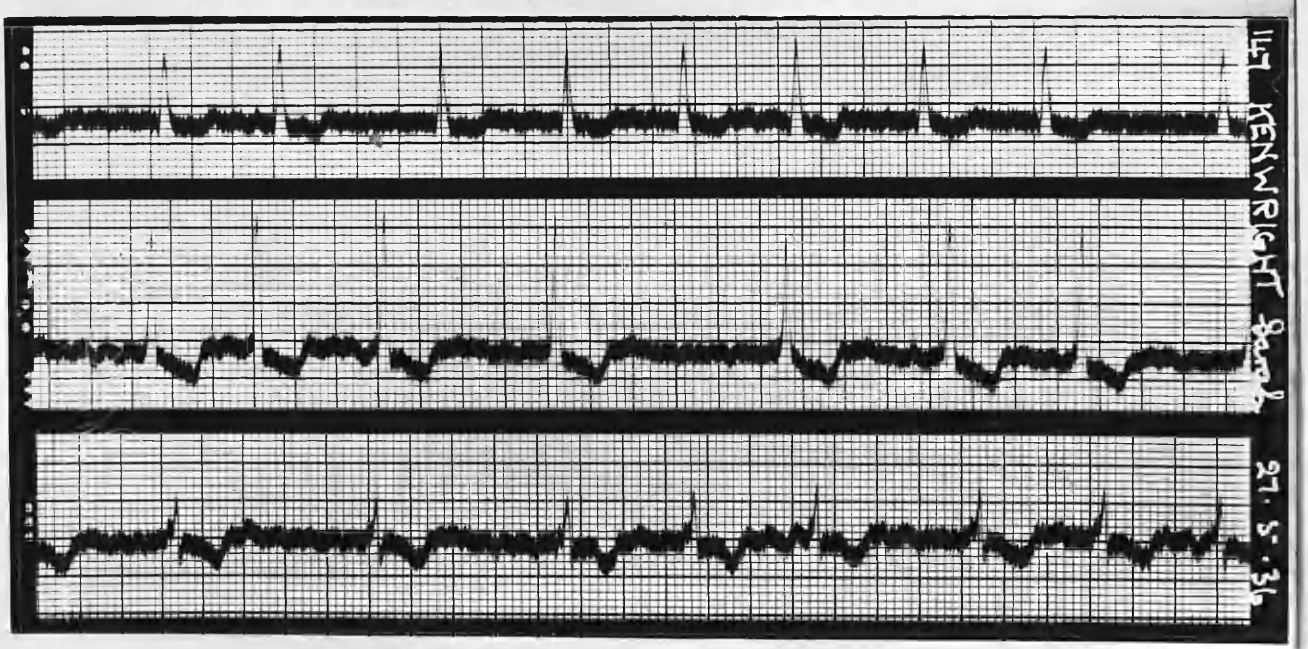
Pre-operative E.C.G.

Post-operative E.C.G.



Case No.21.

Follow-Up E.C.G.



C.V.S. Full pulse with slight tachycardia. Moderate arterio-sclerosis. Cardiac enlargement: 4¼". Heart sounds poor. Auricular fibrillation contolled by digitalis. B.P.176/90.

Other Systems: N.A.D.

Investigation: Exercise Tolerance Impaired. Urine normal.

Pre-operative E.C.G: Auricular fibrillation T.2 and T.3 inverted. S-T deviation. QRS complex. bifid in lead 3— possibly coronary thrombosis.

Impression: Cholelithiasis. Very mild hyperthyroidism. Grave myocardial damage with auricular fibrillation.

Operative Findings: Cholecystectomy performed. G.B. thickened, chronically inflamed and contained 86 pigment and cholesterol calculi.

Report on G.B:- A leucocyte response; mucosa in good condition except for surface layer.

Condition on Discharge. General condition much improved. Previous symptoms absent and is able to walk 100 yards. Patient is increasing in weight, less nervous and the thyroid enlargement has disappeared.

C.V.S. Compensation regained. Auricular fibrillation controlled by digitalis. Heart sound improved in quality. No change in cardiac enlargement. B.P. 134/70. Post-Operative E.C.G. Auricular fibrillation.

Ventricular extra-systole in lead 3. T.2 and T.3 inverted. QRS complex bifid in lead 3.

Follow-Up: Readmitted two months after discharge with severe decompensation and cardiac failure, due to stopping digitalis.

On examination; Mild hyperthyroidism. Oedema of ankles and congestion and enlargement of liver. Auricular fibrillation with rapid rate.

Patient soon settled down when controlled with digitalis and was given prolonged rest in bed in view of the thyroid condition.

X-ray of chest showed slight cardiac enlargement of the mitral type. E.C.G. Auricular fibrillation. QRS complex bifid in lead 3. T wave inverted in all leads. Discharged from hospital after two months.

Conclusion: Cholelithiasis; mild hyperthyroidism; severe myocardial damage with auricular fibrillation and loss of cardiac compensation. After cholecystectomy the symptoms of hyperthyroidism were improved and the cardiac condition was considerably ameliorated in spite of the persistence of abnormal rhythm.

Case No 22. Sex: Female. Age: 49 years.

Complaint: Attacks of severe colic in the right and left hypochondrium for two years.

P.H. Typhoid and Scarlet Fever 25 years ago.

Obstetric History: Thirteen normal pregnancies.

H.P.C. Three attacks of severe colic in the past two years, distributed through both hypochondria, right arm and between the scapulae, and associated with nausea and vomiting. Pain somewhat relieved by eructation. Flatulence for twenty-five to thirty years. Intolerance of fats for one year. Dyspnoea on exertion with palpitation for twenty-five years. Weight has been over fifteen stone during the past twelve years. No jaundice.

Habits: No alcohol or tobacco.

F.H. One sister had cholecystectomy performed. Nil else significant.

Clinical Findings: Marked obesity. No focal sepsis evident.

Abdomen: Fat and prominent. Tenderness over right hypochondrium. Murphy's sign positive. G.B. and liver not palpable.

C.V.S. Heart sounds of poor quality, especially the first. A.2. accentuated. Faint apical systolic murmur. No cardiac enlargement. B.P. 118/80.

Other Systems: N.A.D.

Investigations: Exercise Tolerance- impaired. Urine- many cbliform bacilli present. Cholecystogram: pathological G.B.

Impression: Cholelithiasis, Cholecystitis, Obesity and Myocardial weakness.

Operative Findings: Cholecystectomy performed. Large G.B. with thickened walls. Mucous membrane ulcerated in parts with a calculus imbedded in each ulcer. Five calculi present.

Report on G.B: Abscess present surrounded by granulation tissue. Mucosa ulcerated.
The liver substance is also inflamed.

Follow-Up: Admitted to hospital six months after operation with an anginal attack. B.P. 170/115.

Ten months after operation: On ordinary diet and has no dyspepsia. Dyspnoea on lying down and very severe on exertion. Occasional oedema of ankles. Pain in left chest on exertion or excitement for the past five months.

On examination, Very stout patient. No oedema.

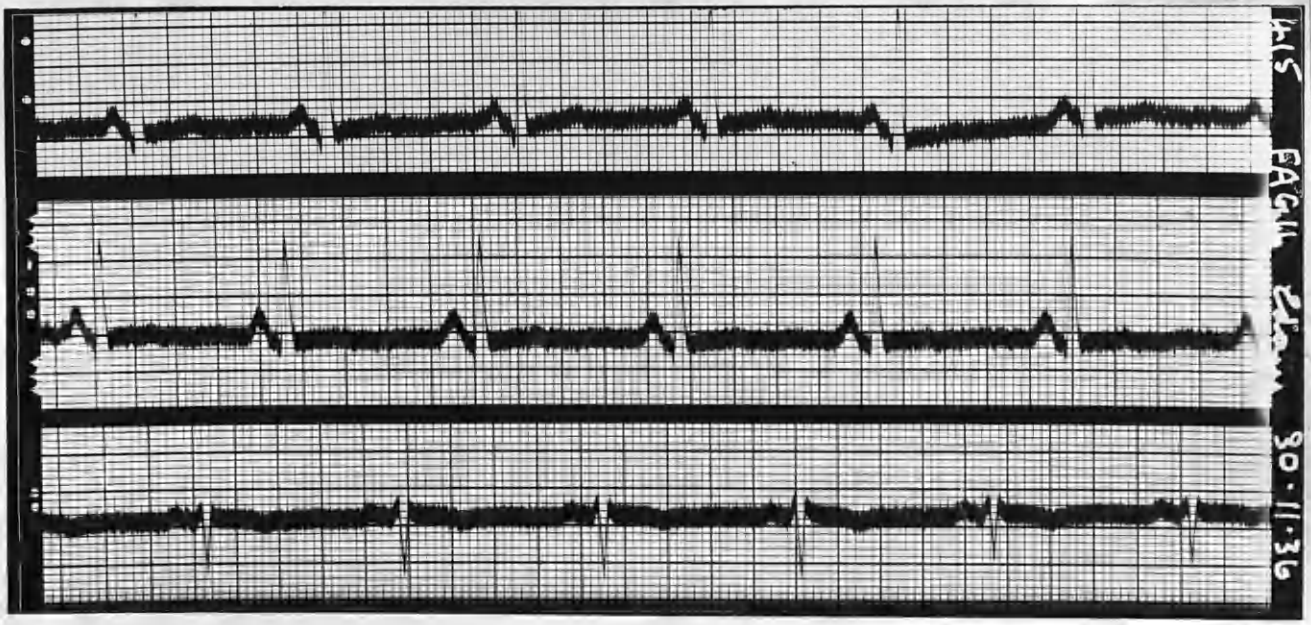
Exercise Tolerance: grossly impaired.

C.V.S. Cardiac enlargement: $5\frac{1}{4}$". First sound poor and second sound accentuated at all areas. Soft apical systolic murmur. B.P. 220/170.

E.C.G. L.V.P., P wave poor and T wave inverted in lead 3.

Conclusion: Cholelithiasis, cholecystitis, obesity and myocardial weakness. G.B. condition cured by cholecystectomy. Progress of the cardio-vascular lesion uninterrupted by operation. Obesity probably the chief factor and the prognosis is grave.

Follow-Up E.C.G.



Case No 23. Sex: Female. Age:54 years.

Complaint: "Bilious" attacks for years. More severe in past year.

P.H. Right eye removed eight years ago. Menopause at forty-six years.

Obstetric History: Two healthy children. No miscarriages.

H.P.C. "Bilious" attacks for many years, accompanied by mild jaundice for the past two years. Nausea, heartburn, intolerance of fat and vomiting of bile-stained fluid during the attacks. Colicky pain in the right hypochondrium. Frequency of micturition for several years with occasional dysuria. Dyspnoea on exertion and oedema of ankles in the evening for one year.

Habits: No alcohol or tobacco.

F.H. Nil significant.

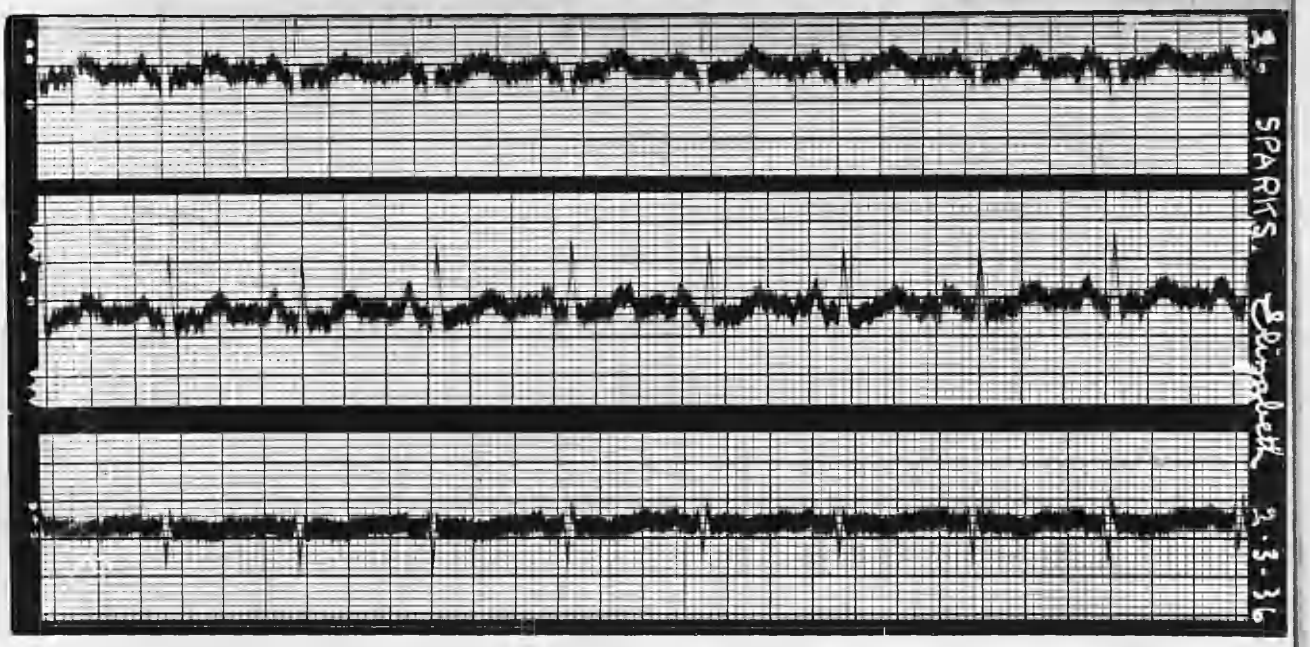
Clinical Findings: Obese. Mild degree of myxoedema. A trace of orthopnoea and pre-tibial oedema while in bed. No dental sepsis. No jaundice. Fibrositis of shoulders.

Abdomen: Tender in right hypochondrium. G.B. palpable and tender. Murphy's sign negative.

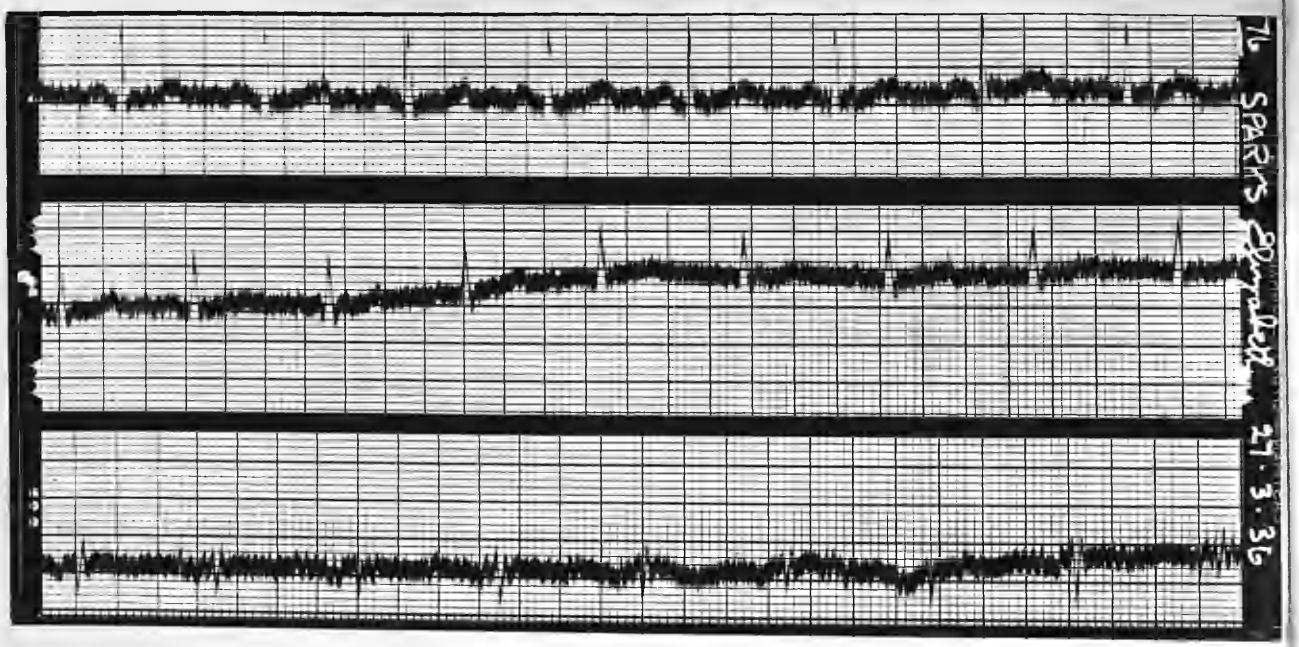
C.V.S. Moderate arterio-sclerosis. No cardiac enlargement. First sound poor and second slightly accentuated at all areas. Faint systolic murmur at the pulmonic area. B.P. 132/74.

Case No.23.

Pre-operative E.C.G.

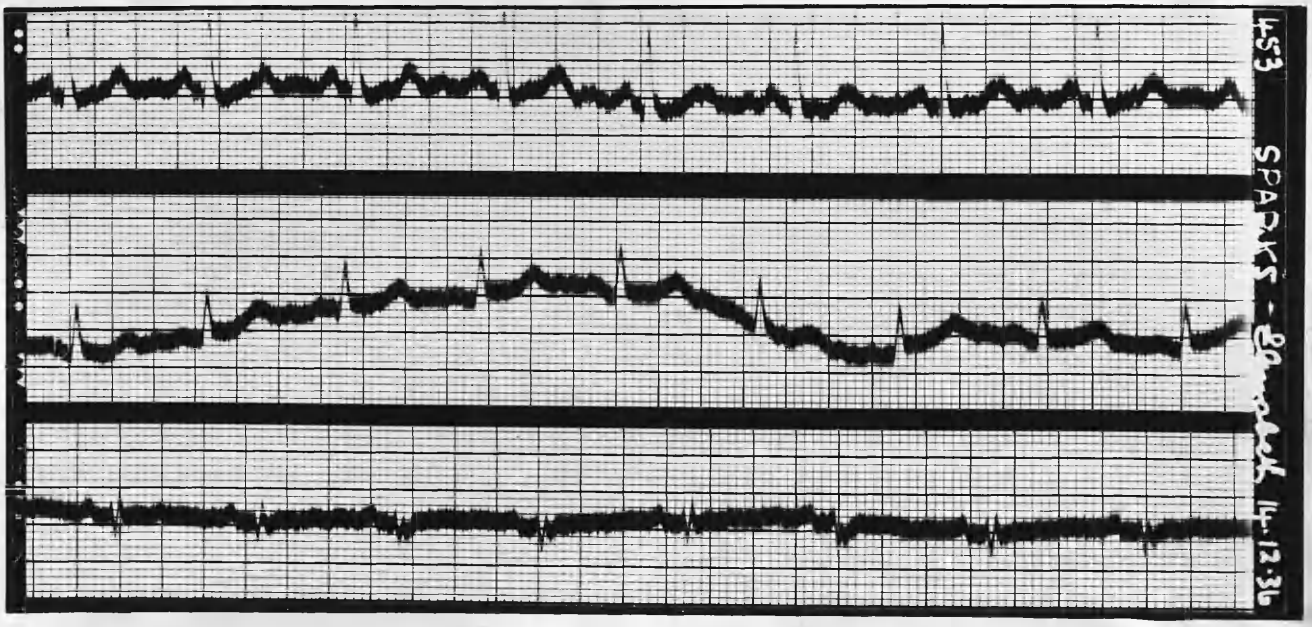


Post-Operative E.C.G.



Case No.23.

Follow-Up E.C.G.



Other Systems: N.A.D.

Investigation: W.R.negative. Exercise Tolerance-impaired. B.C.T. Moderate renal function. Urine- Trace of pus and organisms. Cholecystogram- Pathological G.B. containing several stones. Icterus index-normal. Pre-operative E.C.G. L.V.P. Low voltage with poor P and T waves in lead 3.

Impression: Cholelithiasis, Myocardial Damage, Mild Myxoedema and Urinary Infection.

Operative Findings: Cholecystectomy performed. G.B. thickened with ulceration of mucosa. Seven calculi present containing pigment and calcium.

Condition on Discharge: General condition moderate. C.V.S.& E.C.G: I.S.Q.

Follow-Up: Ten months after operation: Still has flatulent dyspepsia although she is taking a fat-poor diet. Occasional epigastric pain and vomiting. Weight increasing, Patient feels better than before operation. On examination: Obese. C.V.S. Heart sounds moderate. No cardiac enlargement. B.P. 180/130.
Tender in right hypochondrium. Mild myxoedema. E.C.G. L.V.P. Low voltage and poor T wave in lead 3. P.3. slightly improved.

Conclusion: Chronic cholecystitis and cholelithiasis relieved but not cured by cholecystectomy. Obesity and mild myxoedema. Some myocardial insufficiency which was improved after operation.

Case No.24. Sex: Female. Age:28 years.

Complaint: Attacks of severe epigastric pain for three years.

P.H. Obstetric History: Six normal pregnancies during the past eight years. No miscarriages.

H.P.C. Six attacks of severe colic distributed in both hypochondria and the right lumbar region, accompanied by nausea, vomiting, heartburn and flatulence, during the past three years. No jaundice or intolerance of fats. Dyspnoea on exertion for two years. Evening oedema of ankles for four years. Palpitation for two months. Considerable increase in weight during the past two years.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Obese. No jaundice, anaemia or detectable focal sepsis.

Abdomen: Flabby, multiparous abdominal wall. Tender over G.B. area and Murphy's sign positive. G.B. not palpable.

C.V.S. Area of cardiac dulness $4\frac{1}{4}$". Heart sounds poor. Soft systolic murmur at all areas. Occasional extra-systoles. B.P. 120/80.

Other Systems: N.A.D.

Investigation: Exercise Tolerance: definitely impaired. Urine: normal. Urea concentration satisfactory.

Cholecystogram: Pathological G.B. with many stones.

Pre-operative E.C.G: T.1 and T.2 large. T.3 poor. P.2 bifid.

Impression: Cholelithiasis; obesity and myocardial weakness.

Operative Findings: Cholecystectomy performed. G.B. thickened. No acute inflammation. G.B. contained thick, stringy, bile-stained mucus and nine calculi.

Condition on Discharge: General condition satisfactory. No pain or flatulent dyspepsia. Dyspnoea on exertion less than before operation.

C.V.S. Cardiac dulness I.S.Q. Heart sounds poor. Faint systolic murmur I.S.Q. No extra-systoles. B.P. 134/76.

Post-Operative E.C.G: T.1 and T.2 large. P.3 worse. T.3 improved. Ventricular extra-systole in lead 3.

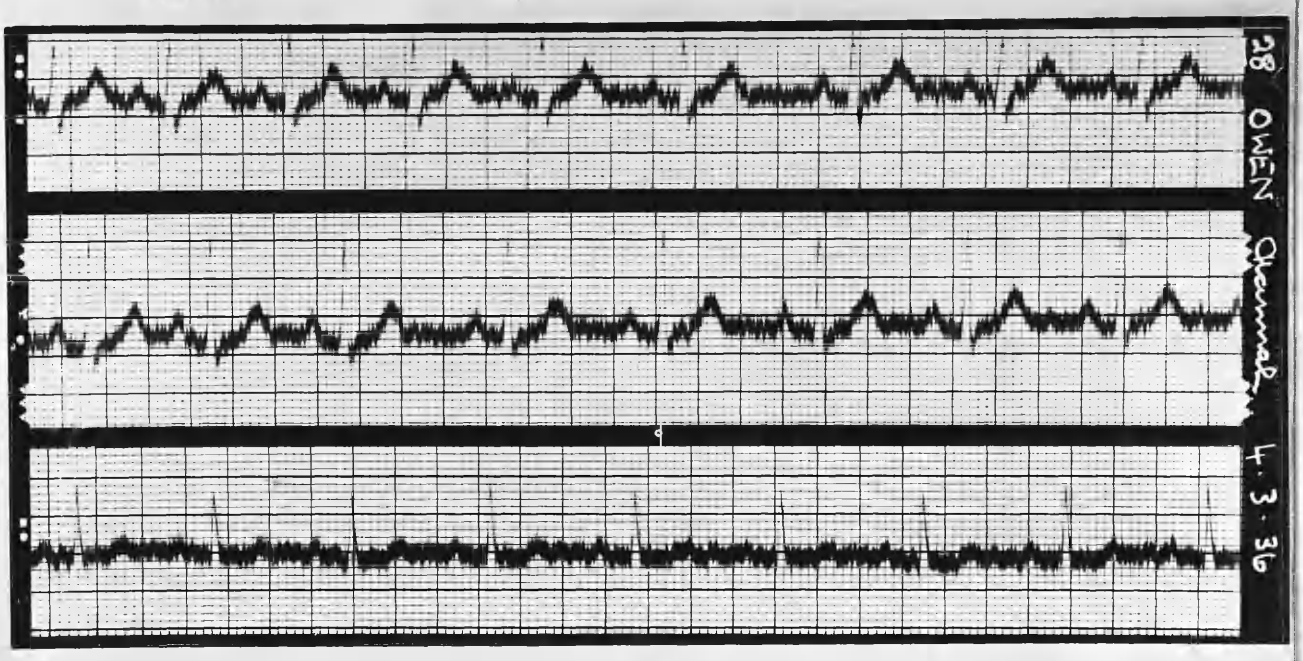
Follow-Up: Eight months after operation: No pain but still has flatulence, vomiting and intolerance of fats. Dyspnoea on exertion more pronounced. No oedema of ankles. Weight increased.

Gross obesity. Cardiac enlargement $4\frac{1}{2}$". First sound slightly weak at all areas. P.2 accentuated. Apical systolic murmur. Exercise Tolerance: Much impaired. No oedema. E.C.G. T.1 and T.2 still large. P.3 poor. Extra-systoles in lead 2.

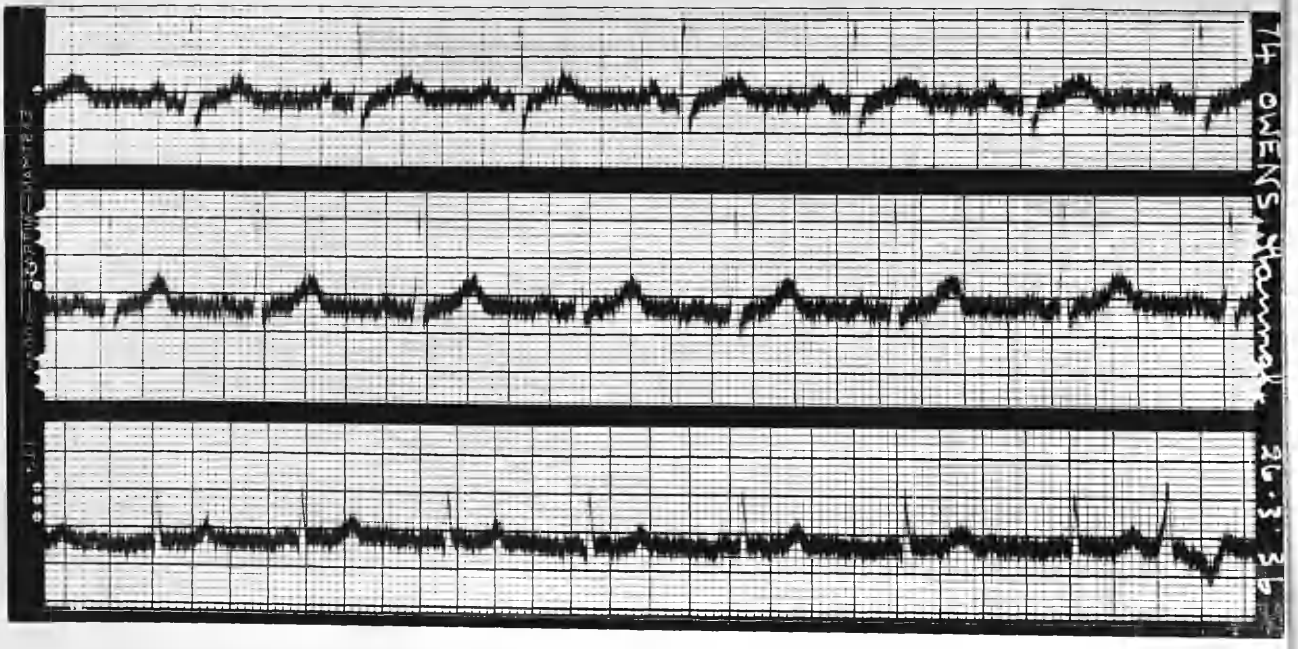
Conclusion: Cholelithiasis and obesity of several years standing. Myocardial damage present. Subjective but no objective improvement in the cardiac condition one

Case No.24.

Pre-operative E.C.G.



Post-operative E.C.G.



month after cholecystectomy. Cardiac lesion more prominent eight months after operation, associated with increasing weight.

Follow-Up E.C.G.

Case No25. Sex: Female. Age: 42 years.

Complaint: Pain in right hypochondrium and beneath the right scapula for five years.

P.H. Pleurisy and pneumonia ten years ago.

Obstetric History: Six normal pregnancies. No miscarriages.

H.P.C. Attacks of stabbing pain in the right hypochondrium and right scapula region during the past five years. Dull ache in the right lumbar region with renal spread. Nausea, vomiting and severe flatulence associated with the pain. Intolerance of fats for five years. No definite jaundice. Dysuria and frequency for two months. Dyspnoea on slight exertion and oedema of ankles in the evening for three months. Palpitation for seven years. Menses regular. Over-weight for seven years. Severe frontal headaches.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Very stout patient. No anaemia, jaundice or focal sepsis detected. Mild myxoedema. Abdomen: Abdominal wall flabby, with fibrositis. Tender in right lumbar region. G.B. not palpable. Ovarian cyst suspected. C.V.S. Arterio-sclerosis. Cardiac dullness uncertain, circa $4\frac{1}{2}$". First sound poor and second slightly accentuated at all areas. B.P.164/104.

Investigation: W.R.negative. Exercise tolerance impaired.
Cholecystogram: Pathological G.B. with several calcified shadows in the right upper abdomen, almost certainly due to gall-stones.
Pyelogram: Renal Tract normal. Pre-Operative E.C.G: T.2 and T.3 poor. T.3 inverted. Tendency tb S-T deviation in lead 3.
Urine normal.

Impression: Cholecystitis, Myocardial weakness, obesity and ? ovarian cyst.

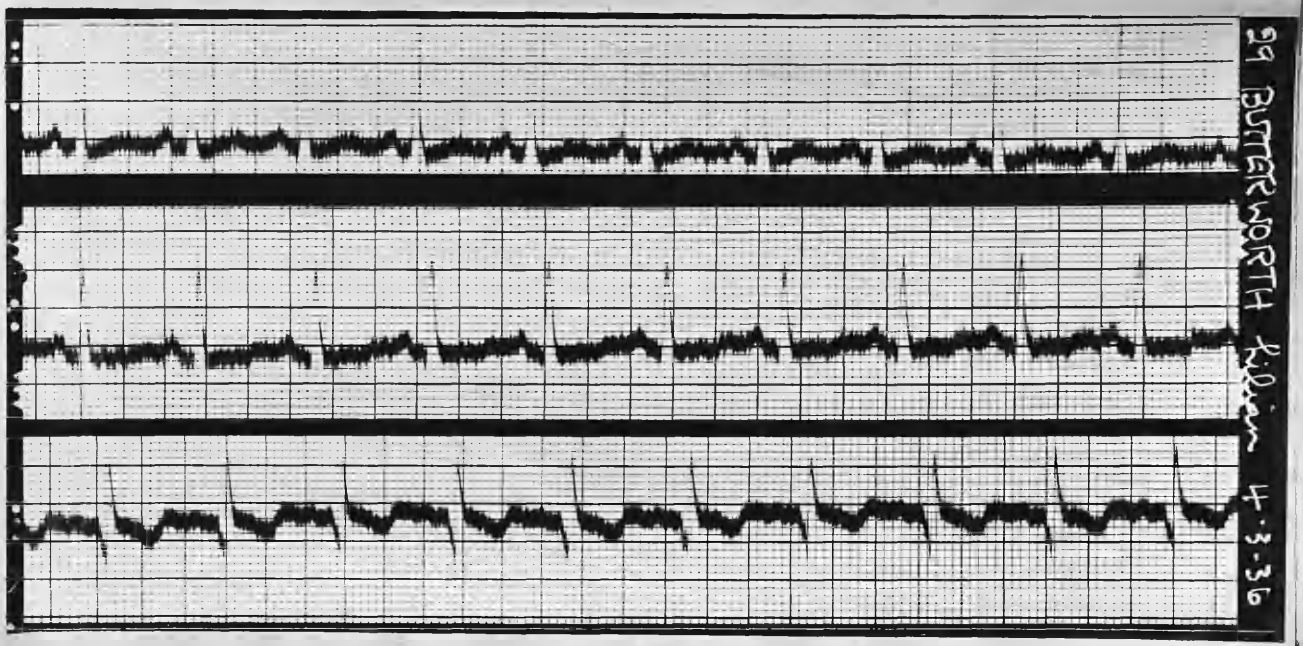
Operative Findings: Two large, simple, multi-loculated ovarian cysts removed. Cholecystectomy performed. G.B. small with an area of old inflammation. No calculi.
Report on G.B. Atrophic. Little cellular activity seen now.

Condition on Discharge: General condition satisfactory. Previous symptoms absent. Dyspnoea on exertion. improved.
C.V.S. Heart sounds improved in quality. accentuation of second sound still present at all areas. B.P. 136/96.
Post-Operative E.C.G: L.V.P. P.3 poor and inverted. T.3 smaller.

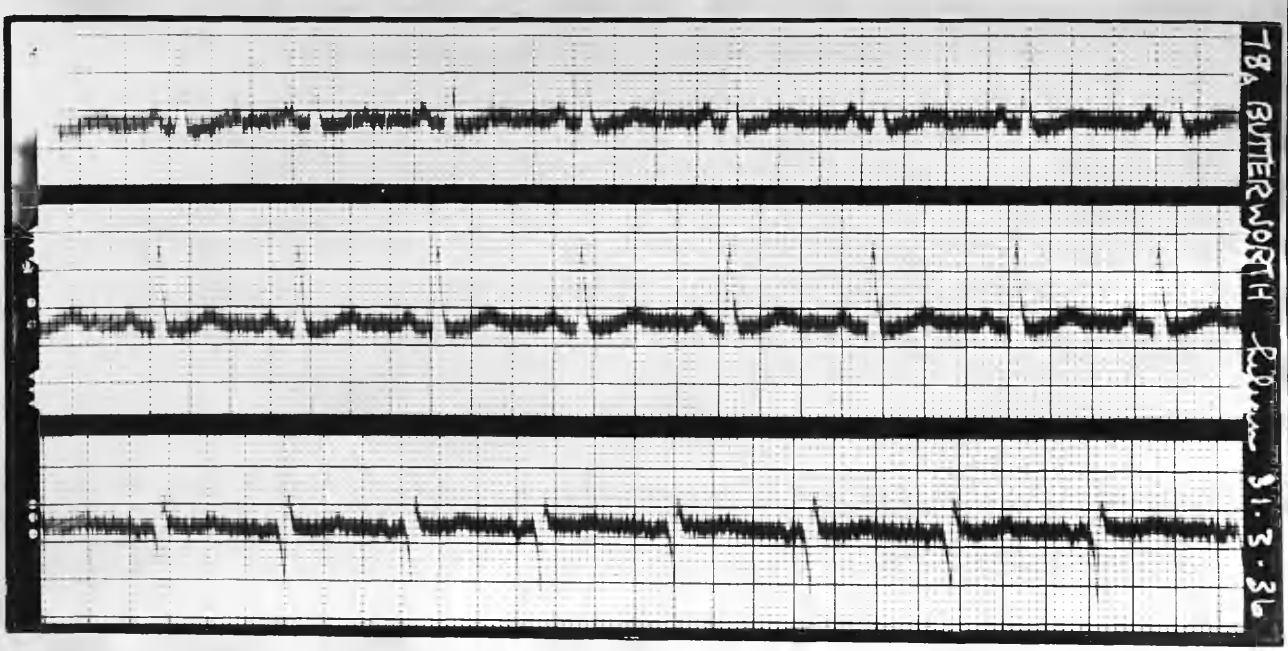
Follow-Up: Three months after operation: No pain or dyspepsia. Amenorrhoea. Dyspnoea and oedema of ankles very slight.

Case No.25.

Pre-operative E.C.G.



Post-operative E.C.G.



C.V.S. Heart sounds normal. Faint systolic murmur at apex.

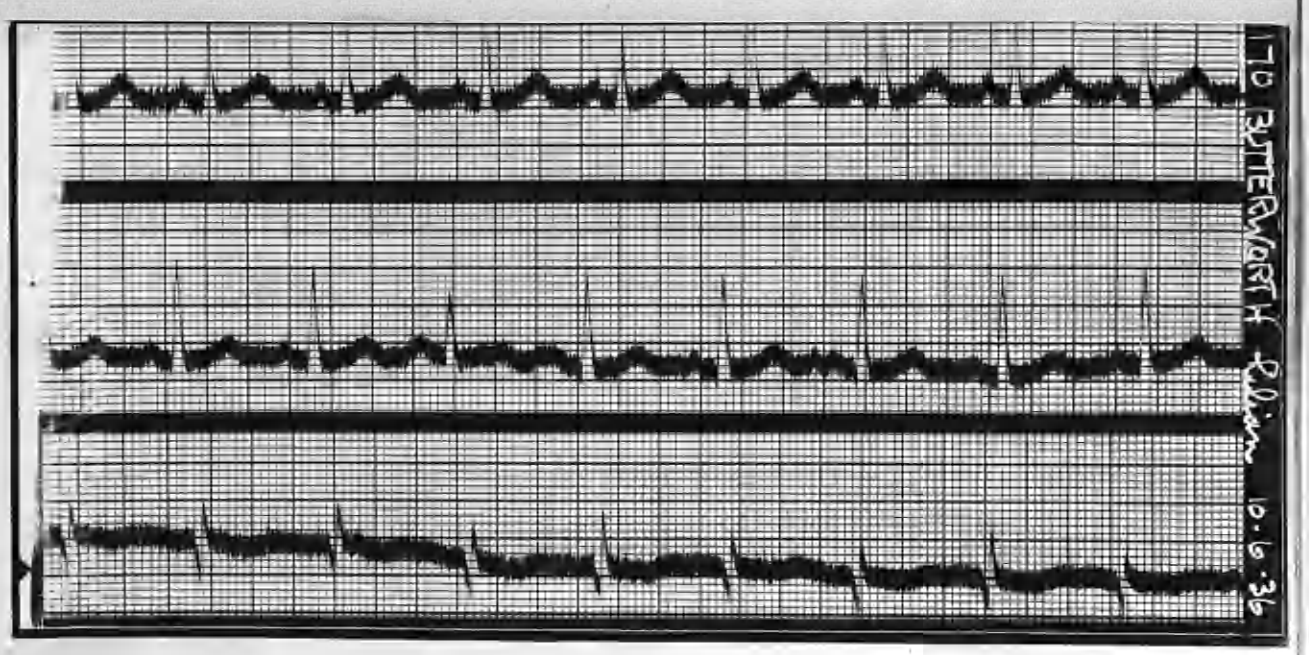
E.C.G: P.3 still poor. T.3 small. No L.V.P.

Six months after operation: Dyspnoea and oedema of ankles more pronounced. Still very stout.

C.V.S: Heart sounds satisfactory. No murmurs. B.P. 170/140.

Conclusion: Chronic cholecystitis, obesity and ovarian cysts. Some myocardial weakness, accounted for by obesity, apparently temporarily improved after cholecystectomy and removal of ovarian cysts, but later becoming progressively worse.

Follow-Up E.C.G.



Case No.26. Sex: Female. Age:62 years.

Complaint: Two attacks of epigastric pain with vomiting and jaundice during the past year.

P.H. Obstetric History: Three normal pregnancies. Two miscarriages.

H.P.C. Two attacks of severe pain in the epigastrium and between the scapulae during the past year, associated with nausea, vomiting and flatulence. Jaundiced for the past 4 weeks. Intolerance of fats for one year. Dyspnoea on exertion for two months. Evening oedema of ankles for two to three years.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Thin patient with jaundice. Dental sepsis present.
Abdomen: Wasting of abdominal wall. G.B. palpable. Liver dulness normal. No tenderness present.
C.V.S. Mild arterio-sclerosis. Cardiac enlargement $4\frac{3}{4}$". Heart sounds of moderate quality with re-duplication of the mitral second sound and slight accentuation of the second sound at all areas.
B.P. 144/76.
Other systems: N.A.D.

Investigation: Moderate exercise tolerance. Urine normal.
Straight X-ray of Abdomen:- Several weak shadows in G.B. region, suspicious of calculi.
Icterus Index-100; 5; 15. Bleeding time and coagulation time within normal limits.

Impression. Stone in common bile duct. Some myocardial weakness.

Operative Findings: C.B.D. grossly dilated right down to duodenum. No calculus present. G.B. very adherent to liver, duodenum and omentum and is thickened. Cholecystectomy performed.

Report on G.B. Mucosa shows a fairly rich leucocytic infiltration. Ulceration present in some places.

Result: Patient died on 19th day after operation.

Conclusion: Chronic cholecystitis and obstruction of C.B.D. Death occurred 19 days after cholecystectomy, probably from hepatic failure caused by long standing obstruction and infection of the biliary passages. Myocardial insufficiency present. No post-mortem examination obtained.

Case No.27. Sex: Female. Age:44 years.

Complaint: Two attacks of epigastric pain spreading to between the scapulae.

P.H. Haematemesis at nineteen years. Appendicectomy and removal of ovarian cyst several years ago.

Obstetric History: One normal pregnancy eight years ago. No miscarriages.

H.P.C. Two attacks, at an interval of four months, of intermittent pain in the right hypochondrium, passing through to between the scapulae. Pain relieved partially by vomiting and eructation. Nausea, heartburn, flatulence and vomiting during the attacks. Intolerance of fats for five months. No jaundice. Occasional attacks of diarrhoea. Dyspnoea on exertion for six months. Oedema of ankles on one occasion recently. Weight increased in past two years.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Obese patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby, obese abdominal wall. Tender in right hypochondrium and left iliac fossa. G.B. not palpable and Murphy's sign negative.

C.V.S. Slight cardiac enlargement $4\frac{1}{2}$". First sound poor and second sound accentuated at all areas. B.P. 156/90.

Other Systems: N.A.D.

Investigation: Exercise Tolerance: satisfactory. Urine normal. Pre-operative E.C.G. L.V.P. P.1, P.3, and T.3 poor. T.2 large. Low voltage in lead 3. Cholecystogram: (intravenous) G.B. fills with dye, concentrates poorly and shows slight delay in emptying. No stone shadow seen. Barium Enema shows diverticulosis of descending colon.

Impression: Cholecystitis, diverticulosis, mild degree of myocardial weakness and obesity.

Operative Findings: "Strawberry" G.B. No calculi. Cholecystectomy performed.

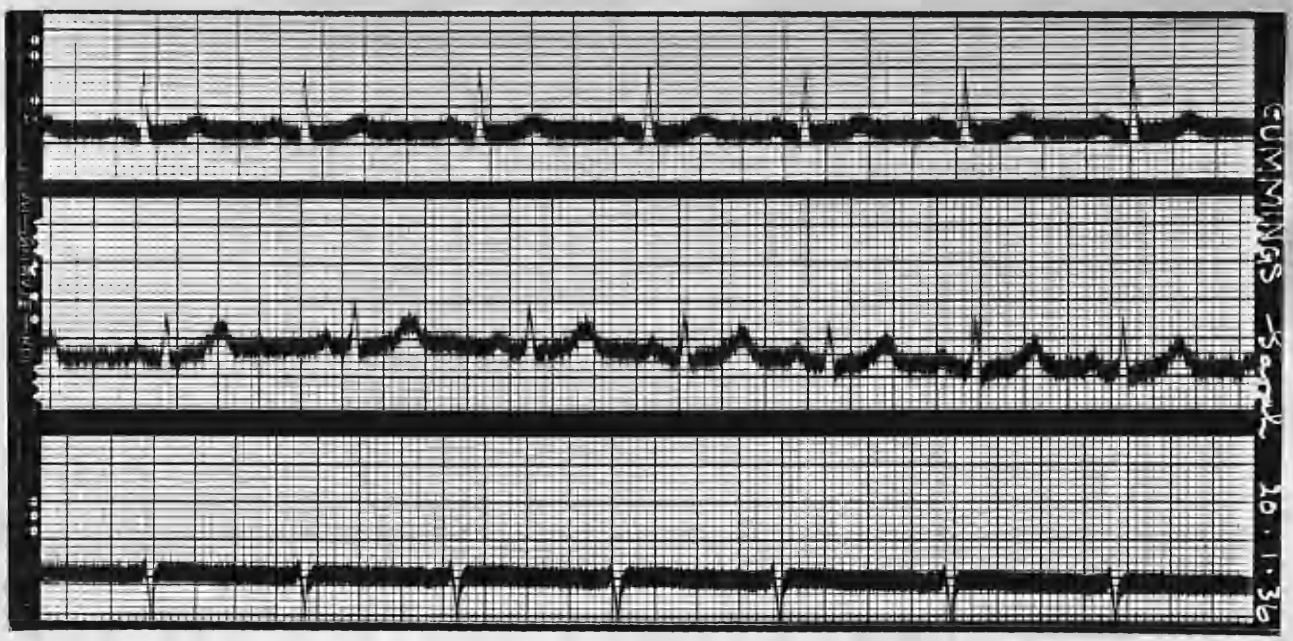
Condition on Discharge: C.V.S: I.S.Q. Post-operative E.C.G: L.V.P. more marked. Voltage improved. T.1 and P.1 improved.

Follow-Up: Eight months after operation: Patient on ordinary diet and is free from pain and dyspepsia. Some dyspnoea on exertion still, but less since operation. Weight increasing.
Obese. Exercise Tolerance: Impaired.
C.V.S: Cardiac enlargement 5". First sound poor with systolic murmur at the pulmonic and tricuspid areas. A.2. accentuated. B.P. 180/120.
E.C.G: L.V.P., T.3. poor.

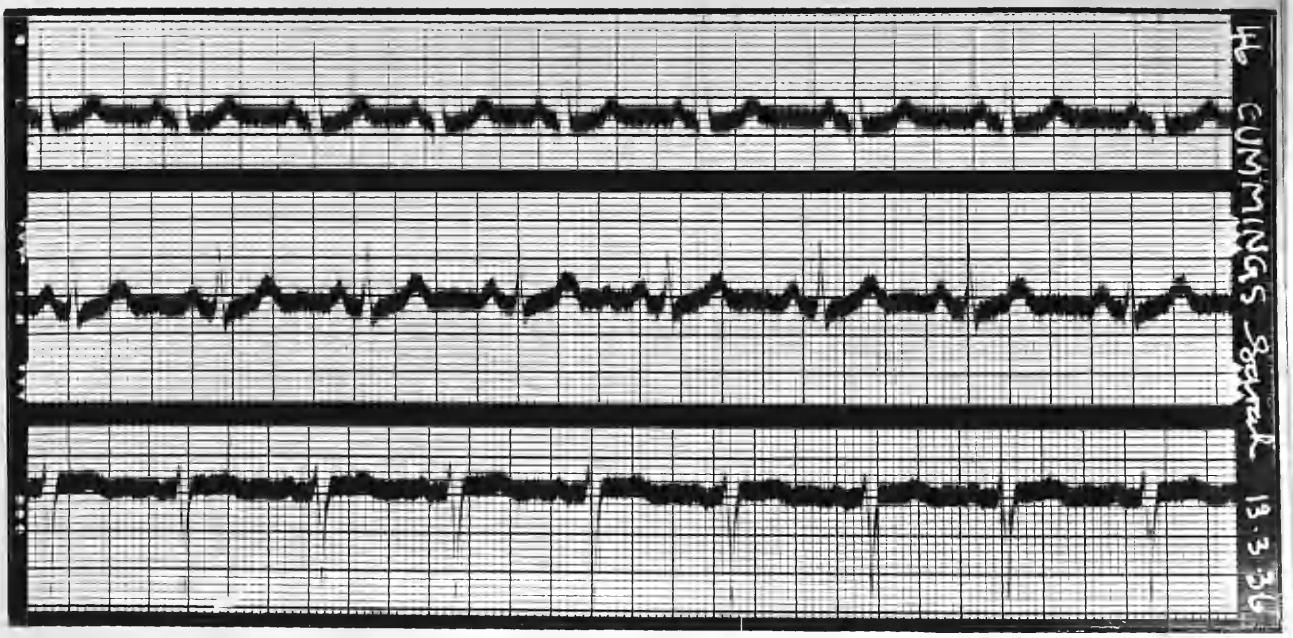
Conclusion: Cholecystitis, moderate obesity and myocardial insufficiency. G.B. symptoms cured by cholecystectomy but obesity and myocardial insufficiency progressively more marked.

Case No.27.

Pre-operative E.C.G.

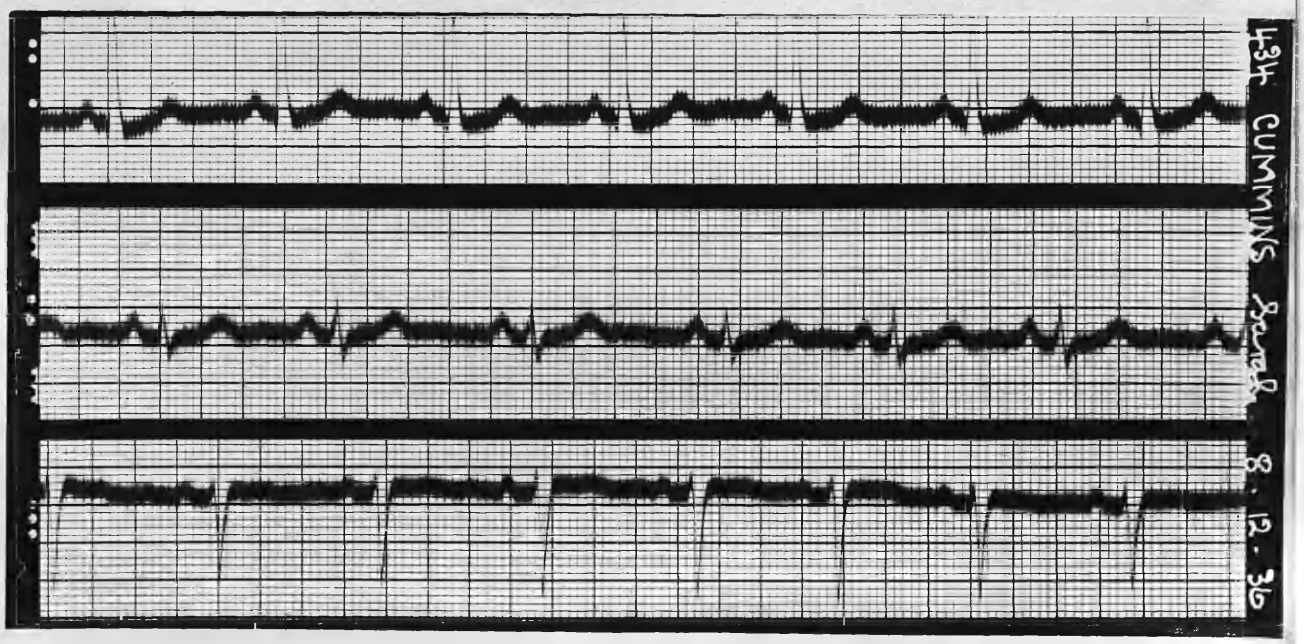


Post-operative E.C.G.



Case No.27.

Follow-Up E.C.G.



Case No.28. Sex: Female. Age:45 years.

Complaint: Attacks of pain in the right hypochondrium for eighteen years.

P.H. Obstetric History: Three healthy children and four miscarriages.

H.P.C. Attacks of severe colic, affecting the right hypochondrium and spreading to the back, for the past eighteen years. Pain slightly relieved by vomiting and eructation and is accompanied by nausea, severe flatulence and vomiting. Intolerance of fats especially marked in past 6 months. No jaundice. Considerable dyspnoea on slight exertion for past two years. Palpitation and oedema of ankles for three years. Weight increased in past five years.

Habits: Mild alcohol consumption. No tobacco.

F.H. Mother died suddenly aged 51 years and was jaundiced during her last illness. One brother died suddenly from a heart attack aged 40 years.

Clinical Findings: Obese patient with slight orthopnoea. A trace of cyanosis and oedema of both legs present. No obvious anaemia or dental sepsis. Varicose ulceration of both legs. No jaundice.

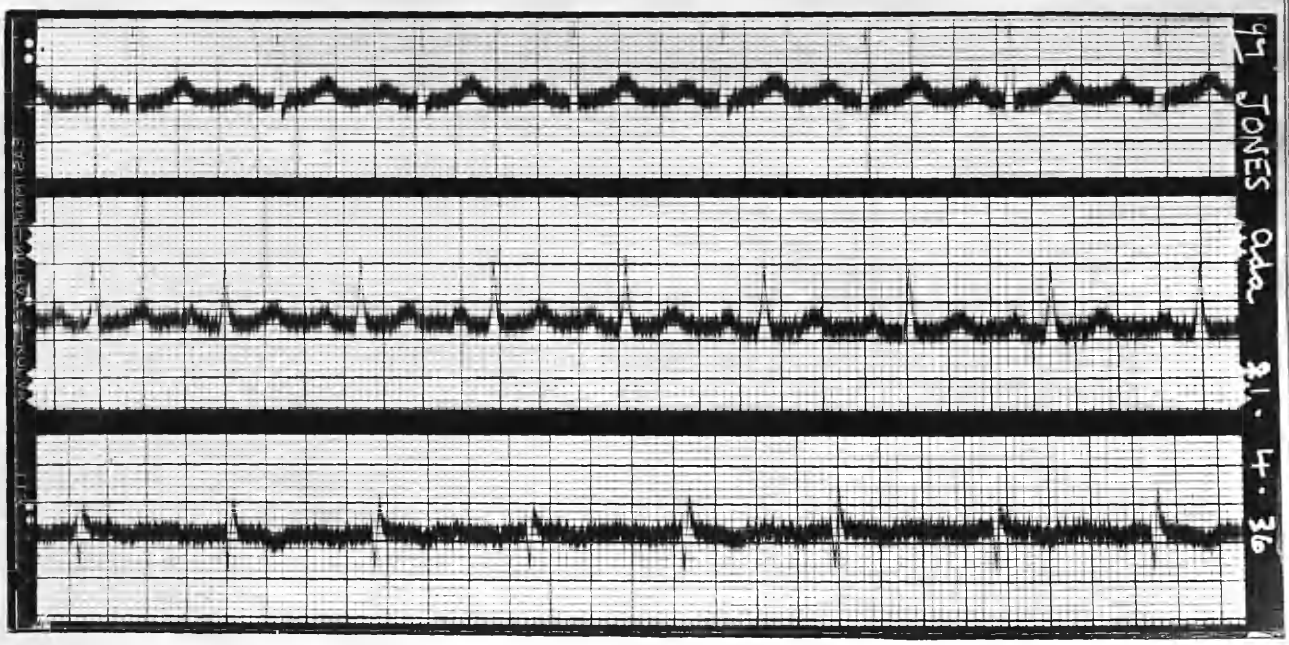
Abdomen: Tender over G.B. Liver enlarged and congested. No ascites. G.B. not palpable.

C.V.S. Cardiac enlargement. Heart sounds poor with apical systolic murmur. B.P. 140/95.

Case No.28.

Pre-operative E.C.G.

Post-operative E.C.G.



Investigation: W.R. negative. Urine: Trace of albumin. No renal elements. Cholecystogram: Pathological G.B. Pre-operative E.C.G: P.3 and T. 3. poor. QRS complex: bifid.

Impression: Cholelithiasis, obesity and myocardial degeneration.

Operative Findings: Cholecystectomy performed. Two large calculi present. Fibrosis of G.B.
Report on G.B: Fibrosis present suggesting a very long-standing infection.

Condition on Discharge: General condition satisfactory. Cyanosis and dyspnoea absent.
C.V.S. Slight cardiac enlargement. Heart sounds weak. B.P. 145/100. Post-Operative E.C.G: Poor P and T waves with bifid QRS complex in lead 3.

Conclusion: Chronic cholecystitis and cholelithiasis with obesity and myocardial weakness showing clinical improvement in the cardiac condition after cholecystectomy.

Case No29. Sex: Female. Age: 68 years.

Complaint: Right-sided abdominal pain and vomiting.

P.H. "Appendicectomy" 10 years ago.

H.P.C. One attack of severe pain in the right side of the abdomen. Attacks of nausea, vomiting and severe flatulence for the past three years. Dyspnoea, both on exertion and at rest, for some time. No jaundice.

Clinical Findings: Thin patient with slight orthopnoea and anaemia. No jaundice or obvious focal sepsis.

Abdomen: Tender and slightly rigid in right lumbar region with a palpable mass which was thought to be G.B. C.V.S. Moderate arterio-sclerosis. Cardiac enlargement and auricular fibrillation with weak heart sounds. B.P. 160/100.

Other Systems: Mild bronchitis. Cataract of left eye.

Investigation: W.R.negative. U.C.T. Poor renal function.

Urine: Trace of albumin with a few cellular and hyaline casts. Cholecystogram: Pathological G.B.

Pre-operative E.C.G: T. 2 and T.3 inverted. Auricular fibrillation. Blood Examination: Moderate hypochromic anaemia. X-ray of Chest: Moderate cardiac enlargement. Chronic inflammatory changes in lungs. Barium Meal: Normal.

Impression: Cholelithiasis and myocardial degeneration.

Operative Findings: Cholecystectomy and appendicectomy performed. G.B. very large with considerable oedema and adhesions. Hepatitis in neighbourhood of G.B. Eighty-six calculi present forming three generations. Obstruction of cystic duct. C.B.D:Normal.

Condition on Discharge: General condition much improved. No pain or flatulent dyspepsia.

C.V.S: Cardiac enlargement. Auricular fibrillation, the rate being controlled by digitalis. No oedema, dyspnoea or cyanosis. Patient able to walk without distress. E.C.G. five weeks after operation: More invertion of T waves, probably due to digitalis. Auricular fibrillation. E.C.G. seven weeks after operation: L.V.P. T.2 and T.3 inverted. Low voltage in lead 3. QRS complex splayed in lead 2. Auricular fibrillation.

Follow-Up: Five months after operation: Patient feels much better but still has some dyspnoea on exertion, although the latter is less than before operation. Oedema of ankles develops if digitalis is withheld.

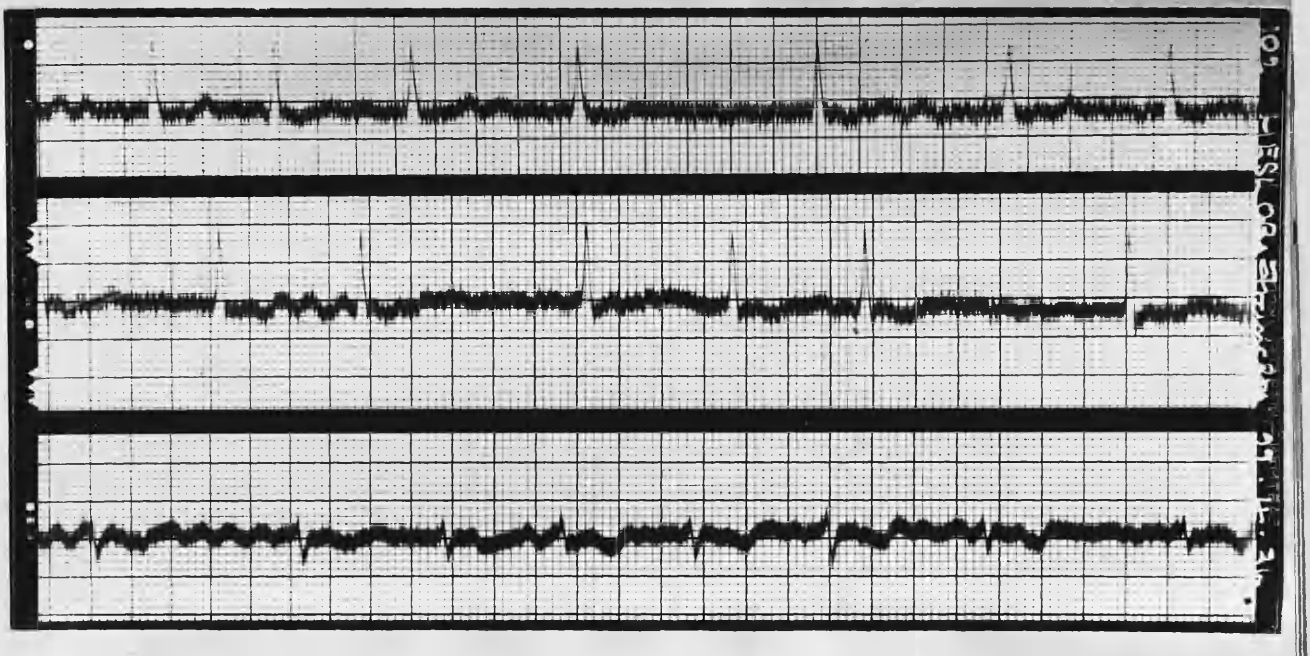
C.V.S: Cardiac enlargement. Heart sounds moderate. Auricular fibrillation present but well controlled.

E.C.G: T.2. and T.3. inverted. QRS complex splayed in lead 3. Auricular fibrillation.

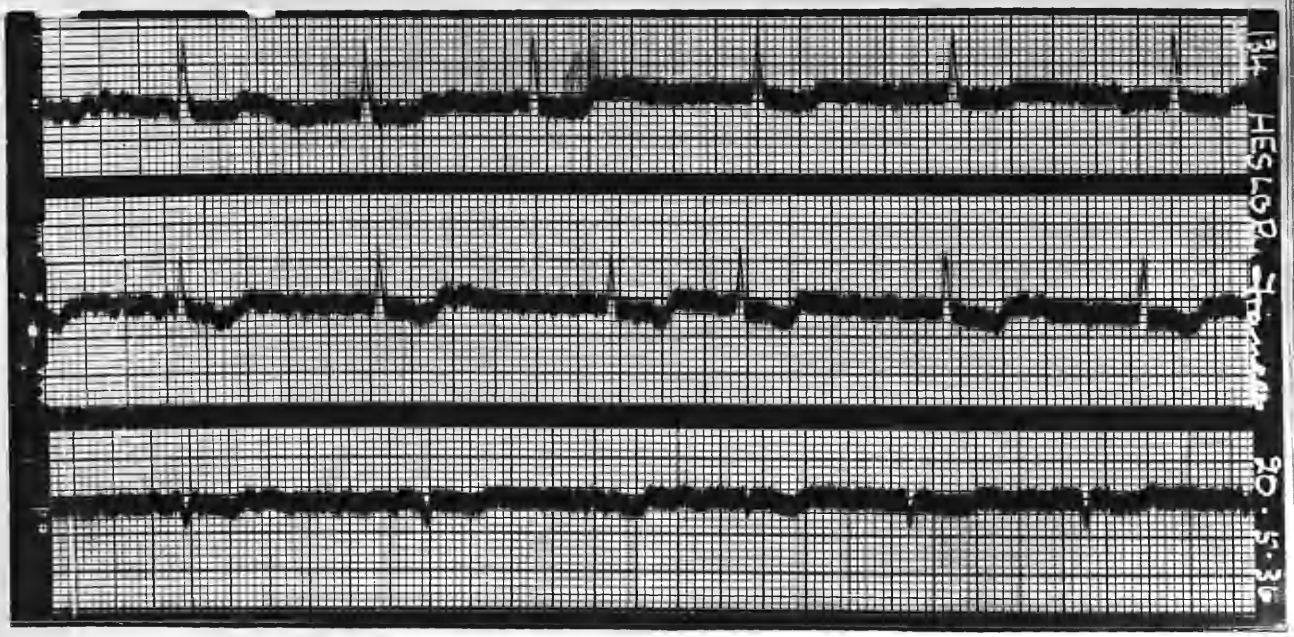
Six months after operation: Patient feels very well. No dyspepsia or pain and is taking a full diet.

Case No.29.

Pre-operative E.C.G.



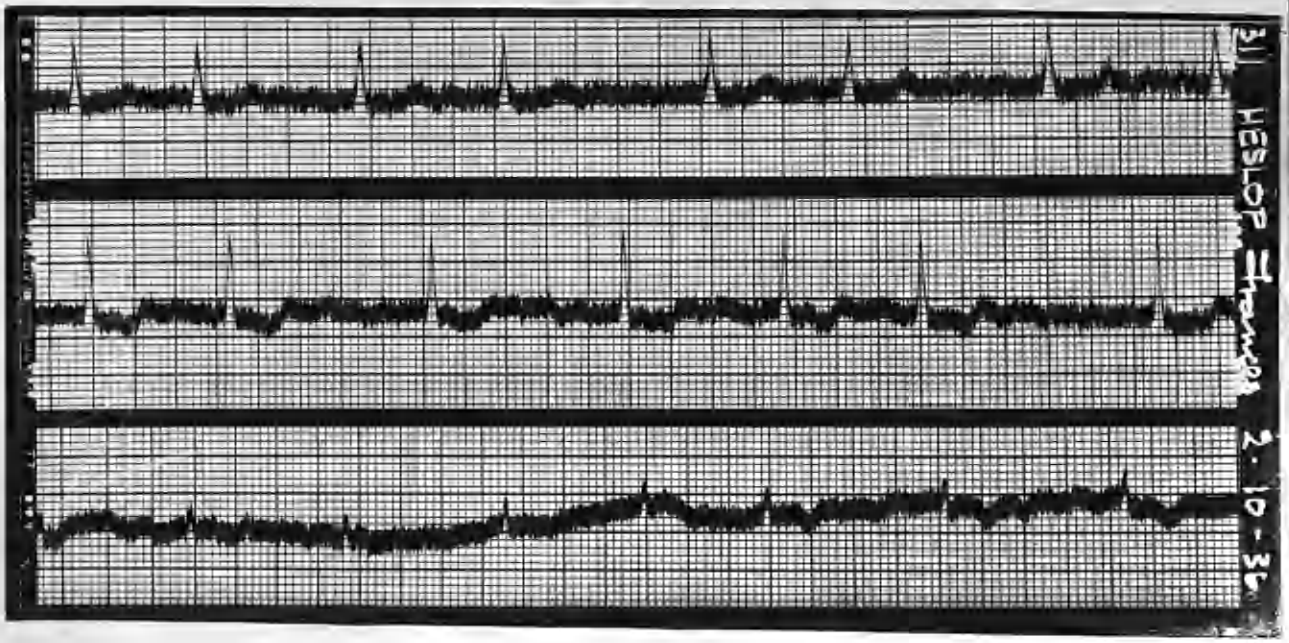
Post-operative E.C.G. 1.



Case No29.

Post-operative E.C.G. 2.

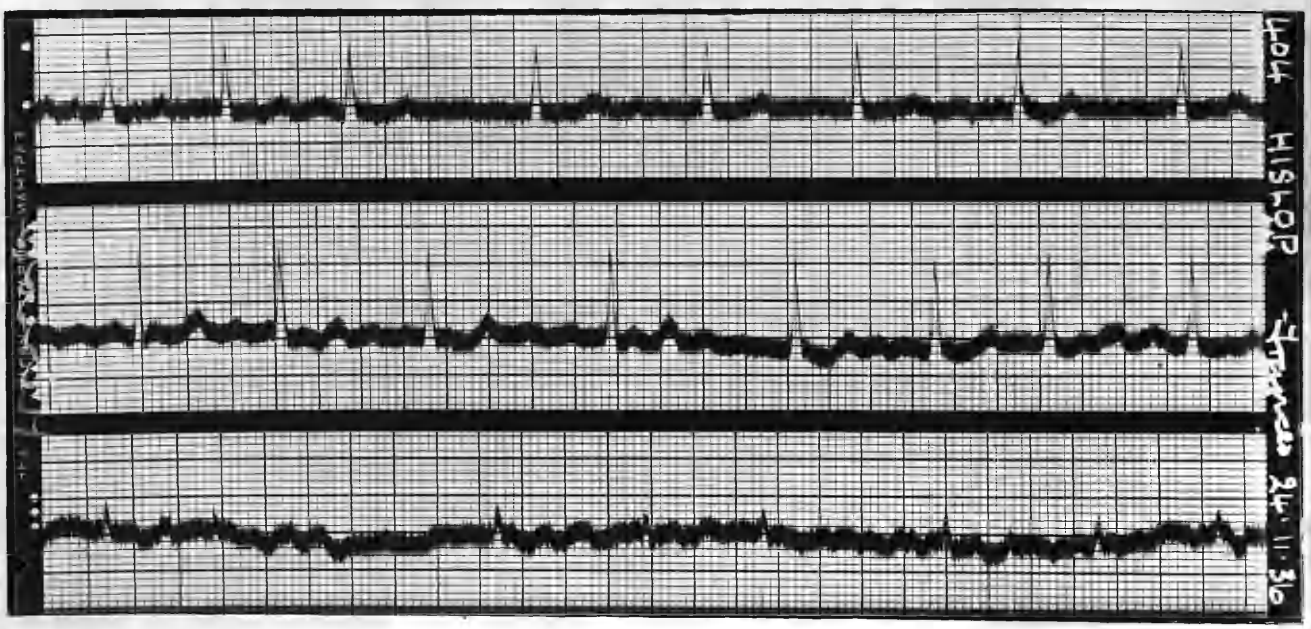
Follow-Up E.C.G. 1.



Dyspnoea on exertion still present but she has recently been able to take greater liberties. C.V.S. Cardiac enlargement 6". Heart sounds moderate. Auricular fibrillation well controlled. B.P. 220/130. E.C.G. Low voltage in lead 3. T.2 and T.3 inverted. Auricular fibrillation.

Conclusion: Cholelithiasis with severe myocardial degeneration and auricular fibrillation. G.B. symptoms completely cured by cholecystectomy. Cardiac compensation established after operation, but this was concurrent with efficient control of the heart rate by digitalis.

Follow-Up E.C.G.2.



Case No.30. Sex: Female. Age:45 years.

Complaint: Attacks of pain in the right hypochondrium for 6 months. "Rupture" for two years.

P.H. Haemorrhoids operated on twenty years ago.
Obstetric History: Two normal children and two miscarriages.

H.P.C. Several attacks of severe colic in the right hypochondrium, spreading to epigastrium and through to the scapula region, during the past five months. The pain is partially relieved by eructation and is accompanied by nausea, vomiting and flatulence. The latter has been present for five years. Intolerance of fat very marked for over one year. No jaundice. Evening oedema of ankles for five months with palpitation for two months.

Habits: Alcohol or tobasco.

F.H. Nil significant.

Clinical Findings: Nutrition normal. No anaemia, jaundice or focal sepsis.
Abdomen: Right inguinal hernia present.
C.V.S. Cardiac enlargement 4½". First sound moderate with slight accentuation of second sound at all areas. Sinus arrhythmia present. Faint systolic murmur at all areas. B.P. 164/90.
Other Systems: N.A.D.

Investigation: W.R. negative. Exercise Tolerance: satisfactory. U.C.T. satisfactory renal function. Urine: normal.

cholecystogram: pathological G.B.

Pre-operative E.C.G. L.V.P. QRS complex biphasic in lead 3. S-T complex altered in lead 2.

Impression: Cholecystitis, right inguinal hernia and some myocardial weakness.

Operative Findings: Cholecystectomy, appendicectomy and repair of hernia performed. No evidence of peptic ulcer. Mucosa of G.B. of normal thickness and shows ulceration in two places with small polyp which was impregnated with cholesterol. Appendix normal.

Report on G.B. Thin-walled and fibrotic G.B. The mucosa has been desquamated. Chronic cholecystitis.

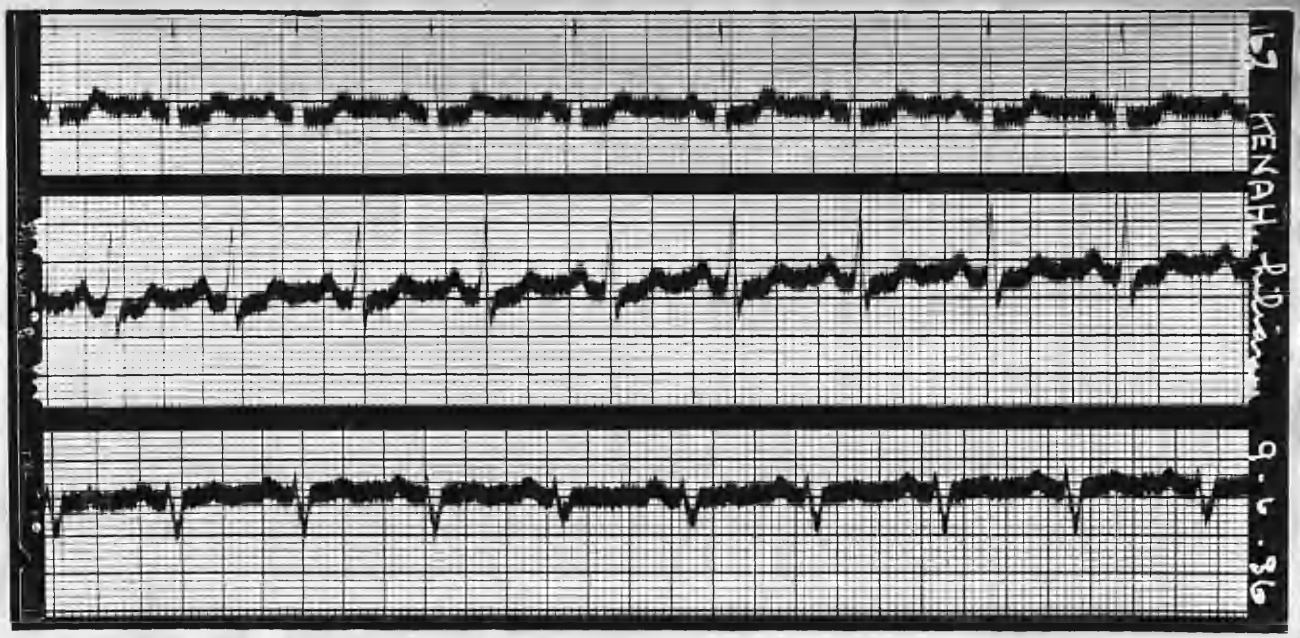
Condition on Discharge: General condition satisfactory. Previous dyspepsia and pain absent.

C.V.S. Cardiac enlargement 4¼". Heart sounds normal. A.2. slightly accentuated. Post-operative E.C.G: L.V.P. low voltage in lead 3 and slight S-T deviation in lead 2.

Follow-Up: Six months after operation: Patient taking full diet and dyspepsia and flatulence are much improved. Dyspnoea on exertion still present but oedema of ankles absent. C.V.S. Cardiac enlargement 4½" First sound slightly weak. Impaired exercise tolerance. B.P. 180/110. E.C.G. Low voltage and bifid QRS complex in lead 3.

Case No.30.

Pre-operative E.C.G.



Post-operative E.C.G.

Conclusion: Chronic cholecystitis considerably improved by cholecystectomy. The cardiac condition was much ameliorated after operation but slight myocardial insufficiency reappeared six months later coincident with increasing weight.

Follow-Up E.C.G.

Case No.31. Sex: Female. Age: 52 years.

Complaint: Attacks of epigastric pain.

P.H. Has been treated with Thyroid Extract for myxoedema for past five years.

H.P.C. Twelve attacks of severe colic in the right hypochonrium, epigastrium and passing through to the back, accompanied by nausea, during the past six years. Jaundice reported during previous attacks. Prior to taking Thyroid Extract the patient was very stout.

Clinical Findings: Obese patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby abdominal wall. Tenderness and rigidity in epigastrium and right hypochondrium. Murphy's sign positive. G.B. not palpable.

C.V.S. Mild arterio-sclerosis. Poor heart sounds.

Other Systems: N.A.D.

Investigation: U.C.T. Moderate renal function. Urine: normal. Pre-operative E.C.G: L.V.P. P.2 large. Straight X-ray of Abdomen: G.B. full of stones.

Impression: Cholelithiasis, obesity and myocardial weakness.

Operative Findings: Cholecystectomy performed. G.B. distended with pigment and calcium stones. C.B.D. normal.

Post-Operative Course: Convalescence stormy and chest complications developed early. Patient collapsed suddenly and died from Pulmonary Embolism on the 20th day after

operation.

Post-mortem Report: Lungs: Both bases congested. Clot in both pulmonary arteries.

Heart: Fatty degeneration of myocardium.

Kidneys: Early chronic interstitial nephritis.

Supra-renals: Cystic degeneration in right supra-renal.

Spleen: Large and soft.

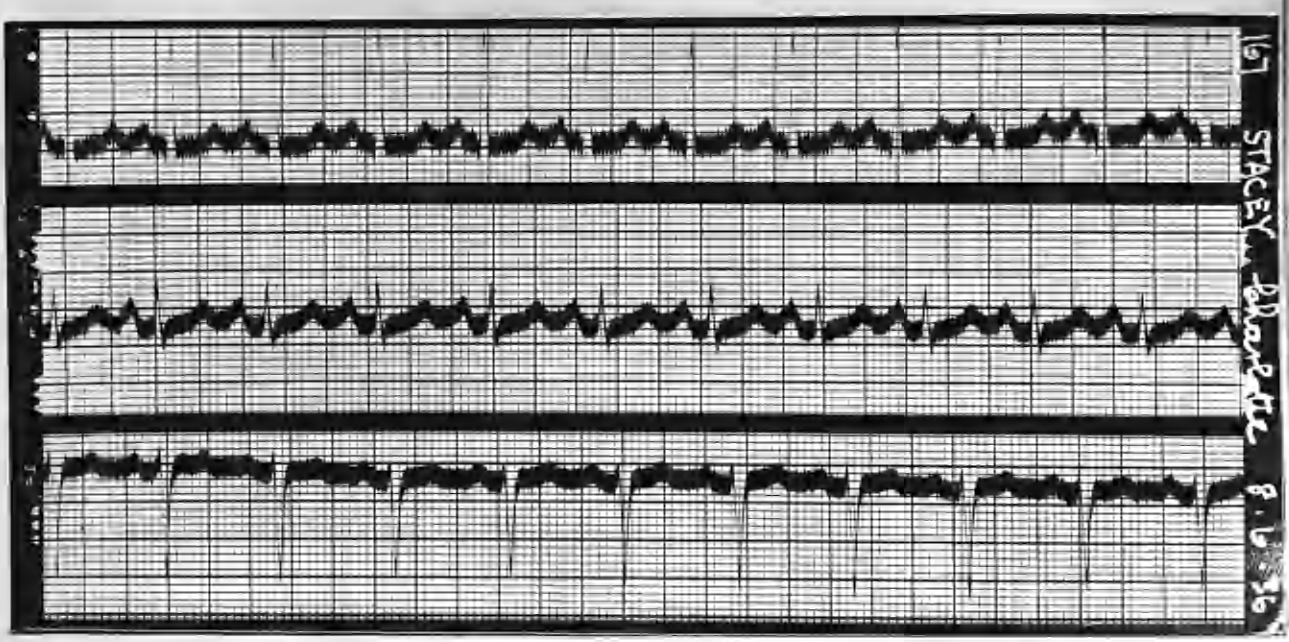
Liver: Changes due to back-pressure.

Other Features: Small abscess in anterior abdominal wall.

Cause of Death: Pulmonary Embolism.

Conclusion: Cholecystitis and cholelithiasis; obesity; fatty degeneration of myocardium. Death from Pulmonary Embolism twenty days after cholecystectomy.

Pre-Operative E.C.G.



Case No.32. Sex: Female. Age:52 years.

Complaint: Attacks of pain in the right hypochondrium.

P.H. Obstetric History: Nulliparous. Removal of ovarian cysts sixteen years ago. Hysterectomy for fibroids and appendicectomy fifteen years ago.

H.P.C. About eight attacks during the past two years of severe colic in the right hypochondium and epigastrium, with occasional spread to the back. Pain partially relieved by vomiting and eructation and is associated with nausea, vomiting and severe flatulence. Marked intolerance of fats for two years. No jaundice. Severe dyspnoea on exertion, palpitation and oedema of ankles for three years.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Nutrition normal. No evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby abdominal wall. Tender in the right hypochondrium. Murphy's sign positive. G.B. not palpable.

C.V.S. N.A.D. B.P. 155/110.

Other Systems: N.A.D.

Investigation: Cholecystogram:- Radiologically normal G.B. Urine normal. F.T.M. normal.

Impression: Cholelithiasis. Cardiac efficiency impaired, but no cardiac lesion detected.

Operative Findings: Cholecystectomy performed. G.B. small, thickened,

fibrotic and adherent. Five pigment calculi present.

Report on G.B: The wall is thin and fibrotic. Muscle tissue atrophic. Chronic cholecystitis.

Condition on Discharge: General condition satisfactory. Previous symptoms absent.

C.V.S. N.A.D.

Post-operative E.C.G. Low voltage and bifid QRS complex in lead 3. Extra-systoles in lead 2.

Follow-Up: Two months after operation:- No dyspepsia or pain. Slight dyspnoea which is less than before operation. Some oedema of ankles in past two weeks.

C.V.S. Cardiac enlargement. Moderate heart sounds, weakest at apex. Very occasional extra-systole. Oedema of ankles and slight anaemia.

E.C.G. I.S.Q.

Five months after operation: Occasional vomiting and flatulence but no pain. Some dyspnoea on exertion and very occasional oedema of ankles. Weight increased.

C.V.S. Cardiac enlargement $5\frac{1}{2}$". Heart sounds subnormal in quality. No oedema or anaemia.

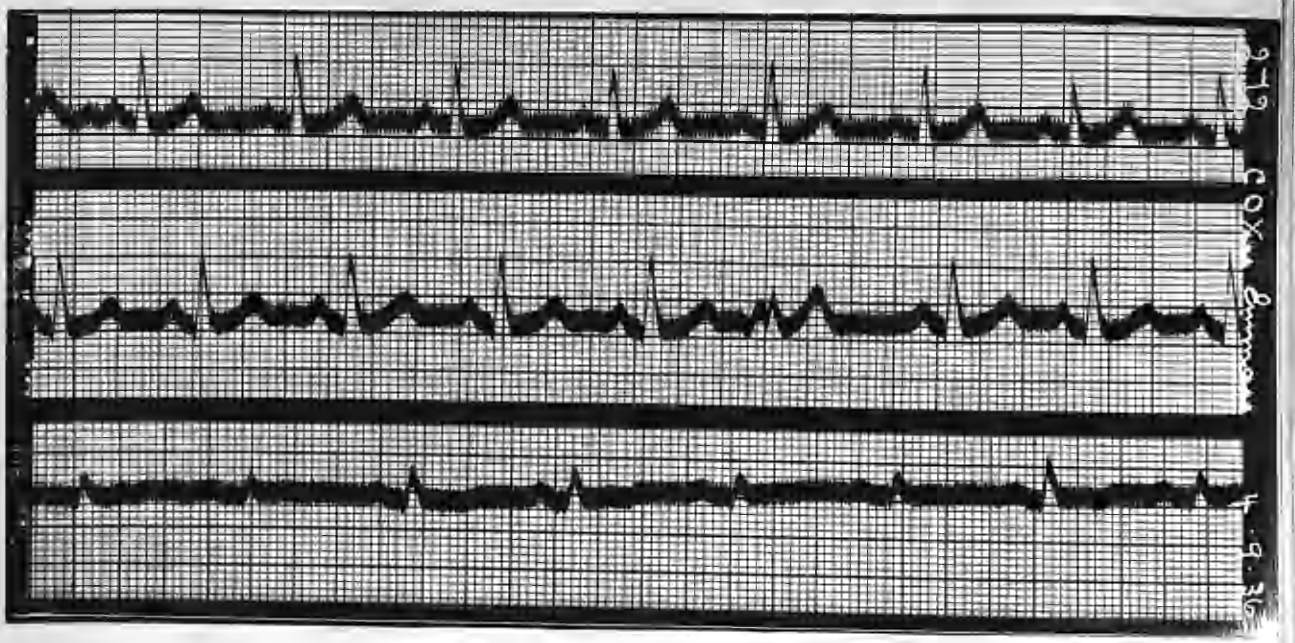
E.C.G. Low voltage, some splaying of the QRS complex and extra-systoles in lead 3.

Conclusion: Chronic cholecystitis and cholelithiasis considerably improved by cholecystectomy. Impaired cardiac reserve but no clinical lesion at time of operation. Physical signs of heart disease manifest two months later and became more marked five months after operation.

Case No.32.

Post-Operative E.C.G.

Follow-Up E.C.G. 1.



Case No.32.

Follow-Up E.C.G. 2.

Case No.33. Sex: Female. Age: 28 years.

Complaint: Attacks of pain in the right hypochondrium.

P.H. Obstetric History: One normal pregnancy.

H.P.C. Eight attacks during the past year of severe pain in the right hypochondrium, associated with nausea, vomiting and flatulence. No jaundice. Slight intolerance of fats and appetite poor. Slight dyspnoea on exertion for six months. Mild cough developed just before admission.

Clinical Findings: Thin patient with some anaemia and slight dental sepsis. No jaundice.

Abdomen: Tender in the right hypochondrium. G.B. palpable.

C.V.S. Slight cardiac enlargement. Heart sounds moderate and P.2 accentuated. Generalised, soft systolic murmur. B.P. 136/90.

Other Systems: Mild bronchitis. Nil else.

Investigation: Urine- Trace of pus. Blood Count: Severe hypochromic anaemia. Straight X-ray of Abdomen: Shadow in liver region almost certainly due to a large, calcified gall-stone.

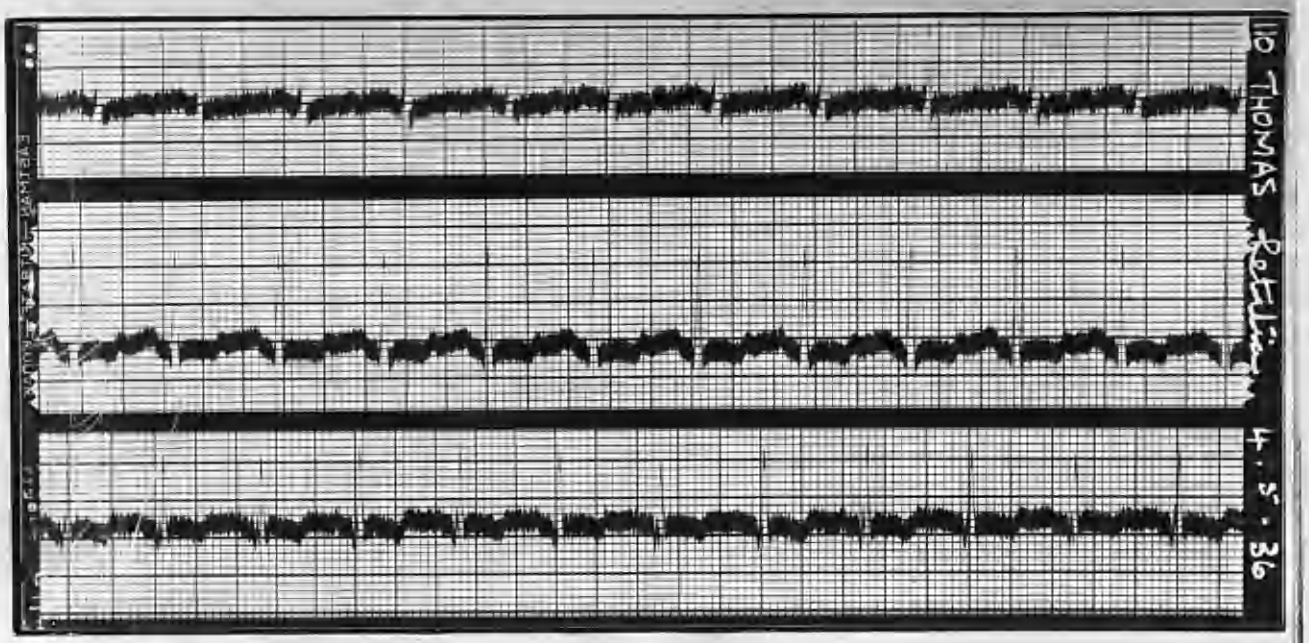
Pre-operative E.C.G. P waves poor. T.2 and T.3 inverted.

Impression: Cholecystitis, cholelithiasis, myocardial weakness with a haemic murmur and bronchitis.

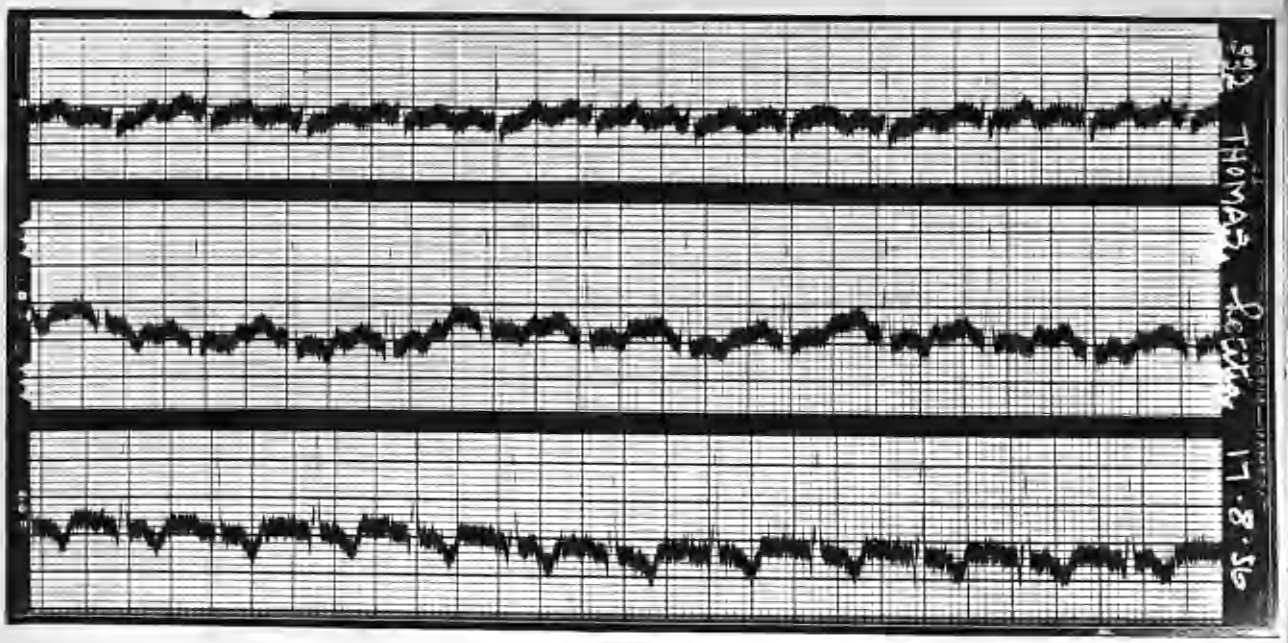
Operative Findings: Cholecystectomy performed after three months during

Case No.33.

Pre-operative E.C.G.



Post-operative E.C.G.



which the anaemia and chest condition were improved by appropriate treatment.

Abscess present around G.B., which is thickened and ulcerated and contained one large mulberry and calcium stone and two small pigment calculi.

Report on G.B: Acutely inflamed G.B. with ulceration and recent fibrosis of the wall.

Condition on Discharge: General condition poor. No pain or dyspepsia. Cough more troublesome.

C.V.S: Cardiac enlargement 4½". Apex beat diffuse. Some tachycardia. No murmurs.

Post-Operative E.C.G: T.2. and T.3. inverted. S-T deviation in lead 3. P waves improved.

Lungs: Diminished movement at both apices, especially the left. Dulness at left apex with crepitations, rhonchi and prolonged expiration--pulmonary tuberculosis.

X-ray of Chest: Bilateral phthisis with cavity at the left apex and early involvement of the right apex. Patient left hospital on her own responsibility and refused sanatorium treatment.

Conclusion: Cholecystitis and cholelithiasis cured by cholecystectomy. Myocardial weakness unchanged after operation. Further progress complicated by acute phthisis.

Case No.34. Sex: Female. Age:47 years.

Complaint: Attacks of severe pain in the right hypochondrium. Hernia repaired seven years ago.

Obstetric History: Four healthy children. No miscarriages.

H.P.C. Three attacks of severe colic during the past nine months affecting the right hypochondrium and passing through to the back, with some "numbness" in the left arm. The pain is associated with nausea, flatulence and vomiting. Flatulence present for four years and intolerance of fats for one year. Jaundice in last attack with clay-coloured stools. Dyspnoea on exertion for two years. Weight increased several years ago.

Habits: Mild alcohol consumption. No tobacco.

F.H. Nil significant.

Clinical Findings: Patient rather stout with a mild degree of jaundice. Dental sepsis present.

Abdomen: Flabby abdominal wall. Tender in right hypochondrium over palpable G.B. Murphy's sign positive.

C.V.S: Cardiac enlargement 5". Heart sounds moderate with accentuation of A.2. and P.2. Soft systolic murmur at the base. Moderate arterio-sclerosis. B.P. 220/115.

Other Systems: N.A.D.

Investigation: U.C.T. Moderate renal function. Urine-normal. Cholecystogram: Pathological G.B.

Pre-operative E.C.G. L.V.P. P.1,T.1 and T.2 poor. Low voltage and inverted T in lead 3.

Impression: Cholelithiasis, mild obesity and hypertensive cardio-vascular degeneration.

Operative Findings: Cholecystectomy performed. G.B. small, with thickened wall, fibrosis and areas of ulceration. Thirty-two small, facetted, cholesterol calculi.

Report on G.B: G.B. wall thickened with chronic inflammatory reaction. The mucosa is congested and there is much haemorrhage under the peritoneum associated with a small round-celled infiltration.

Condition on Discharge: General condition excellent. No pain or dyspepsia.

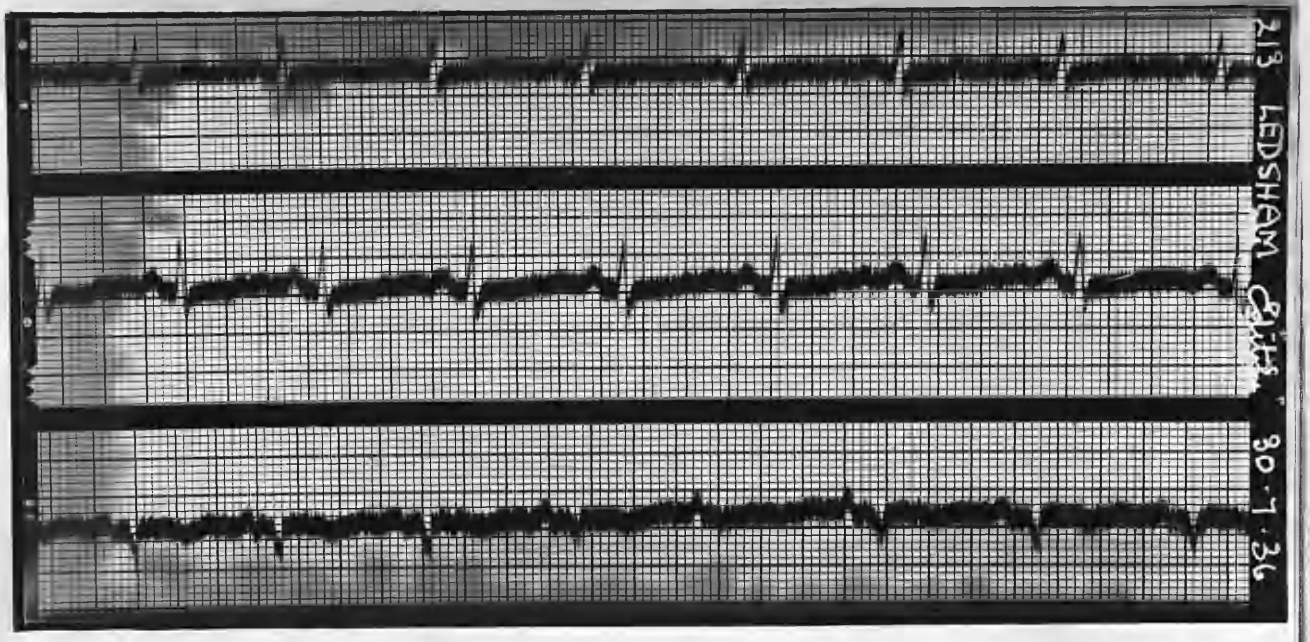
C.V.S. No cardiac enlargement. Heart sounds of good quality and the second sounds at the base are accentuated. No murmurs. B.P. 155/95.

Post-operative E.C.G: L.V.P. Low voltage in lead 3. P.1 improved. T.1 poor.

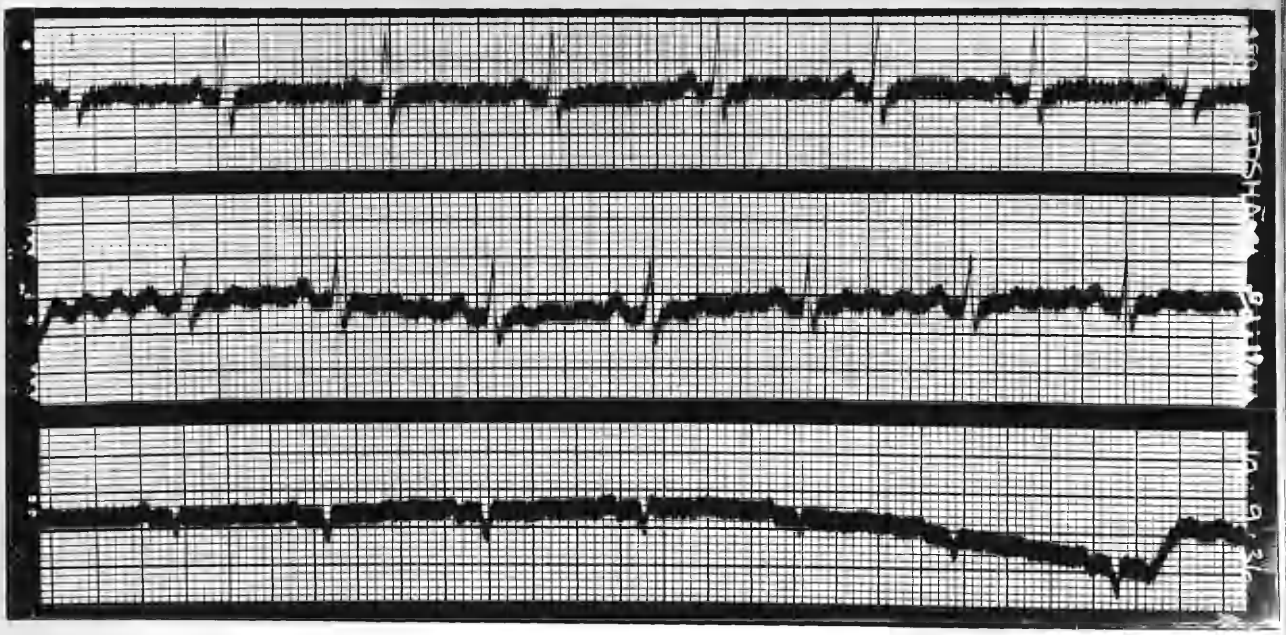
Follow-up: Three months after operation: no pain, dyspnoea, oedema or dyspepsia. Patient

Case No.34.

Pre-operative E.C.G.



Post-operative E.C.G.



On full diet and feels very well.

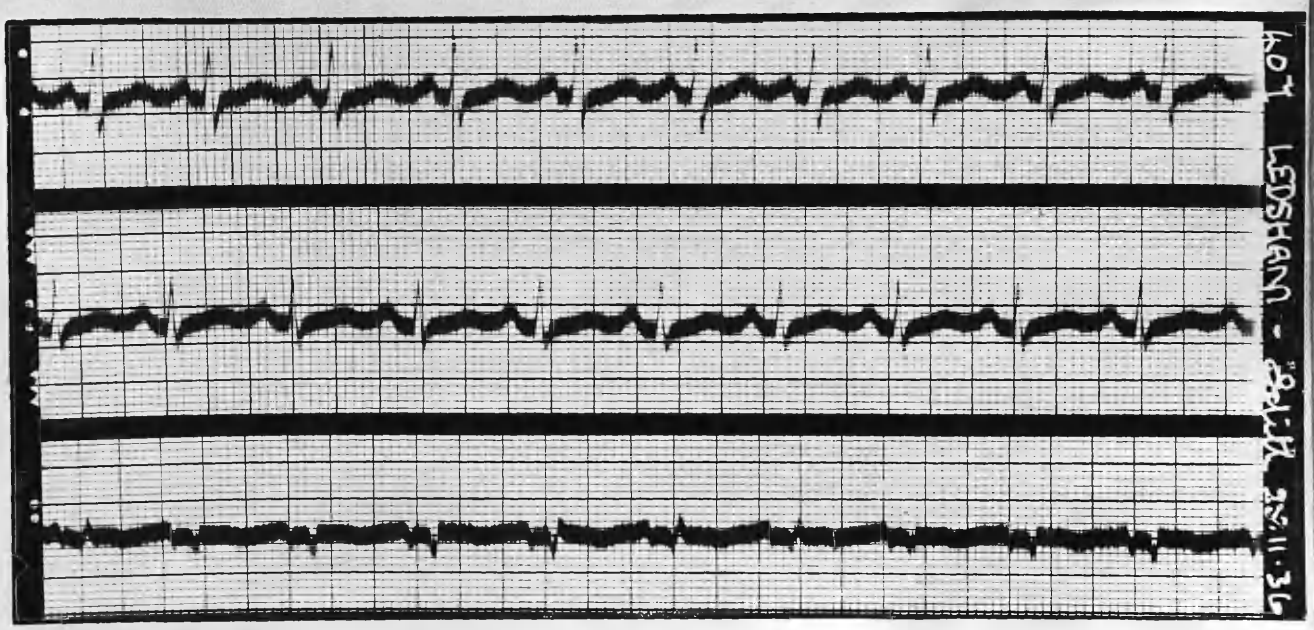
C.V.S. N.A.D. B.P. 150/120.

Exercise Tolerance- satisfactory.

E.C.G. L.V.P. P.3 inverted. T.3 poor.
T.1 further improved.

Conclusion: Chronic cholecystitis and cholelithiasis cured by cholecystectomy.
Some hypertensive cardio-vascular degeneration with improvement after operation, maintained over three months.

Follow-Up E.C.G.



Case No.35. Sex: Male. Age: 73 years.

Complaint: Attacks of severe pain in the right hypochondrium.

P.H. Mild degree of diabetes mellitus of the senile type for four years.

H.P.C. Numerous attacks during the last five years of severe colic in the right hypochondrium, spreading through to the back and partially relieved by vomiting and eructation. Jaundice present in the past few weeks. Some dyspnoea on exertion and palpitation for one year. Mild polyuria with frequency of micturition for five years.

Habits: Mild consumption of alcohol and tobacco,

F.H. Nil significant.

Clinical Findings: Thin, elderly patient with mild icterus and no evidence of septic foci.

Abdomen: G.B. palpable. Murphy's sign negative.

C.V.S. Marked arterio-sclerosis. Bradycardia. Cardiac dulness normal. Heart sounds poor with slight accentuation of A.2. B.P. 150/80.

Other Systems: Diabetes Mellitus. Prostatic hypertrophy.

Investigation: W.R.negative. U.C.T. Satisfactory renal function. Urine; normal. Icterus Index: 12.

Cholecystogram: Pathological G.B.

Pre-operative E.C.G: Tendency to L.V.P.

P.1 poor. T.1 and T.2 large. Low voltage and bifid QRS complex in lead 3.

Impression: Cholelithiasis with stone in C.B.D. Senile diabetes mellitus, prostatic hypertrophy and myocardial degeneration.

Operative Findings: Cholecystotomy and drainage of C.B.D. performed. G.B. adherent to omentum and contained three small calculi. C.B.D. very dilated and contained grit, one large and one small calculus.

Post-Operative Course. Patient died on second day after operation.

Post-Mortem Report: Icteric.

Brain: Cerebral Oedema.

Right Lung: Chronic pleurisy, oedema and slight bronchitis. 2 lbs. 2 ozs.

Left Lung: Emphysema and slight bronchitis. 1 lb. 2 ozs.

Heart: Atheroma and brown atrophy. 10 ozs.

Kidneys: Slight chronic interstitial nephritis and pyelitis. 5 ozs.

Supra-renals: Cystic degeneration.

Liver: Small and fibrotic.

Biliary Tract: Cholangitis: G.B.: Chronic cholecystitis.

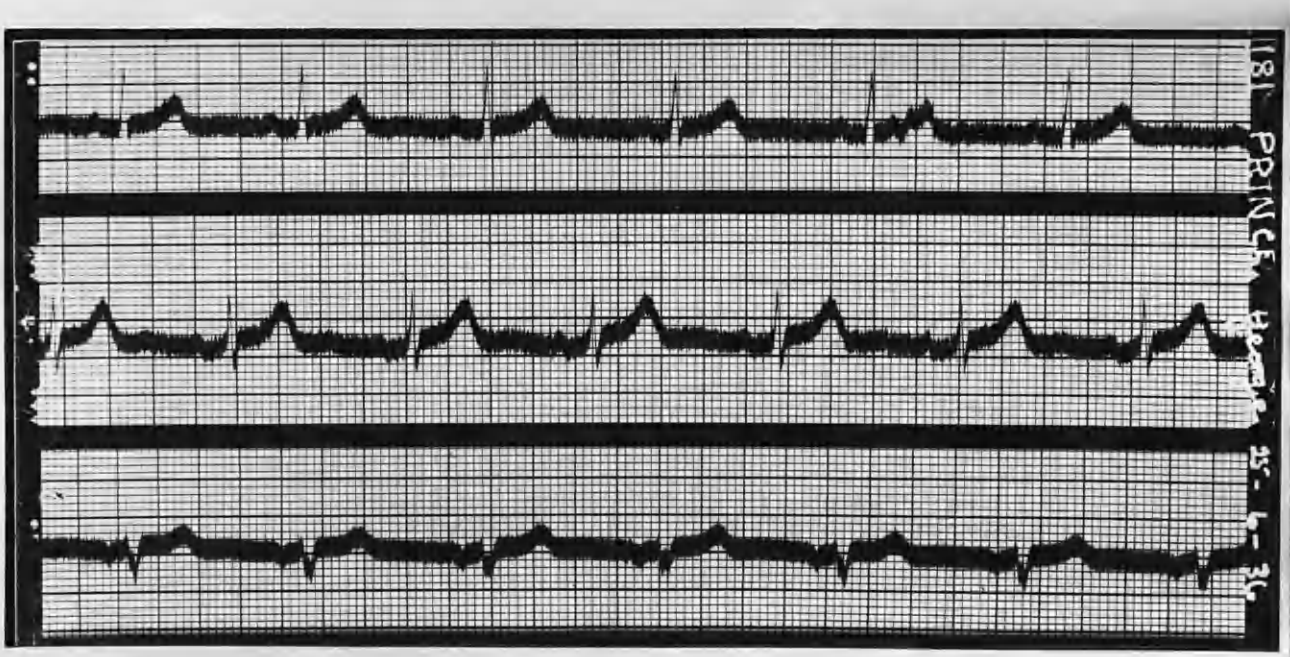
Spleen: Small and soft.

Summary: Cerebral oedema, oedema of lungs, myocarditis, cholangitis and diabetes.

Conclusion: Chronic cholecystitis, cholelithiasis, biliary

obstruction and infection associated with cardio-vascular degeneration and senile diabetes mellitus, death occurring two days after operation.

Pre-operative E.C.G.



Case No.36. Sex: Female. Age: 61 years.

Complaint: Loss of appetite and weight for nine months.

P.H. Operated on eleven years ago for intestinal obstruction which was preceded by two years of attacks of biliary colic. No biliary symptoms since. Operated on nine years ago for repair of ventral hernia.

Obstetric History: Six normal pregnancies. Four miscarriages.

H.P.C. Marked anorexia and intolerance of fats for nine months with occasional attacks of nausea, vomiting and flatulence. No pain or jaundice. Severe dyspnoea on exertion with occasional palpitation and oedema of ankles for past eighteen months. Weighed fourteen stones before operation years ago but has reduced to ten stones.

Habits: Mild alcohol consumption. No tobacco.

F.H. Nil significant.

Clinical Findings: Nutrition moderate but shows obvious loss of flesh. No evidence of anaemia, jaundice or focal sepsis.

Abdomen: Very flabby abdominal wall with scars of two previous operations. Tender over G.B. which is just palpable on deep inspiration. Murphy's sign positive. Liver dulness normal.

C.V.S. Moderate arterio-sclerosis. Slight cardiac enlargement $4\frac{3}{4}$". Heart sounds of poor

quality at all areas except apex. A.2. accentuated. Soft systolic murmur at all areas. Multiple extra-systoles present. B.P. 220/120. Small haemorrhage seen in vessel in right fundus.

Other Systems: N.A.D.

Investigation: W.R. negative. Exercise Tolerance: impaired. Urine and Blood Urea: Normal. Barium Meal: Stomach and duodenum normal. G.B. full of stones.

Pre-operative E.C.G: L.V.P. Ventricular extra-systoles. QRS complex tends to be splayed and bifid in lead 1 with S-T deviation.

Impression: Cholelithiasis and hypertensive myocardial degeneration.

Operative Findings: Cholecystectomy performed. G.B. enlarged and contained several scores of calculi.

Report on G.B: Wall slightly thickened but shows no active inflammation.

Condition on Discharge: General condition satisfactory.

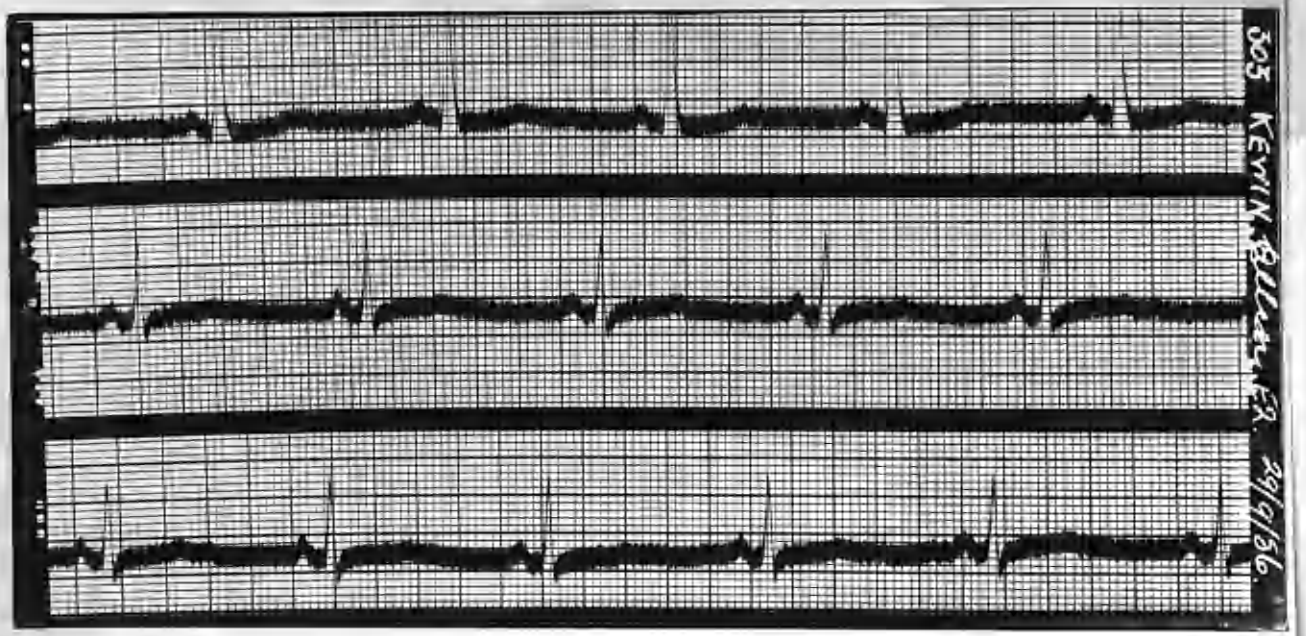
C.V.S: Moderate arterio-sclerosis. Cardiac enlargement $4\frac{3}{4}$". Apex beat diffuse. Heart sounds poor, especially at the base. Soft systolic murmur at all areas. A.2. slightly accentuated and extra-systoles present.

Post-operative E.C.G: N.A.D.

Case No.36.

Pre-operatTve E.C.G.

Post-operative E.C.G.



Follow-Up. Three months after operation: no dyspepsia or flatulence. Dyspnoea on exertion only slight and is definitely improved. Occasional oedema of ankles.
General condition moderate. Cardiac enlargement $5\frac{1}{2}$". Heart sounds weak and P.2 accentuated. Systolic murmur at pulmonic area. Multiple extra-systoles. No oedema. B.P. 190/140.

Conclusion: Cholelithiasis cured by cholecystectomy. Myocardial degeneration present which was unchanged one month after operation and more severe after three months.

Case No 37. Sex: Female. Age:43 years.

Complaint: Attacks of pain in right hypochondrium.

P.H. Pneumonia twenty-nine years ago. Right-sided sciatica five years ago. Nulliparous.

H.P.C. Attacks of severe colic during the past two years, affecting the right hypochondrium and epigastrium, and associated with nausea, flatulence and vomiting. No jaundice. Intolerance of fats for two years. Dyspnoea on exertion, of mild degree, for one year, and oedema of ankles. Occasional dysuria during the past year.

Habits: Mild cigarette smoker. No alcohol.

F.H. One sister suffers from "bilious" attacks.

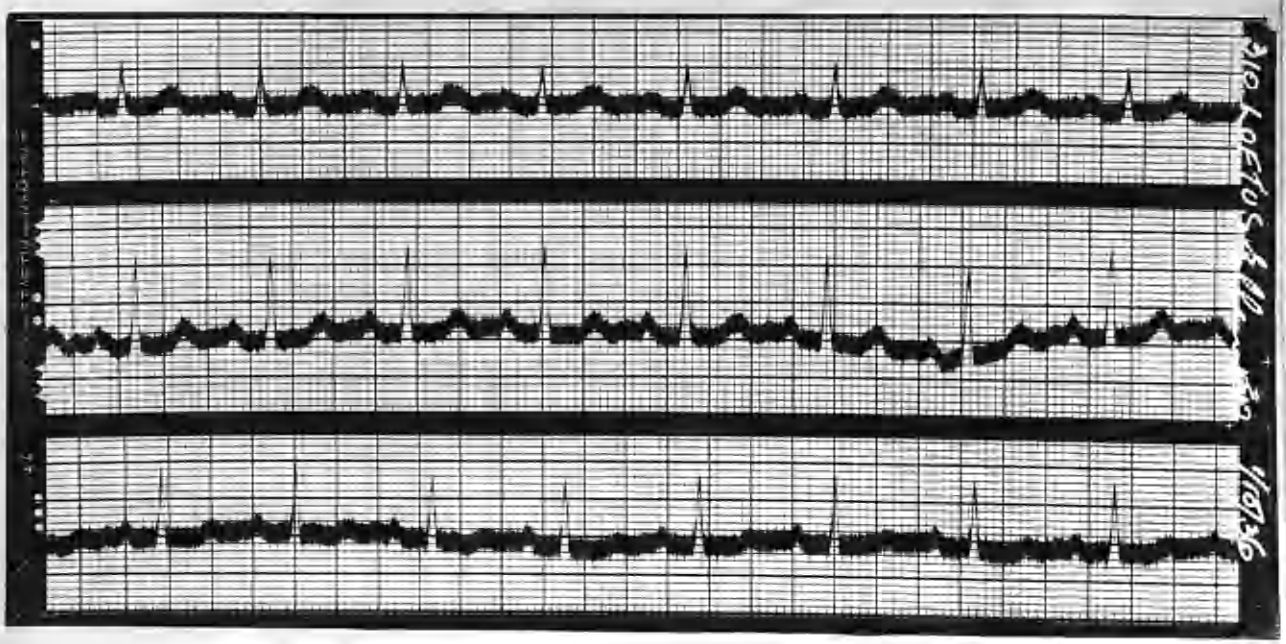
Clinical Findings: Thin patient with no definite anaemia, jaundice or focal sepsis. Flat feet present.
Abdomen: Slight tenderness over the right hypochondrium. Murphy's sign positive.
G.B. not palpable.
C.V.S. Heart sounds rather poor. B.P.130/94.
Other Systems: N.A.D.

Investigation: Exercise Tolerance: normal. Urine: a trace of pus and albumin. Cholecystogram: G.B. does not fill with dye and contains at least two gall-stones. Pre-operative E.C.G: P wave poor in all leads. T.1 and T.3 poor. Low voltage in lead 1 and a paroxysm of impure flutter in 2.

Case No.37.

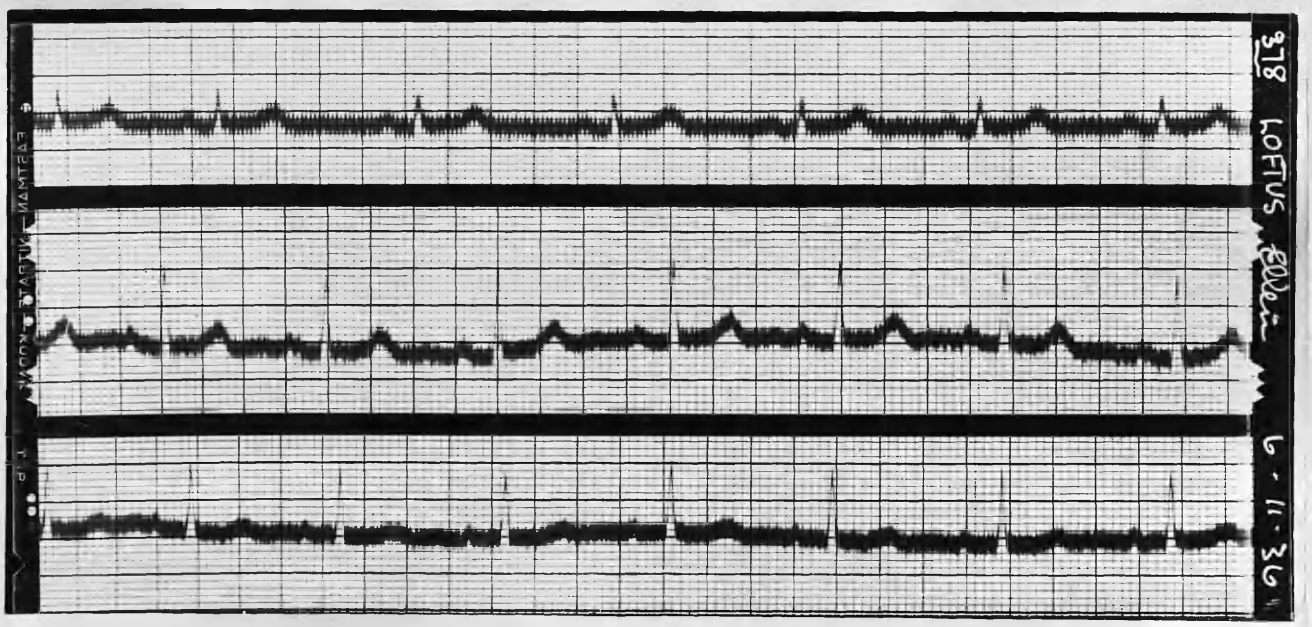
Pre-operative E.C.G.

Post-operative E.C.G.



Case No.37.

Follow-Up E.C.G.



Exercise Tolerance: Normal.

Impression: Cholelithiasis, pyuria, and slight myocardial weakness.

Operative Findings: Cholecystectomy performed. G.B. very hard and adhesions were present between the fundus and omentum and between the cystic duct and duodenum. C.B.D. normal. G.B. contained a large mass of debris, which was firm and almost calcified. The mucosa was thickened and a small calculus was present in the cystic duct.

Report on G.B: The G.B. wall is merely fibrous tissue which is partly calcified.

Condition on Discharge. General condition satisfactory. No pain or dyspepsia. Some dyspnoea on exertion of similar degree to that before operation.

C.V.S. Heart sounds slightly weak at the base.

Post-Operative E.C.G: Unchanged except for absence of flutter.

Follow-Up: Two months after operation: Patient very well and dyspnoea is less.

C.V.S. N.A.D.

E.C.G. I.S.Q.

Conclusion: Chronic cholecystitis and cholelithiasis cured by cholecystectomy.

Slight myocardial insufficiency, little change three weeks after operation, but absent clinically two months later.

Case No.38: Sex: Female. Age: 39 years.

Complaint: Attacks of pain in the right hypochondrium.

P.H. "Congestion" of lungs, left base, about 12 years ago.

Obstetric History: Still-birth one year ago after forceps delivery.

H.P.C. Numerous attacks during the past eight years of pain in the right hypochondrium, spreading through to the back and associated with nausea, flatulence and vomiting. No jaundice. Intolerance of fat prominent for several years. Occasional cough and mild dyspnoea on exertion for one year with evening oedema of ankles for several years.

Habits: Moderate cigarette-smoker. No alcohol.

F.H. One sister suffers from flatulent dyspepsia.

Clinical Findings: Nutrition normal. No evidence of anaemia, jaundice, or focal sepsis.

Abdomen: Tender over a palpable G.B. Murphy's sign positive.

C.V.S. Slight cardiac enlargement $4\frac{3}{4}$".
Apex beat diffuse. First sound impaired at all areas. B.P. 120/70.

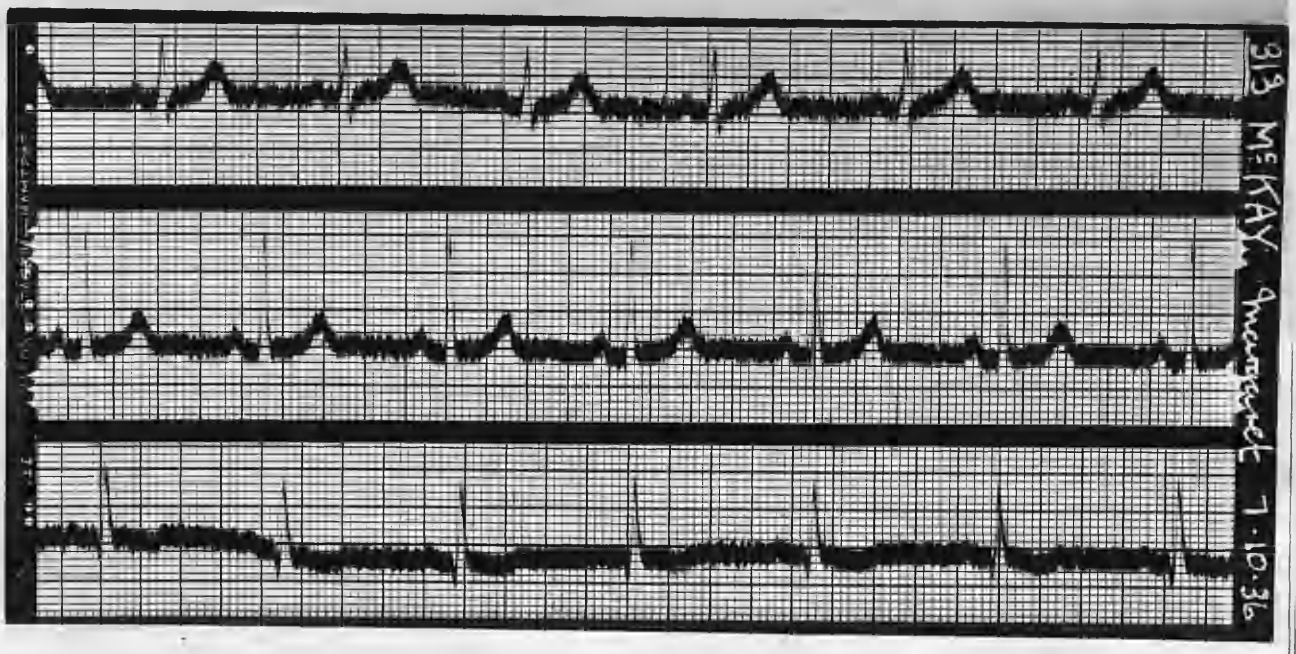
Other Systems: Mild bronchitis.

Investigation: W.R; negative. Exercise Tolerance: impaired.

U.C.T: Urinary element satisfactory. Cardiac element impaired. Urine: normal.

Case No.38.

Post-operative E.C.G.



Follow-Up E.C.G.

Cholecystogram: G.B. does not fill with dye. Several calculi visible.

Impression: Cholelithiasis, hydrops of G.B. and some myocardial weakness with mild bronchitis.

Operative Findings: Cholecystectomy performed. Hydrops of G.B. without adhesions or liver changes. G.B. wall considerably inflamed and thickened with atrophy of the mucosa. Twenty-one calculi containing cholesterol, calcium and pigment and belonging to two generations present.

Condition on Discharge: General condition satisfactory. No pain or dyspepsia.

C.V.S. No cardiac enlargement. Apex beat not visible. First sound normal at apex and weak at the aortic area with accentuation of A.2. B.P. 110/70.

Post-operative E.C.G: P.1 and P.3 poor. T.1 and T.2 large. T.3 inverted.

Follow-up: Patient taking normal diet and has no pain, dyspepsia or oedema. Slight dyspnoea on exertion present but is less than before operation.

C.V.S. A.1 slightly weak. B.P. 130/85.

Exercise Tolerance: satisfactory.

E.C.G. P.1 and P.3 improved. Otherwise I.S.Q.

Conclusion: Chronic cholecystitis and cholelithiasis cured by cholecystectomy. Myocardial insufficiency considerably improved after operation.

Case No.39. Sex: Female. Age:49 years.

Complaint: Attacks of severe abdominal colic.

H.P.C. Three attacks of severe colic in the right hypochondrium and spreading across the epigastrium. Nausea, vomiting and flatulence accompany the pain. Marked intolerance of fats for some years. No jaundice.

Clinical Findings: Stout patient with no evidence of anaemia, jaundice, or focal sepsis.

Abdomen: G.B. palpable. Murphy's sign negative.

C.V.S. Mild arterio-sclerosis. Cardiac enlargement 5". Heart sounds satisfactory. Soft systolic murmur at all areas except the aortic. B.P.170/95.

Investigation: Cholecystogram: Pathological G.B. Urine: Normal.

Exercise Tolerance: Slightly impaired.

Pre-operative E.C.G: T.2 impure? T.3 inverted. R-T interval increased.

Impression: Chronic cholecystitis, obesity and slight myocardial weakness.

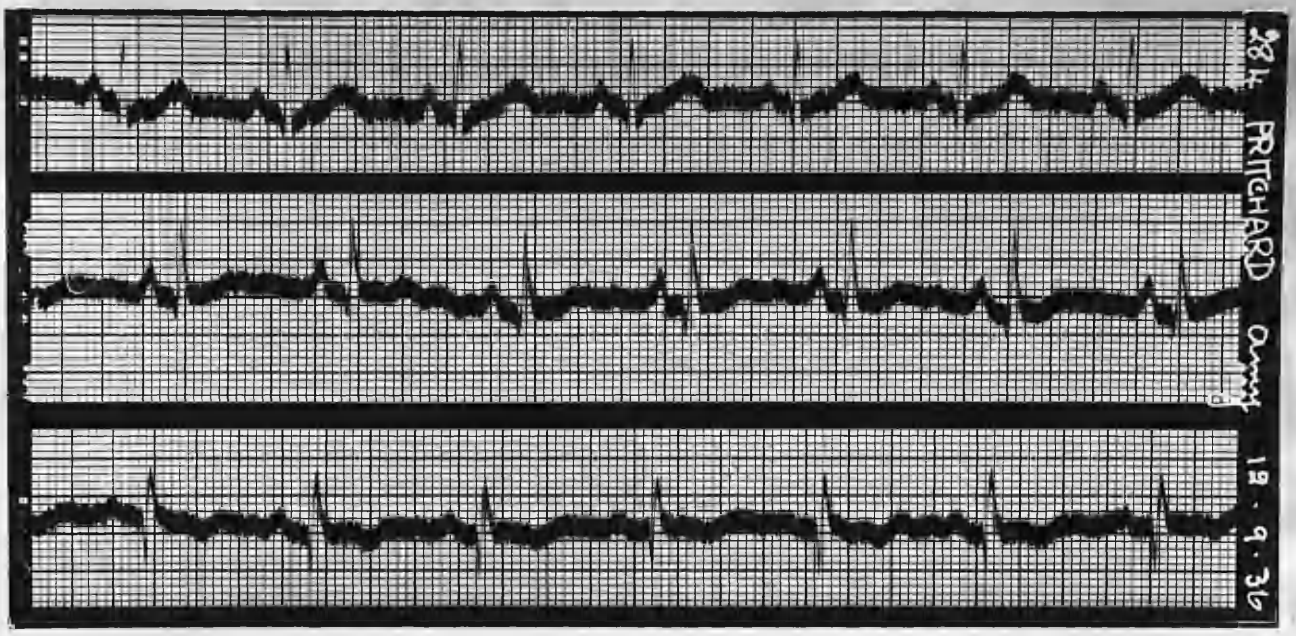
Operative Findings: Appendix abscess. Cholecystectomy performed. "Strawberry" G.B. with polypi of mucosa. No calculi

Report on G.B. Chronic inflammatory reaction with small-celled infiltration of the mucosa and muscle wall. The papilloma is probably of irritative origin and not a true neoplasm.

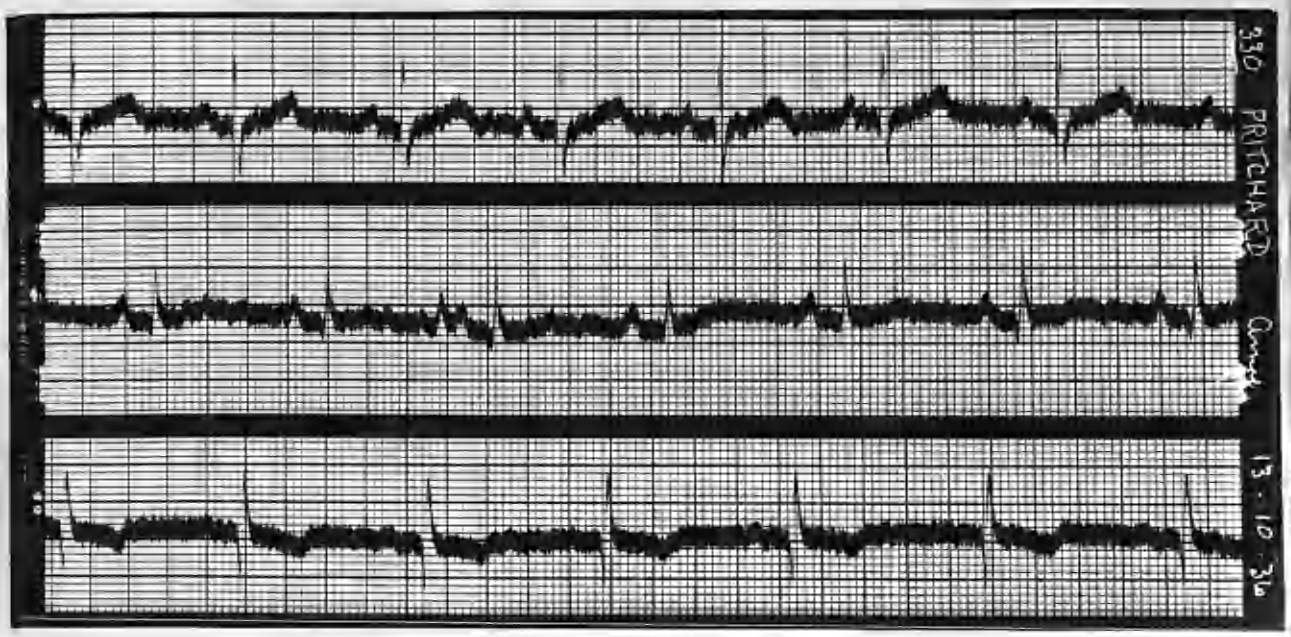
Condition on Discharge: No pain or dyspepsia. General condition satis-

Case No.39.

Pre-operative E.C.G.



Post-operative E.C.G.



factory. Cardiac enlargement $4\frac{3}{4}$". Heart sounds normal. Soft systolic murmur at all areas except mitral.

Post-operative E.C.G: T.3 inverted. T waves of unusual form. R-T interval increased.

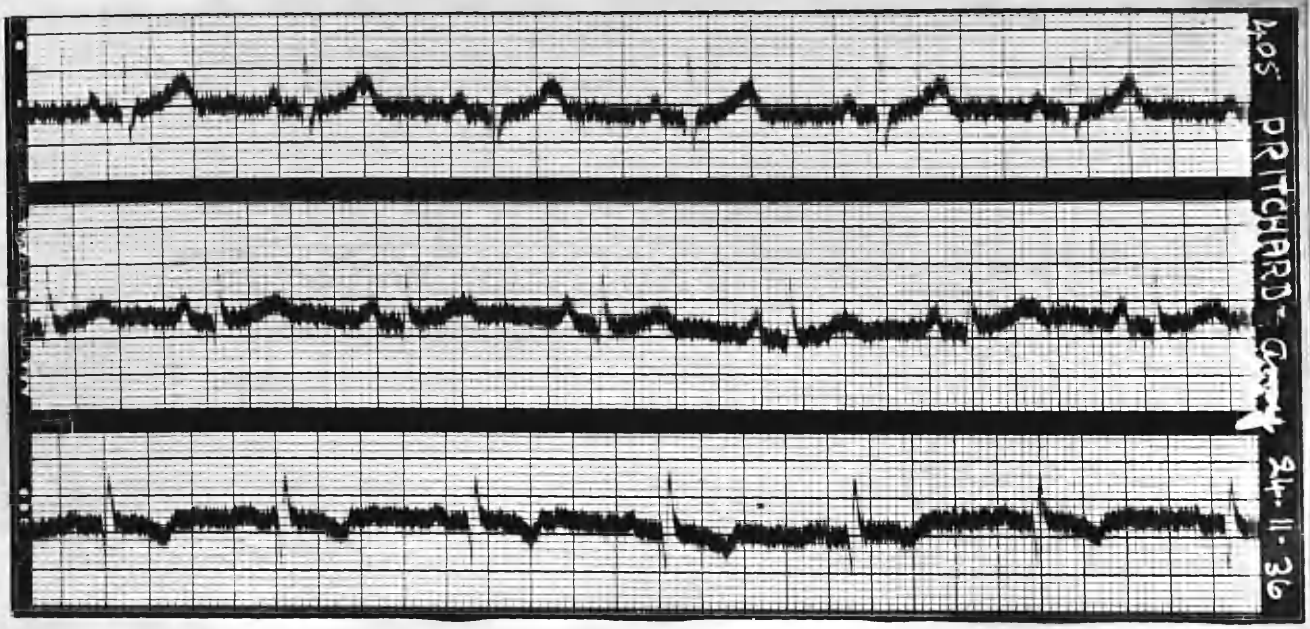
Follow-Up. Two months after operation: Patient very well and has no pain, dyspepsia, or dyspnoea.

C.V.S. No cardiac enlargement. Heart sounds normal at apex and slightly weak at the base. Very faint systolic murmur at all areas except the mitral.

E.C.G: T.3 inverted. R-T interval increased.

Conclusion: Appendix abscess, "strawberry" G.B., obesity and slight myocardial weakness. G.B. condition cured by cholecystectomy and heart condition improved.

Follow-Up E.C.G.



Case No.40. Sex: Female. Age:53 years.

Complaint: Flatulent Dyspepsia and attacks of epigastric pain.

P.H. Bronchitis four years ago.

Obstetric History: Six healthy children. No miscarriages. Menopause at fifty-two years.

H.P.C. Prior to two years ago the patient experienced attacks of pain in the epigastrium at frequent intervals for ten years, since when she has worn a "Curtis" Belt with complete relief from the pain. Nausea and flatulence were associated with the pain which occurred in the epigastrium and spread through to the left scapula. Very occasional vomiting occurred. Some cough but no dyspnoea. No definite intolerance of fats, or jaundice.

Habits: Very mild consumption of alcohol. No tobacco.

F.H. Nil significant.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Slightly tender in the right hypochondrium. Murphy's sign negative. G.B. not palpable.

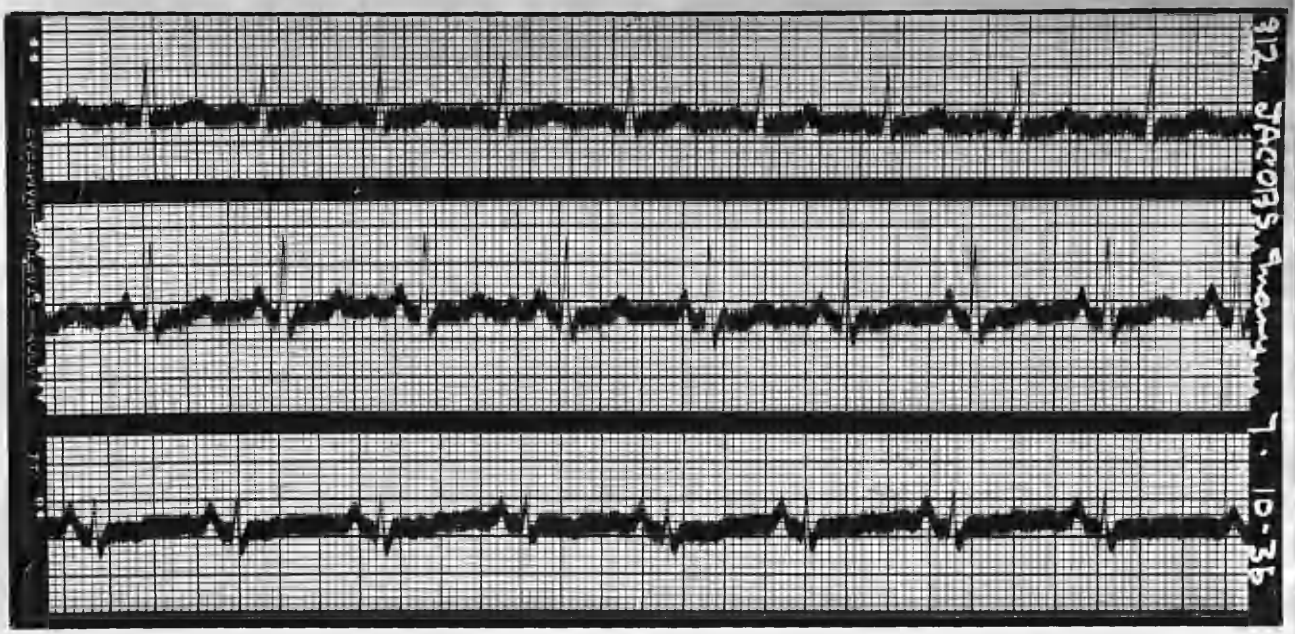
C.V.S. Moderate arterio-sclerosis. No cardiac enlargement. Heart sounds weak at the apex and almost inaudible at the base. B.P. 155/90.

Other Systems: Mild bronchitis.

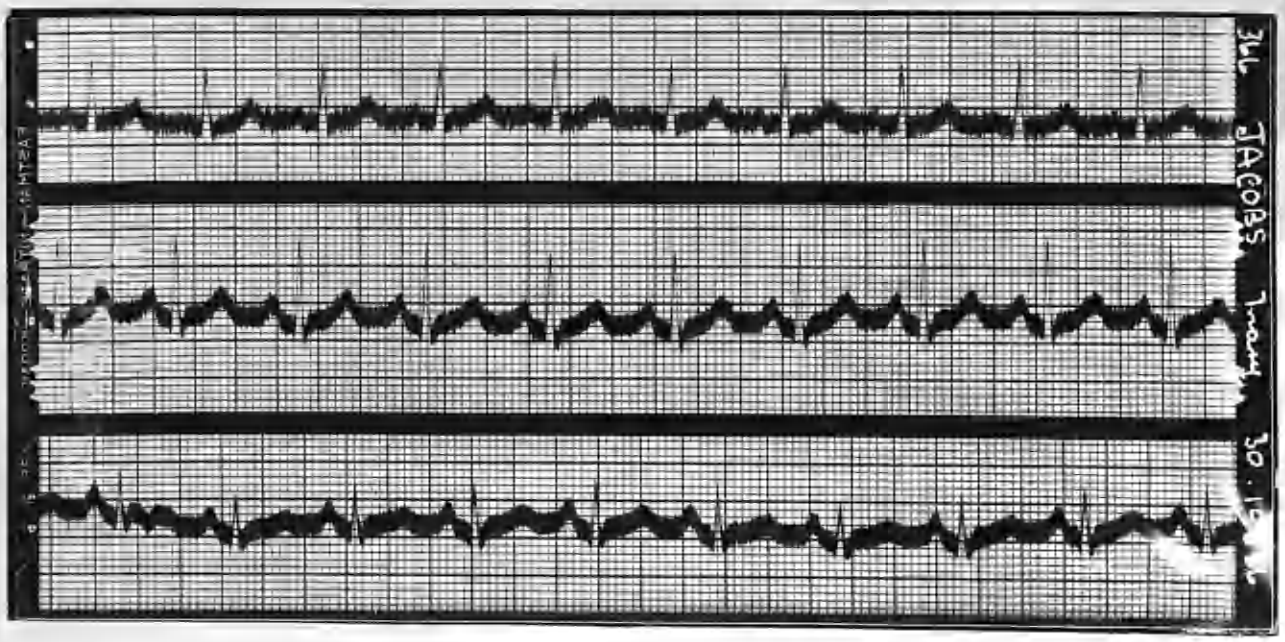
Investigation: Barium meal, gastroptosis. Several shadows in the right upper abdomen, suspicious of gall-stones.

Case No.40.

Pre-operative E.C.G.



Post-operative E.C.G.



Pre-operative E.C.G. P.1 poor. P.3 large.
Low voltage in lead 2? Urine: normal.

Impression: Cholecystitis, cholelithiasis, mild bronchitis and myocardial weakness.

Operative Findings: Cholecystectomy performed. G.B. showed thickening of the wall and contained three pigment calculi.

Condition on Discharge: No pain or dyspepsia. General condition satisfactory.

C.V.S. N.A.D. B.P. 140/106. Lungs: No abnormal physical signs.

Post-Operative E.C.G: I.S.Q.

Conclusion: Chronic Cholecystitis, cholelithiasis, mild bronchitis and myocardial weakness. G.B. condition cured, and the heart condition was restored to normal, following cholecystectomy.

Case No.41. Sex: Female. Age: 28 years.

Complaint: Pain in the right hypochondrium.

P.H. Chorea eleven years ago. Pneumonia five and eight years ago. Nulliparous.

H.P.C. Two attacks of pain in the right hypochondrium during the past four months. The pain was never severe and was associated with nausea and vomiting. Intolerance of fats for four months. No flatulence or jaundice.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Tender in the right hypochondrium. Murphy's sign negative. G.B. not palpable.

C.V.S. Cardiac enlargement 4¼". Apex beat thrusting and forcible. No thrill present. Heart sounds of good quality with reduplication of M.2. Generalised systolic murmur, especially heard over the mitral area. Early mitral stenosis. B.P. 130/85.

Investigation: W.R. negative. Exercise Tolerance: satisfactory.

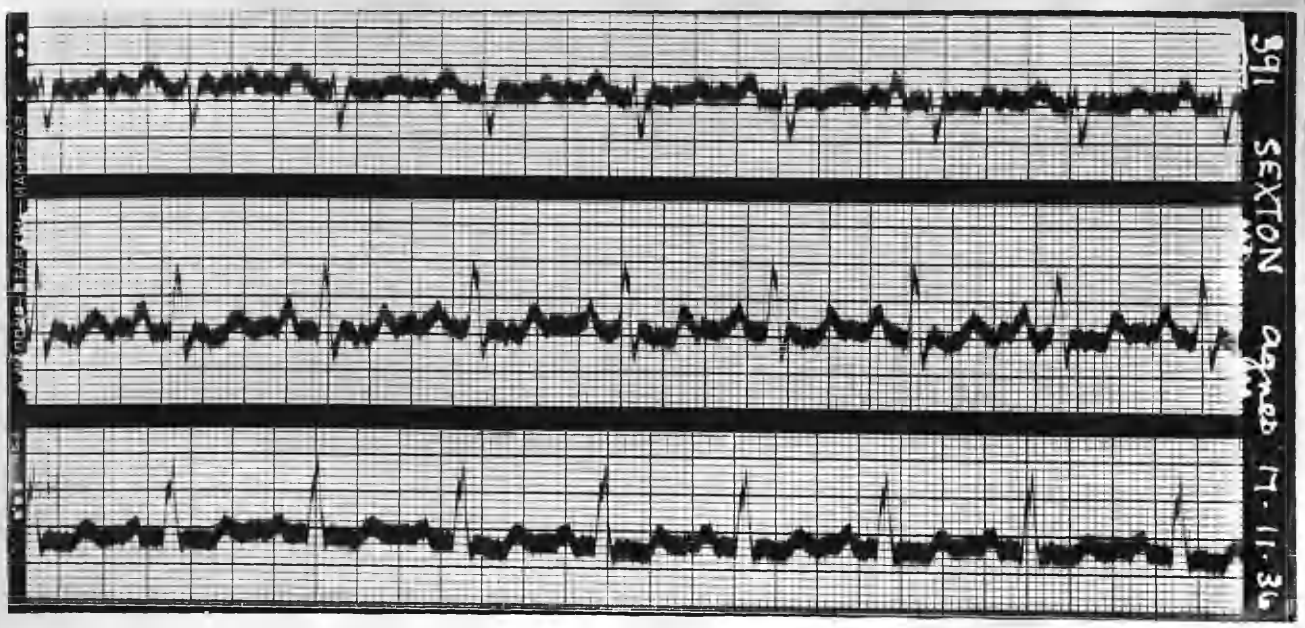
X-ray of renal tract: No renal stone shadow seen. Multiple gall-stones present. X-ray of Chest: Cardiac enlargement of the mitral type. Urine: normal

Pre-operative E.C.G: R.V.P. QRS complex bifid in lead two and three. P. wave large in leads 1 and

Case No.41.

Pre-operative E.C.G.

Post.-Operative E.C.G.



2. P.3 poor. R-T interval increased.

Impression: Cholelithiasis. Well compensated, early mitral stenosis.

Operative Findings: Cholecystectomy performed. G.B. thickened, with ulceration of the mucosa, and contained mucus and fourteen calculi. No adhesions and liver appeared normal.

Report on G.B: The mucosa has been replaced by inflamed granulation tissue.

Condition on Discharge: No pain or dyspepsia. General condition excellent.

C.V.S. Cardiac enlargement 4½". Apex diffuse and prominent. Systolic murmur and re-duplication of M.2. — early mitral stenosis. Compensation satisfactory. B.P. 160/100.

Post-operative E.C.G: T.2 and T.3 inverted. Otherwise I.S.Q.

Conclusion: Cholelithiasis cured by cholecystectomy. Mitral stenosis with satisfactory compensation present, apparently not adversely affected by the G.B. lesion but with a grave ultimate prognosis.

Case No.42. Sex:Female. Age:68 years.

Complaint: Attacks of pain in the right hypochondrium for ten months.

P.H.: Carbuncle of neck and cystitis seven months ago.

Obstetric History: Two normal pregnancies; one miscarriage.

H.P.C: Five attacks, during the past ten months, of severe colic in the right hypochondrium, epigastrium and passing through to between the scapulae. The pain is accompanied by severe nausea, flatulence and vomiting. Intolerance of fats for nine months, and jaundice one month ago. Some frequency of micturition and dysuria for six months. Dyspnoea on exertion, evening oedema of ankles and occasional attacks of palpitation during the past nine months.

Habits: Mild beer-drinker; no tobacco.

F.H.: Nil significant.

Clinical Findings: Thin patient with some anaemia and dental sepsis. No jaundice.

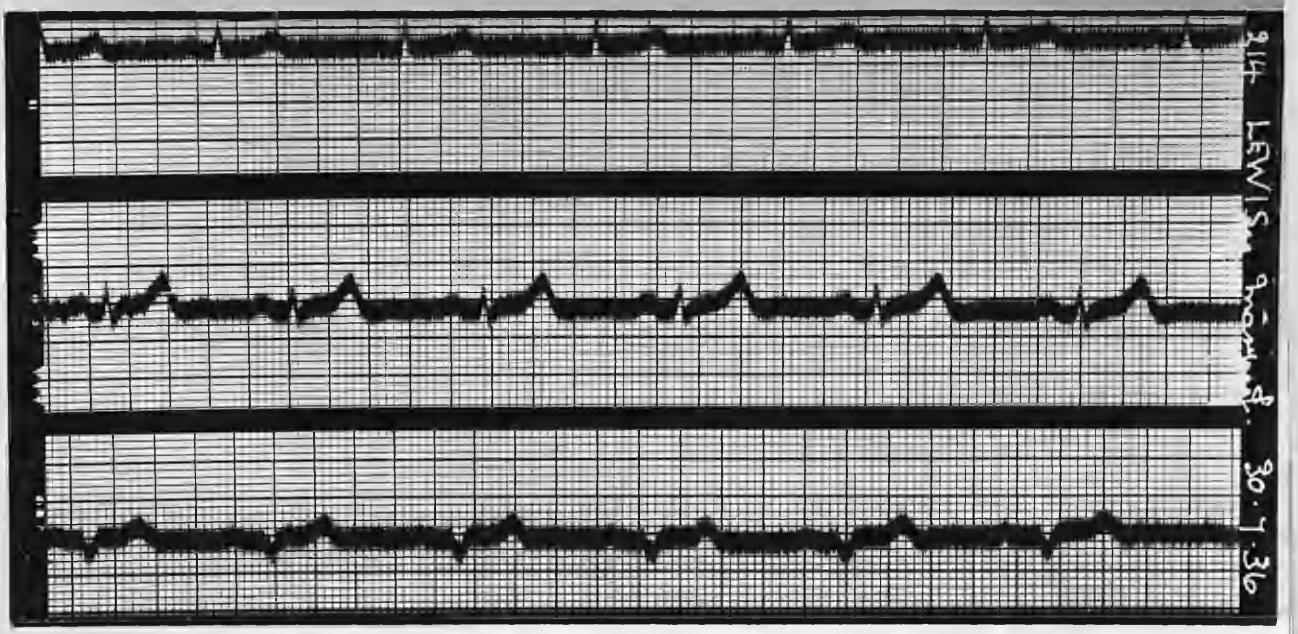
Abdomen: Tender over palpable G.B. Murphy's sign positive.

C.V.S.: Mild arterio-sclerosis. Cardiac enlargement 4½". First sound poor with slight accentuation of the second at all areas. Faint apical systolic murmur present. B.P. 15o/100.

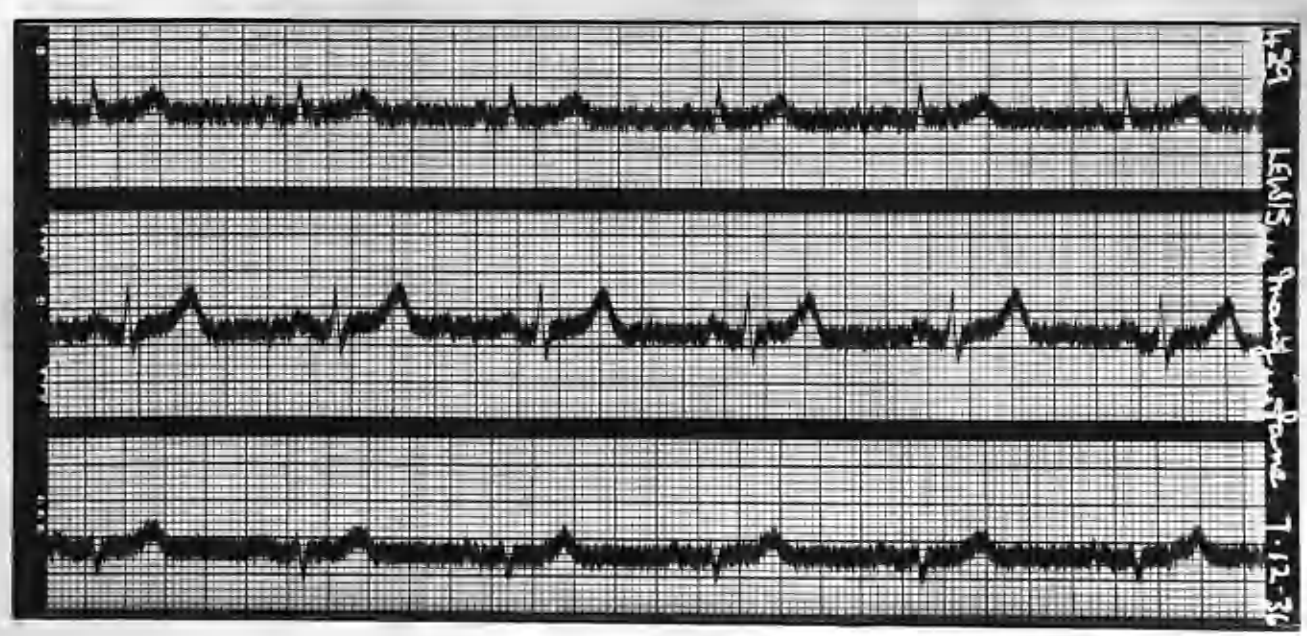
Other Systems: Cystocele and rectocele.

Case No.42.

Investigation E.C.G.



Follow-Up E.C.G.



Investigation: W.R: positive. U.C.T.: moderate renal function. Urine: A trace of pus. Cholecystogram: Gall-stone present in G.B. Barium meal: Stomach of good tone and empties rapidly. Deformity of the pyloric region, probably due to adhesions to G.B. Large gall-stone seen. E.C.G.: L.V.P. Low voltage in lead 1. T2 large. Poor P1 and P3.

Impression: Cholelithiasis; dental sepsis and infection of the urinary tract; some myocardial weakness.

Course: The attack of biliary colic settled down and the patient was discharged home. Recommended to attend for anti-specific treatment.

Follow-Up: Five months later: Patient has had several attacks of biliary colic since discharge. Flatulent dyspepsia constantly present. Moderate dyspnoea on exertion. General condition frail. C.V.S.: Cardiac enlargement 4¼". Heart sounds rather weak. Apical systolic murmur present. B.P. 138/76. No oedema. G.B. palpable but not tender. E.C.G.: I.S.Q.

Conclusion: Cholelithiasis of long-standing in an elderly patient with evidence of myocardial insufficiency. Associated sepsis in the teeth and urinary tract with a positive W.R.

Case No.43. Sex: Female. Age: 61 years

Complaint: Colicky pain in the epigastrium for eighteen months.

P.H. Scarlet Fever in childhood. Cholecystectomy eleven years ago for cholelithiasis.

Obstetric History: One normal pregnancy. Three miscarriages.

H.P.C. The patient experienced good health after her operation up until eighteen months ago since when she has suffered from severe epigastric pain accompanied by nausea and flatulence. She vomited during the last attack and has been jaundiced in several attacks.. Intolerance of fats for many years.

Habits. No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Well nourished patient with slight anaemia and no evidence of focal sepsis or jaundice.

Abdomen: Right kidney palpable. Flabby abdominal wall with poor muscle tone.

C.V.S. Some arterio-sclerosis. Slight cardiac enlargement $4\frac{1}{2}$". At all areas there is a soft systolic murmur which partly obscures the poor first sound. Slight accentuation of second sound at all areas. B.P. 168/78.

Other Systems: N.A.D.

Investigation: W.R; negative. E.C.G; P.3. poor. T.1. and

Case No.43.

Investigation E.C.G.

Follow-Up E.C.G.

T.2. enlarged. T.3. inverted. Bifid QRS. Low voltage in lead 3.

Urine. Trace of albumin and pus.

Blood Urea: Normal. Blood Count: Very mild secondary anaemia with slight eosinophilia.

F.T.M. Hyperchlorhydria. No delay in emptying of stomach.

Barium Meal: Slight gastroptosis only. No stone shadow seen in biliary tract.

Impression: Visceroptosis. Possibly stone in C.B.D., some myocardial weakness.

Course: Symptoms settled down. Laparotomy was not performed. Patient was advised to wear a Curtis Abdominal Belt and was to return in three months for reconsideration of the position.

Follow-Up: One year later: No symptoms since wearing Curtis abdominal belt. Slight dyspnoea on exertion. Some cardiac enlargement $4\frac{1}{4}$". First sound faint. A.2. and P.2. accentuated. Generalised systolic murmur. B.P. 210/145. E.C.G.L.V.P. extra-systole in 2. Low voltage in 3. P.3. poor.

Conclusion: Attacks of colic in epigastrium with flatulent dyspepsia and jaundice occurring in a patient eleven years after cholecystectomy. Some myocardial insufficiency which persisted unchanged for one year.

Case No.44. Sex: Female. Age:50 years.

Complaint: Attacks of pain in right hypochondrium.

P.H. Rheumatic Fever at rwelve years. Diphtheria at ten years. Bronchitis.

Obstetric History: Six normal pregnancies. Four miscarriages. Two gynaecological operations six years ago.

H.P.C. Attack of severe colic in right hypochondrium and right scapula region. Similar attack nine months previously. Associated with nausea, flatulence and vomiting of greenish material. Marked intolerance of fats for nine months. No jaundice. Dyspnoea on exertion and palpitation for six months with oedema of ankles for past month. Dyspnoea at rest in bed for one week before present admission to hospital. Some cough and sputum for years. Obese for some years. During the first attack patient was in hospital when findings were:-
Acute cholecystitis: Bronchitis: No cardiac lesion. B.P. 160/100. Three days later patient had extrasystoles and a systolic murmur. At this time F.T.M. showed hyperchlorhydria, and cholecystogram showed G.B. weakly filled with dye and a translucent centre(? calculus). Condition settled down and patient refused operation. On admission to hospital in second attack clinical findings

were as below.

F.H. One sister has "bilious" attacks.

Clinical Findings: Obese patient with no anaemia or jaundice. Some dyspnoea and cyanosis while in bed. Dental sepsis present. Flabby abdominal wall. Tender over palpable G.B. Murphy's sign positive. Liver dulness normal.

C.V.S. Tachycardia 140/minute. Weak pulse. Mild arterio-sclerosis. Cardiac enlargement 5½". Quality of heart sounds satisfactory at apex but poor at base. Extra-systoles present with bouts of paroxysmal tachycardia. B.P.84/60.

Lungs: Chronic bronchitis.

Other Systems: N.A.D. E.C.G: Abnormal rhythm.

Impression: Cholecystitis, obesity, chronic bronchitis and severe myocardial damage.

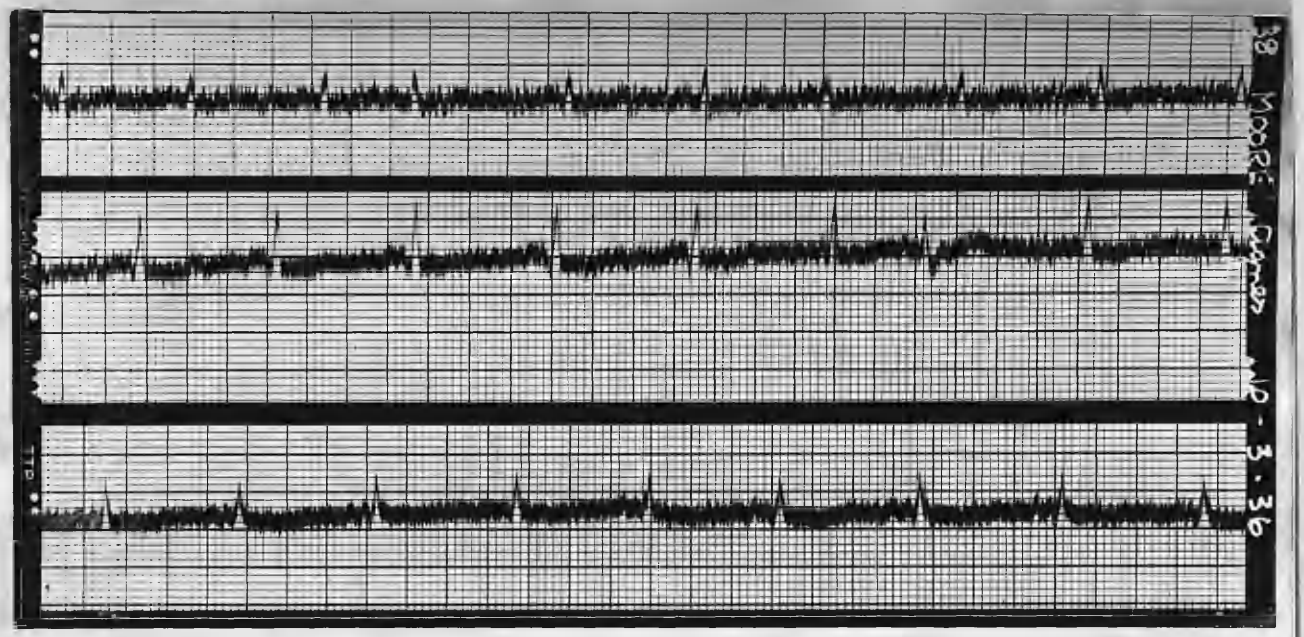
Course: Patient improved with rest in bed, and cholecystitis settled down. Advised to return in summer time when chest was improved, for cholecystectomy.

Follow-Up. Readmitted to hospital eight months later with acute cholecystitis, severe myocardial insufficiency, auricular fibrillation, chronic bronchitis and obesity.

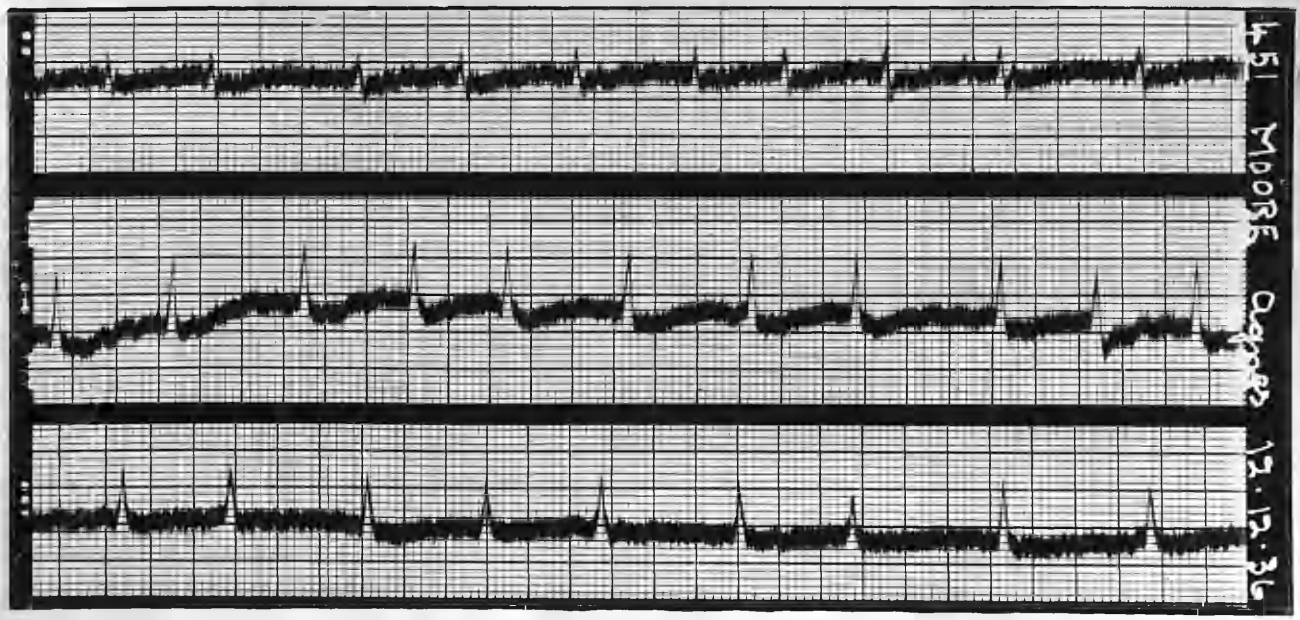
C.V.S. Heart enlarged, auricular fibrillation, heart sounds of poor quality, severe orthopnoea and cyanosis. No oedema. G.B. tender and

Case No.44.

E.C.G. 1.



Follow-Up E.C.G.



palpable.

E.C.G. Auricular fibrillation. T.2. inverted. Myocardial degeneration.

Conclusion: Case of cholecystitis. Chronic Bronchitis and Myocardial Damage. The myocardium has survived rheumatic fever, diphtheria, ten pregnancies, two gynaecological operations, obesity, dental sepsis and chronic bronchitis of several years standing, without giving rise to either signs or symptoms of insufficiency. Within four days of the beginning of her first attack of acute cholecystitis the heart showed extra-systoles and a systolic murmur. Six months later symptoms of myocardial weakness developed, to become grossly aggravated in another three months by the second attack of acute cholecystitis, the visible signs being cardiac enlargement, extra-systoles, paroxysmal tachycardia, dyspnoea and cyanosis at rest. After a further eight months another attack of acute cholecystitis occurred and the heart then showed gross myocardial damage with enlargement and auricular fibrillation, severe orthopnoea and cyanosis. It seems likely therefore that the G.B. condition was at least a precipitating factor in this failure of myocardium.

Case. No.45. Sex: Female. Age:65 years.

Complaint: Pain in right hypochondrium.

P.H. "? rheumatism" as a child. Severe rheumatoid arthritis of fingers, knees and ankles for six years.

Obstetric History: Ten normal pregnancies. One miscarriage.

H.P.C. Two attacks of severe colic in right hypochondrium and epigastrium during past six weeks associated with flatulence, nausea and vomiting. The pain was partially relieved by vomiting and eructation. Very severe flatulence for thirty years with intolerance of fats for past two years. No jaundice. Dyspnoea on exertion for two years with palpitation during past fortnight. Winter bronchitis for past two years.

Habits. Mild beer drinker. No tobacco.

F.H. Nil significant.

Clinical Findings: Slight cyanosis and anaemia. Dental sepsis. No jaundice or obesity. Early "clubbing" of fingers.

Abdomen: Tender in right hypochondrium. Murphy's sign weakly positive. Liver not enlarged. G.B. ? palpable.

C.V.S: Slight arterio-sclerosis. Cardiac enlargement $5\frac{3}{4}$". Heart sounds of poor quality. Auricular fibrillation. Rate not well controlled.

Mitral diastolic murmur. B.P. 140/90.

Lungs: Very mild bronchitis. Some congestion at base of both lungs.

Other Systems: Rheumatoid arthritis of knees. Varicose veins.

Investigation: Exercise Tolerance: obviously impaired and not attempted.

E.C.G. Auricular Fibrillation. Rapid ventricular rate. Low voltage in 3.

U.C.T. Impaired renal and heart function.

Urine: Trace of albumin, pus and hyaline casts.

Cholecystogram: Pathological G.B.

F.T.M. Hyperchlorhydria.

Impression: Cardio-vascular degeneration with auricular fibrillation and ? mitral stenosis. Chronic cholecystitis, Rheumatoid arthritis and mild bronchitis.

Course: Patient improved with rest in bed and digitalis, being discharged home after three weeks.

Follow-Up: Five months later: Has had two attacks of biliary colic since discharge and has been taking a fat-poor diet. Flatulence severe but no vomiting. Still has palpitation and considerable dyspnoea on exertion. No oedema. Has had no digitalis for several weeks.

On examination: C.V.S. Cardiac enlargement $5\frac{3}{4}$". Auricular fibrillation with rapid rate. Diastolic murmur at apex. No oedema. Tender in right

hypochondrium. Mild bronchitis.

Conclusion: Chronic cholecystitis, rheumatoid arthritis and a severe degree of myocardial degeneration with auricular fibrillation. No definite relationship determinable between heart and G.B. lesion.

E.C.G.

Case.No.46. Sex: Female. Age: 49 years.

Complaint: "Bilious" attacks for years.

P.H. Injury to left eye in childhood with permanent impairment of vision. Scarlet fever at eight years.

Obstetric History: Six normal pregnancies. One stillbirth. One miscarriage.

H.P.C. Admitted to hospital with complete abortion. Has suffered from attacks of nausea and vomiting for many years, especially before marriage sixteen years ago. No abdominal pain, flatulence or jaundice. Intolerance of fats for years. Palpitation for two years, but dyspnoea and oedema of ankles confined to later months of each pregnancy. Severe headache during "bilious" attacks.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Normal nutrition. Some anaemia following on abortion. Some dental sepsis. No jaundice.

Abdomen: N.A.D.

C.V.S. Bradycardia at radial pulse, but apical rate 80/minute. Slight arterio-sclerosis. Cardiac enlargement $5\frac{3}{4}$". Heart sounds weak. P.2. accentuated. Extra-systoles present. Harsh apical systolic murmur with re-duplication of second sound at apex. B.P. 124/76.

Case No.46.

E.C.G.

Other Systems: Chronic Bronchitis.

Investigation: W.R. negative. Exercise Tolerance: impaired. E.C.G. L.V.P. P.3. inverted. Extra-systoles every third beat. Large P waves. Urine: Normal. U.C.T. Renal function satisfactory. Cardiac element poor. Cholecystogram: No dye visualised.

Impression: Abortion. ? mitral stenosis with myocardial degeneration. Chronic bronchitis and chronic cholecystitis.

Course: Operation not considered at time and patient discharged home.

Follow-Up: Nine months later: slight epigastric discomfort on occasion. Oedema of ankles every night. Some dyspnoea on exertion. No dyspepsia. C.V.S. Cardiac enlargement 4½". Diffuse apex beat. Poor first sounds. P.2 accentuated. Apical systolic murmur. Multiple extra-systoles. Trace of pretibial oedema. B.P. 150/90. Dental sepsis lower jaw.

Conclusion: Chronic cholecystitis for sixteen years. Chronic Bronchitis and dental sepsis. Myocardial degeneration present and was more pronounced after nine months. Some stenosis of the mitral valve was suspected when seen first but was not definite, and moreover is unlikely at this age.

Case No.47. Sex: Male. Age: 55 years.

Complaint: Flatulence, palpitation and occasional vomiting.

P.H. Bronchitis five years ago. Has worked among dusty sacks for last three years.

H.P.C. Some discomfort in right hypochondrium associated with severe flatulence and occasional attacks of nausea and vomiting during past twenty years. Palpitation and dyspnoea experienced during each attack. No jaundice or definite intolerance of fats. Has been stout for many years.

Habits: Moderate tobacco and ale consumption.

F.H. Nil significant.

Clinical Findings: Stout patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Flabby abdominal wall. Murphy's sign positive. G.B. not palpable. Liver dulness normal.

C.V.S. Advanced arterio-sclerosis with well-marked arcus senilis. No cardiac enlargement. Heart sounds of poor quality. A.2. accentuated. B.P. 146/98.

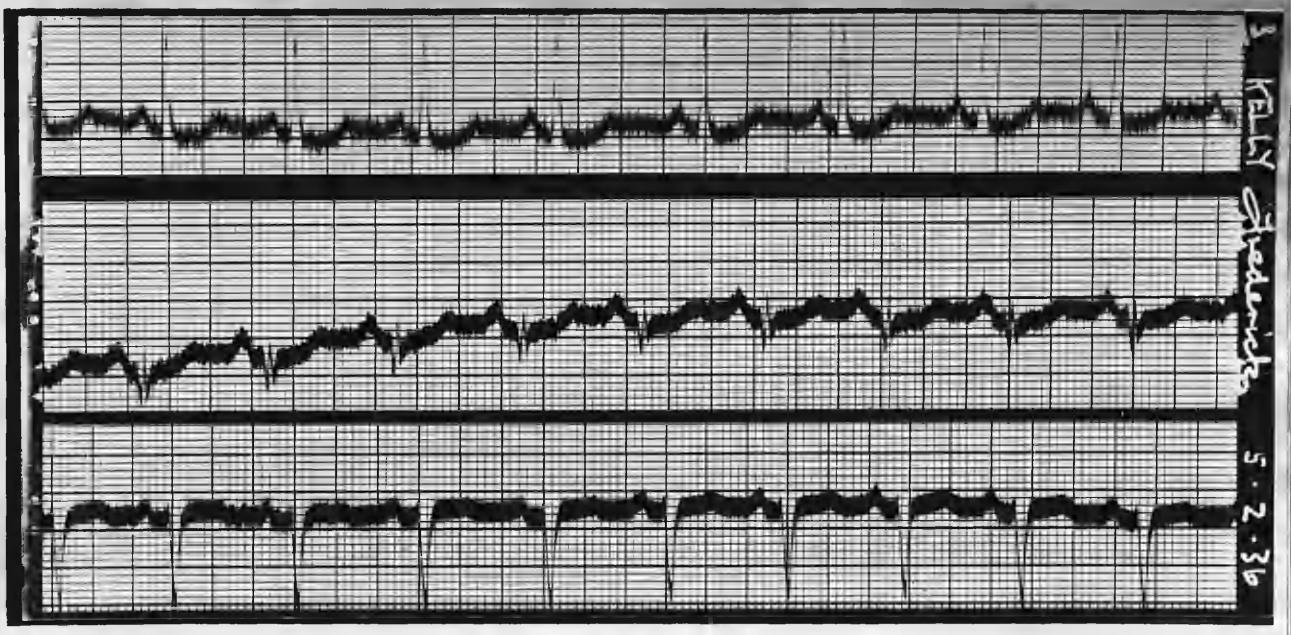
Other Systems: Slight Bronchitis and emphysema.

Investigation: Exercise Tolerance: impaired.

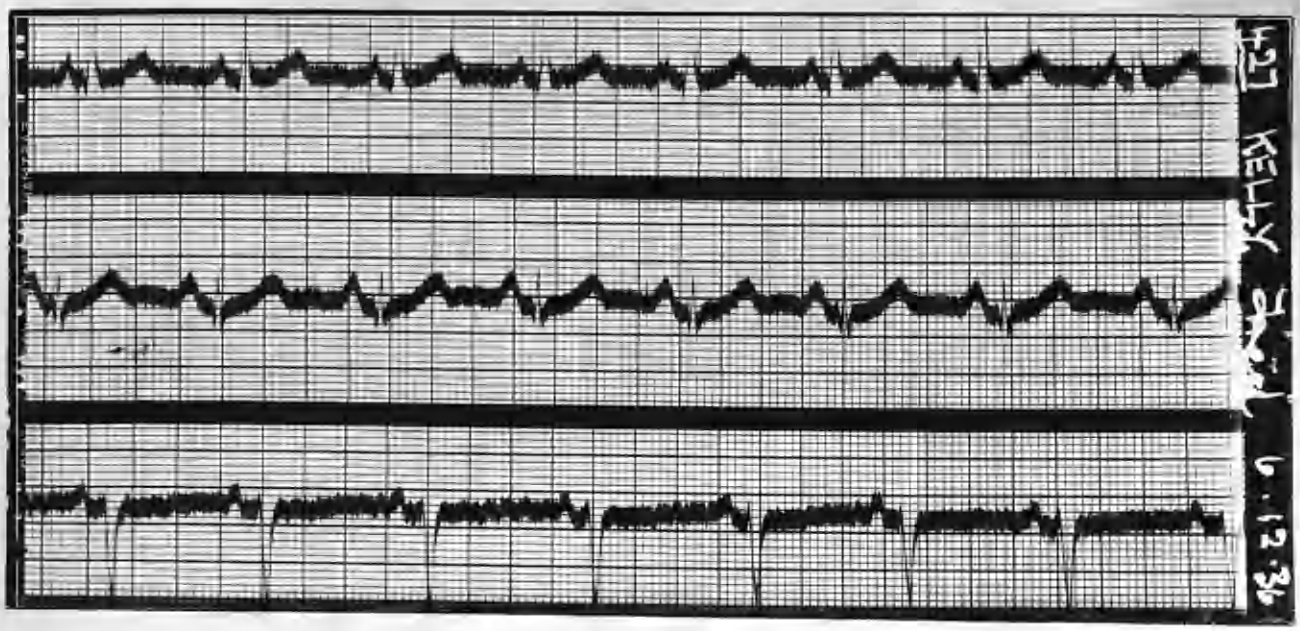
E.C.G: L.V.P. biphasic QRS in 2. Slight S-T deviation in 1. Urine:normal. Blood Urea: Normal. Cholecystogram: Radiologically normal G.B. Barium Meal: Normal. F.T.M. Normal.

Case No.47.

Investigation E.C.G.



Follow-Up E.C.G.



Impression. Obesity, Chronic bronchitis and emphysema, cardio-vascular degeneration and chronic cholecystitis.

Course: Patient discharged home.

Follow-Up: Nine months later: still has flatulent dyspepsia, with pain in the left chest during the attacks. Occasional intolerance of fats. No jaundice. No dyspnoea.

On examination: C.V.S: Heart sounds slightly weak. Very occasional extra-systoles. B.P. 180/135.

E.C.G: L.V.P. T.3. poor.

Conclusion: Chronic cholecystitis for twenty years. Obesity, chronic bronchitis and emphysema with cardio-vascular degeneration which was practically unchanged after nine months.

Case No.48. Sex: Female. Aged: 70 years

Complaint: Attacks of abdominal pain.

P.H. Scarlet fever at twenty-five years.

Obstetric History: Nine confinements. Three miscarriages.

H.P.C. Attacks of pain in right hypochondrium, epigastrium and right shoulder for three months. Attacks of nausea, vomiting and severe flatulence for three years, with marked intolerance of fats. The pain is partially relieved by vomiting and eructation. No jaundice. Dyspnoea on exertion, becoming progressively worse during past three years, with oedema of ankles of palpitation for the past six months. Some cough for three years.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Rather obese patient with slight orthopnoea while at rest in bed. No jaundice or focal sepsis detected. Slight anaemia.

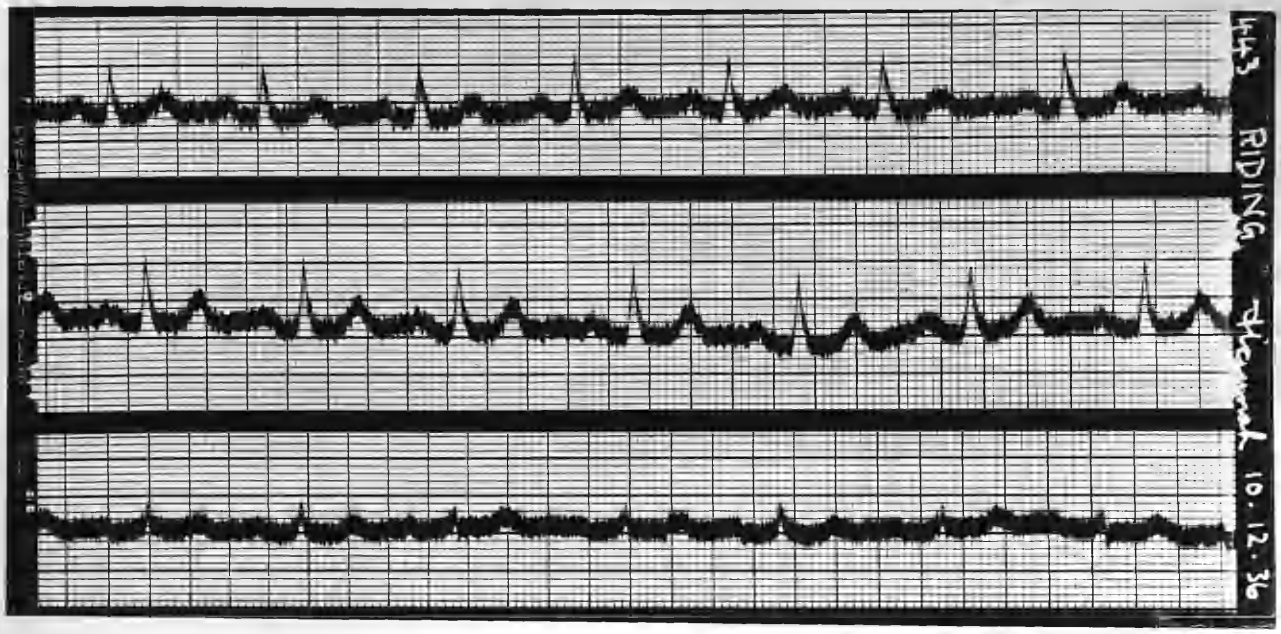
Abdomen: Flabby abdominal wall.. Tender in right hypochondrium with some muscle guarding. Murphy's sign positive and G.B. palpable and tender. Liver dulness slightly increased below costal margin.

C.V.S. Slight arterio-sclerosis. Slight cardiac enlargement 4½". Very poor first sound all areas.

Case No.48.

Investigation E.C.G.

Follow-Up E.C.G.



Slight accentuation of second all areas.
Faint generalised systolic murmur. B.P. 154/86.
Other Systems: Mild bronchitis.

Investigation: Exercise Tolerance obviously impaired and not attempted. E.C.G. Splaying of QRS. Low voltage in 3. Urine: Trace of albumin. Occasional red blood cell and hyaline casts. Blood Urea: Normal. Straight X-ray of G.B: No gall-stone shadow shown. Osteo-arthritis of spine.

Impression: Chronic cholecystitis with an acute exacerbation. Myocardial degeneration. Mild anaemia and obesity. Systolic murmur probably haemic.

Course: Operation was not advised. Discharged home.

Follow-Up: Eight months later: Still has "bilious" attacks with pain in right hypochondrium. Some dyspnoea on exertion, oedema of ankles and cough.
On examination: Obese, dental sepsis, heart enlarged 5½". Heart sounds slightly weak.
B.P. 225/150. Mild bronchitis.
E.C.G. Splaying of QRS in all leads. Low voltage in 3.

Conclusion: Chronic cholecystitis three years. Myocardial insufficiency with hight blood pressure. Mild obesity and bronchitis.

Case No.49. Sex: Female. Age: 74 years.

Complaint: Severe pain in epigastrium at intervals for three months.

P.H. Nil important.

Obstetric History: Eight healthy children. No miscarriages.

H.P.C. Several attacks of severe pain during the past three months, affecting the epigastrium and spreading through to the back.
Associated with nausea, vomiting and flatulence
Jaundiced for ten days before admission.
Marked intolerance of fats for many years.
Oedema of ankles occasionally for five years, with dyspnoea recently. While in hospital jaundice increased, stools were clay-coloured and irregular pyrexia was present.

Clinical Findings: Slightly obese with marked jaundice. No obvious focal sepsis.
Abdomen: Flabby abdominal wall. Murphy's sign positive. Slight tenderness in right hypochondrium. Liver dulness probably normal, and G.B. just palpable.
C.V.S. Heart enlarged 5½". Poor first sound. Some accentuation of second sound especially at mitral area. Faint apical systolic murmur and some extra-systoles present. B.P.146/95.

Other Systems: Rheumatoid arthritis of hand.

Investigation: W.R. negative. U.C.T. Impaired renal function. E.C.G: L.V.P. P.1 and P.3. poor. Urine: albumin present. A few blood discs, hyaline and cellular casts. Icterus Index:50. Blood Cholesterol: 170 mgm.%. Straight X-ray of G.B: No stone shadow seen. F.T.M. achlorhydria. Faeces: putty-coloured. Consist largely of undigested fats and fatty acid crystals.

Impression: Obstructive jaundice and infective cholangitis. Probably stone in C.B.D. Myocardial weakness.

Course. Jaundice cleared and general condition improved after 4 weeks in hospital. Operation considered contra-indicated on account of age. Discharged home.

Follow-Up. Seven months later: two attacks of biliary colic with flatulence. Intolerance of fats. No jaundice, dyspnoea or oedema. Able to do her household duties.

C.V.S. Slight enlargement of heart 4". Heart sounds moderate. A.2. accentuated. B.P. 210/140. Has lost weight.

Abdomen and Chest: N.A.D.

E.C.G. L.V.P. T.3. P.1 and P.3 poor.

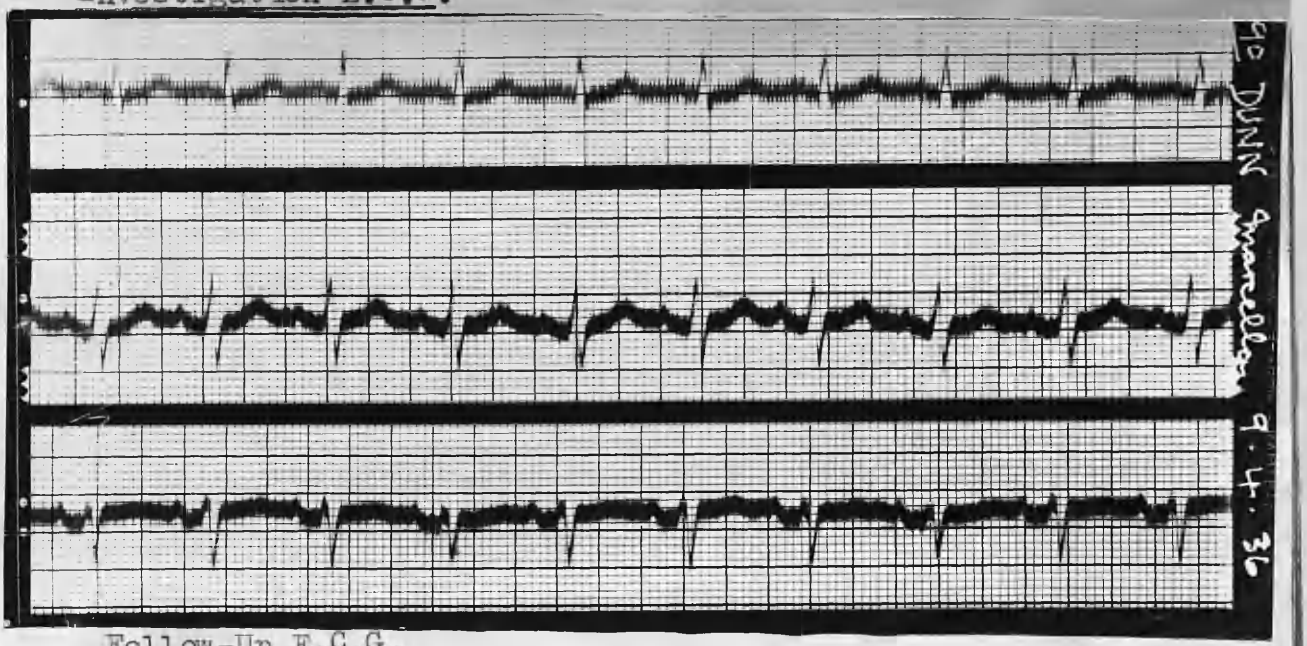
Conclusion: Evidence of Cardio-vascular degeneration with symptoms for five years. Cholelithiasis for three months. Obstructive jaundice. No

operative measures suggested because of age.

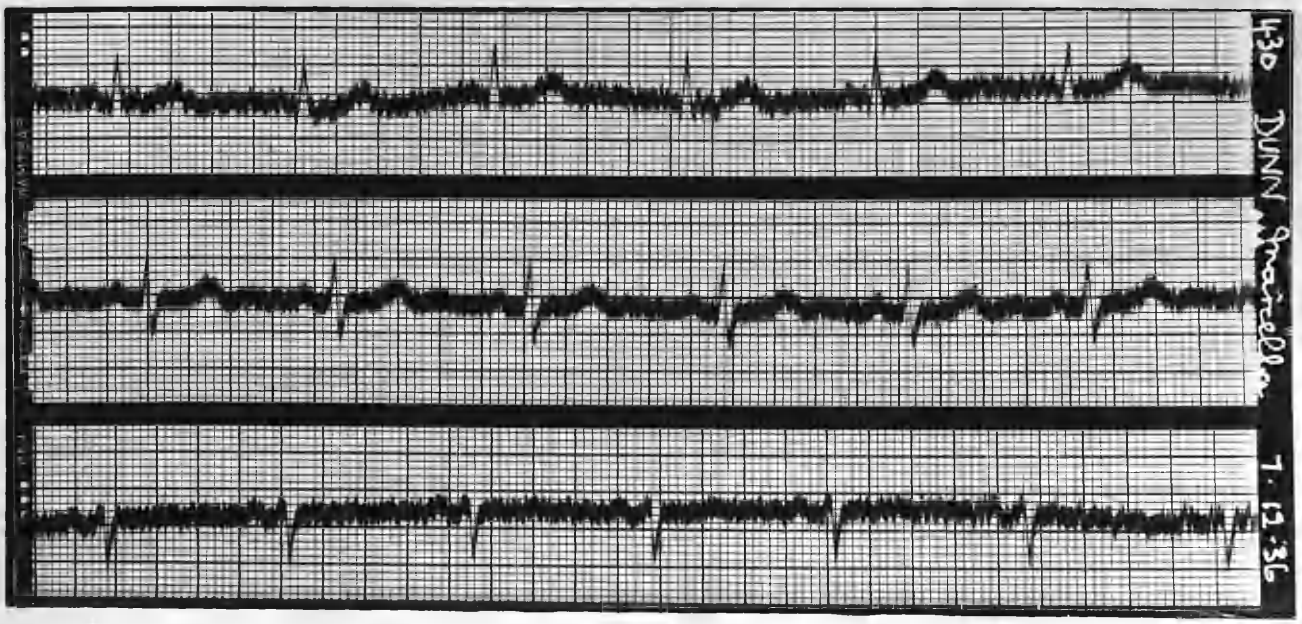
Seven months later: condition very similar.

Rheumatoid arthritis of hands.

Investigation E.C.G.



Follow-Up E.C.G.



Case No.50. Sex: Female. Age:56 years.

Complaint: Pain in both sides of abdomen.

P.H. Obstetric History: Ten pregnancies. One Stillbirth and one miscarriage.

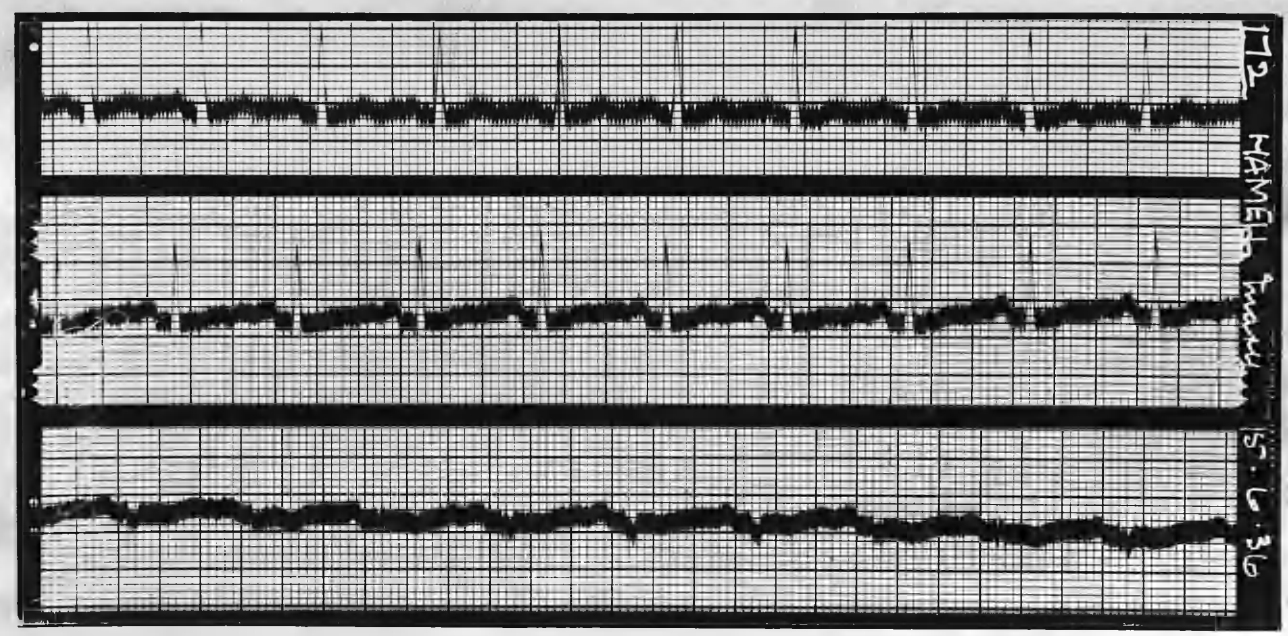
H.P.C. Attacks of stabbing pain in epigastrium and right hypochondrium during past ten years associated with nausea, vomiting and flatulence. Intolerance of fats and several attacks of jaundice over ten years. Mild dyspnoea on exertion and evening oedema of ankles for two years also attacks of pain in left lumbar region with a distribution of renal colic, and dysuria and frequency.

Clinical Findings: Well nourished patient with slight anaemia and myxoedema. No jaundice or dental sepsis. Abdomen: Flabby wall. Tender over palpable G.B. and also over left kidney. Murphy's sign positive. Liver dulness normal. C.V.S. Moderate arterio-sclerosis, Slight cardiac enlargement $4\frac{1}{4}$". Heart sounds of normal quality; accentuation of A.2. B.P. 206/130. Other Systems: Arthritis of knees.

Investigations: Exercise Tolerance:definitely impaired. W.R. negative. E.C.G. L.V.P. low voltage 3. P.1 poor. T.2 poor. Splaying of QRS in 3. U.C.T. Impaired renal function. Urine: Pus.

Case No.50.

E.C.G.



Cholecystogram: Large number of calculi. Intensely calcified G.B.

Blood Count: Moderate secondary anaemia.

U.C.T. Impaired renal function.

Blood Urea: Normal. Uroselectan X-ray: Small shadow in left pelvis due to stone, causing hydronephrosis. Right kidney not excreting dye. Pyelogram: Hydronephrosis left kidney. Block in lower third of right ureter.

Impression: Cholelithiasis. Nephrolithiasis and Left Hydronephrosis. Cardio-renal Degeneration. Anaemia and Myxoedema.

Course: Operation on right side of renal tract. Ureteric calculus removed. Uroselectan x-ray before discharge showed some function in right kidney. Advised to return for further operation in three months.

Follow-Up. Died three months after renal operation. Death occurred at home.

Conclusion: Chronic cholecystitis and cholelithiasis for ten years. Nephrolithiasis and hydronephrosis Cardio-vascular degeneration and Hypochromic anaemia. Mild obesity and myxoedema. Hydronephrosis relieved by removal of ureteric calculus. Died three months after renal operation.

Case No.51. Sex: Male. Age: 68 years.

Complaint: Epigastric pain and vomiting.

P.H. Malaria; smallpox; severe fall twenty three years ago with injuries to skull, spine, left wrist and right elbow.

H.P.C. Attacks of severe pain in right hypochondrium during past twenty years. Nausea and vomiting accompany the pain and flatulence is constantly present. Dyspnoea on exertion for three years. Intolerance of fats for many years. No jaundice.

Clinical Findings: Stout patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Abdominal wall very fat and tender over palpable G.B. Murphy's sign positive.

C.V.S. Very marked arterio-sclerosis with prominent arcus senilis. Heart slightly enlarged $4\frac{3}{4}$". Heart sounds rather weak. A.2. accentuated. B.P. 160/95.

Lungs: Some bronchitis and emphysema.

Other systems: N.A.D. except for bony deformity from previous injury.

Investigation: Cholecystogram: Poor G.B. function.

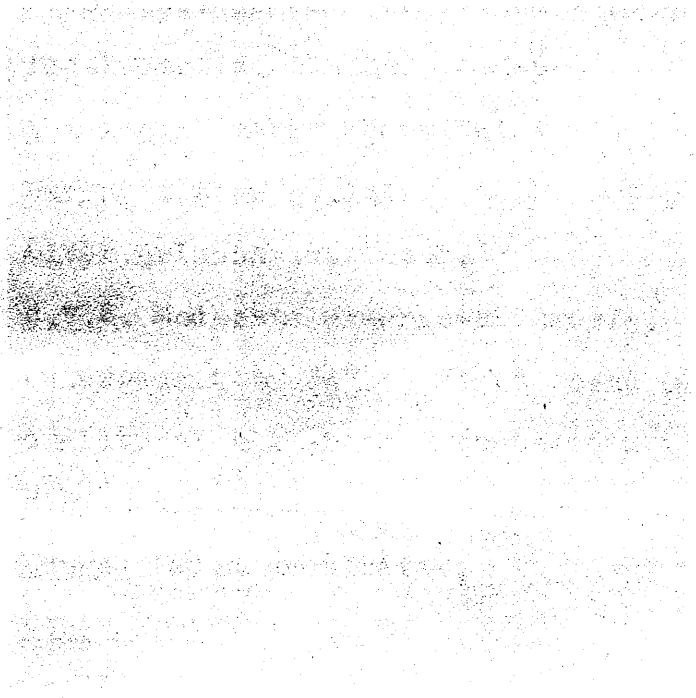
Exercise Tolerance: impaired

Blood examination: No malarial parasites. Slight leucocytosis. Urine: Normal.

Course: No operative measures indicated in view of age and general condition.

Impression: Long standing cholecystitis with well marked cardio-vascular degeneration.

Conclusion: It is impossible to incriminate the G.B. infection as a cause of the cardio-vascular degeneration because of the presence of other factors, e.g. Age, Obesity, Bronchitis and Emphysema.



Case No.52. Sex : Female. Age 45 years.

Complaint: Attacks of pain in right hypochondrium.

P.H. No other illness. Nulliparous.

H.P.C. Attacks of severe colic in right hypochondrium and passing through to right scapula, during the past fifteen years. Nausea, vomiting and flatulence during the attacks. No definite intolerance of fats and no jaundice previously.

Habits: No alcohol or tobacco.

F.H. Nil significant.

Clinical Findings: Obese patient with no evidence of anaemia or focal sepsis. Moderate jaundice present.

Abdomen: Flabby abdominal wall. No tenderness. Murphy's sign negative. G.B. not palpable. Liver dulness increased.

C.V.S. Moderate arterio-sclerosis. Cardiac enlargement to 5½". First sound of poor quality at all areas with accentuation of A.2. B.P. 200/130.

Lungs: Mild bronchitis.

Other Systems: N.A.D.

Investigation: W.R.negative. Urine: Trace of albumin. Occasional hyaline casts. Straight X-ray of Abdomen- No stone shadow seen. Icterus Index:50. F.T.M. Hypochlorhydria.

Impression: Cholecystitis for fifteen years. Myocardial insufficiency. Obesity.

Course: Patient refused operation.

Follow-Up. Not obtained.

Conclusion: Chronic cholecystitis for fifteen years. Obesity, mild bronchitis and myocardial insufficiency.

Case No.53. Sex: Female. Age: 38 years.

Complaint: Attack of pain in right hypochondrium.

P.H. "Influenza" a few years ago.

Obstetric History: Five normal pregnancies. No miscarriages.

H.P.C. Single attack of severe colic in right hypochondrium and beneath both scapulae. Flatulence and intolerance of fats present for two years; nausea and heartburn for the past year and two attacks of vomiting occurred in the three months previous to the onset of colic. The pain was partly relieved by vomiting and eructation. No jaundice reported. Palpitation present for two years. Dyspnoea on exertion for eight months and evening oedema of ankles in past four months.

Habits: Occasional glass of stout. No tobacco.

F.H. Nil significant.

Clinical Findings: No obesity, anaemia, jaundice or focal sepsis.

Abdomen: G.B. palpable. Liver dulness slightly increased below costal margin.

C.V.S. Slight cardiac enlargement to 4½". Heart sounds of good quality with slight accentuation of second at all areas. B.P. 156/120.

Other Systems: N.A.D.

Investigation: E.C.G.: L.V.P. T.2. large. T.3. inverted. P.3 poor. Urine: Normal.

Cholecystogram. Pathological G.B.

Impression: Cholelithiasis. Myocardial weakness.

Course: Patient refused operation and was discharged.

Follow-Up: Not obtained.

Conclusion: Cholecystitis for two years. Slight myocardial insufficiency.

E.C.G.

Case No.54. Sex: Female. Age:54 years.

Complaint: Severe abdominal colic.

P.H. Obstetric History: Nine normal pregnancies. One miscarriage.

H.P.C. One attack of severe colic in umbilical region and passing through to between the scapulae for two days before admission. Pain accompanied by nausea and vomiting. Flatulence present for four months and intolerance of fats for years. No jaundice. Dyspnoea on exertion for two months and increasing oedema of ankles after an active day for the past year. Has been stout for the past ten years.

Habits: Occasional beer drinker. No tobacco.

F.H. Nil significant.

Clinical Findings: Well nourished patient with moderate anaemia but no jaundice or focal sepsis.
Abdomen: Tender in right hypochondrium with slight rigidity. Murphy's sign negative.
C.V.S. Mild arterio-sclerosis. Cardiac dulness normal. Quality of sounds rather poor with accentuation of second at aortic and mitral areas.
Other Systems: N.A.D.

Investigation: W.R. negative. E.C.G.: L.V.P. P wave poor in all leads. U.C.T. impaired renal function, urine normal. Cholecystogram: Pathological G.B.

Probably contains three small translucent stones.

Blood Count: Moderate degree of hypochromic anaemia.

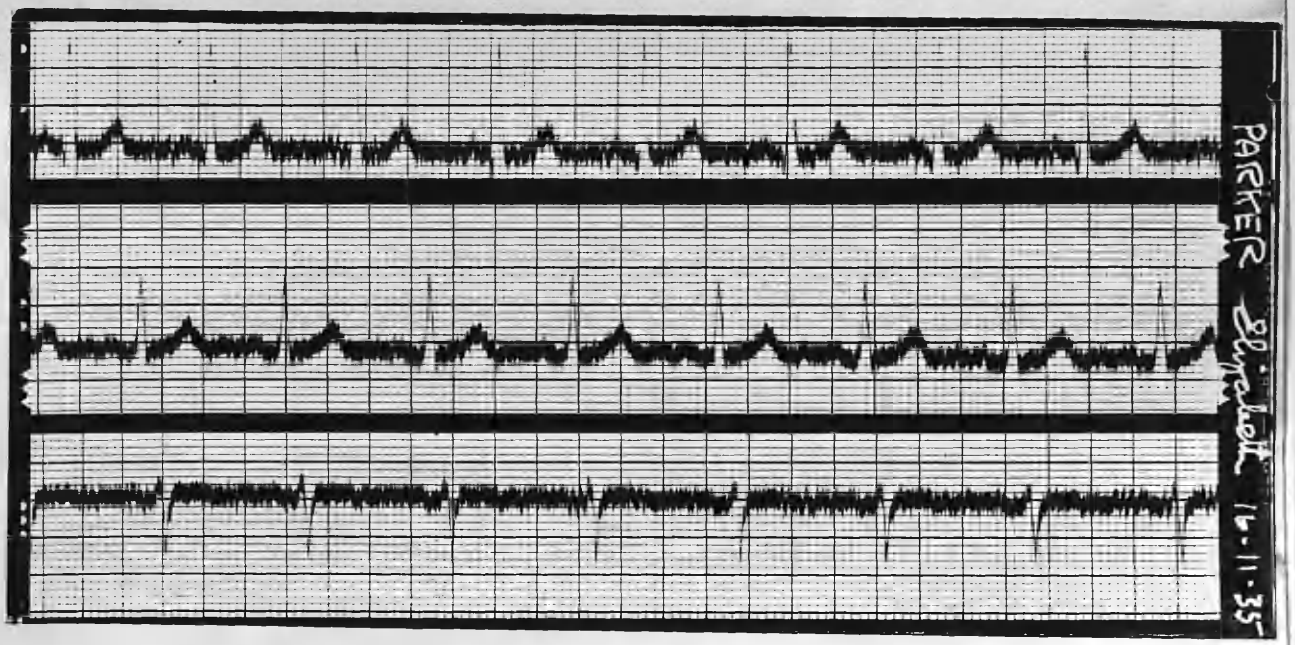
Impression: Cholelithiasis, secondary anaemia, slight myocardial weakness.

Course: Patient refused operation and was discharged home.

Follow-Up: Not obtained.

Conclusion: Cholelithiasis, moderate anaemia, slight myocardial weakness.

E.C.G.



Case No.55. Sex: Female. Age: 29 years.

Complaint: Attacks of pain in right hypochondrium.

P.H. Rheumatism eight years ago.

Obstetric History: Two normal pregnancies. No miscarriages.

H.P.C. Four attacks over the past seven weeks of severe colic in right hypochondrium and passing through to the back. Attacks associated with nausea and vomiting of colourless fluid. Flatulence for past five years but absent during attacks of pain. Slight intolerance of fats. No jaundice. Dyspnoea on exertion for seven years. Intermittent attacks of evening oedema of ankles. for five years, and palpitation for several years. Increase in weight six years ago.

Habits: No alcohol or tobacco.

F.H. Mother has gall-stones but refused operation.

Clinical Findings: Rather obese patient with no evidence of anaemia, jaundice or septic foci.

Abdomen: Flabby abdominal wall. Tender over palpable G.B. Murphy's sign positive. Liver dulness normal. C.V.S. Slight cardiac enlargement $4\frac{3}{4}$". Heart sounds of weaker quality than normal with P.2 accentuated. B.P. 160/125.

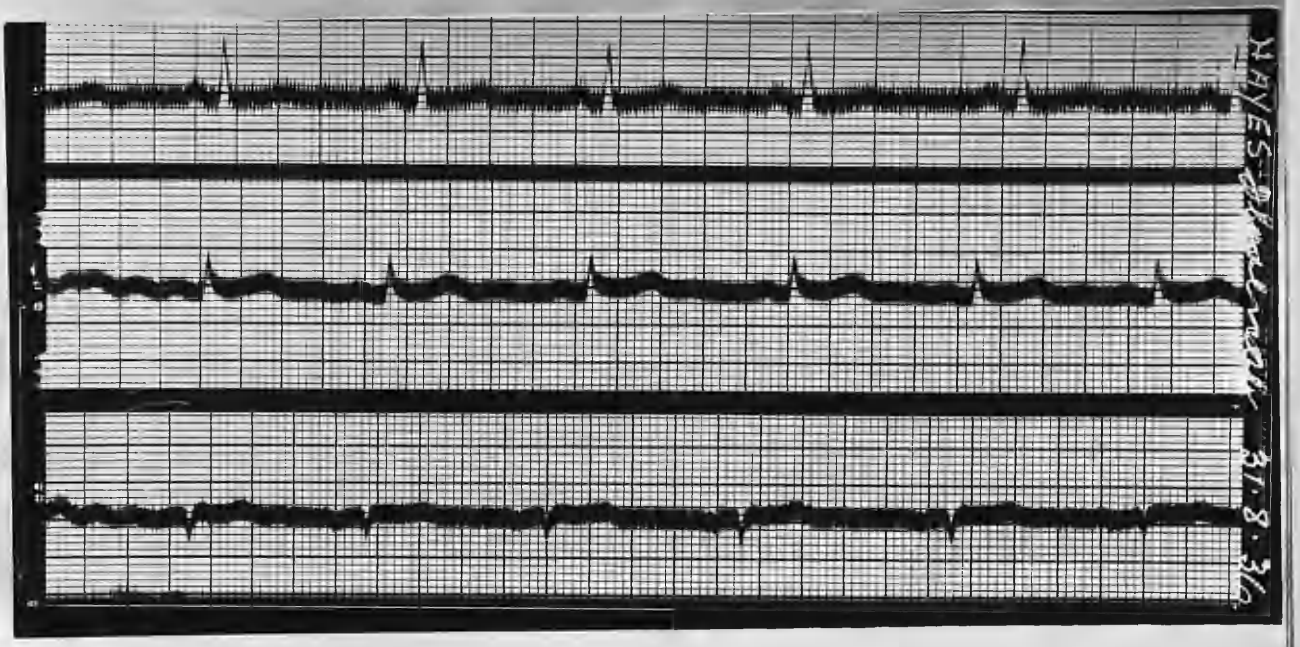
Other Systems: N.A.D.

Investigation: Exercise Tolerance: satisfactory.

Pre-operative E.C.G: Low voltage 2 and 3.

Case No.55.

Pre-operative E.C.G.



Follow-Up E.C.G.

L.V.P. P.2 and P.3 poor. Urine: Normal.
Cholecystogram: G.B. fills with dye and concentrates well but contains many stones
X-ray of Chest: Some cardiac enlargement.
F.T.M.: Hypochlorhydria.

Impression: Cholelithiasis (probably cholesterol stones). Some obesity and myocardial weakness.

Operative Findings: Cholecystectomy and appendicectomy. "Strawberry" G.B. Twelve cholesterol stones. No liver change.
Report on G.B. A slight leucocytic response in mucosa and muscle coats.

Follow-Up. Very well. Previous symptoms absent.
C.V.S: P.2 accentuated. B.P. 135/100.
E.C.G. L.V.P. T.1 and T.2 large. P.3 and T.3 poor. P.2 improved.

Conclusion: Cholesterosis with cholesterol calculi. Mild obesity and myocardial insufficiency which was cured after operation.

Case 56. Sex: Female. Age: 75 years.

Complaint: Attacks of pain in epigastrium and praecordium for four years.

P.H. Obstetric History: Seven normal pregnancies. One miscarriage.

H.P.C. During the past four years patient has experienced attacks of severe gripping pain in the praecordium, epigastrium, back and left arm. The pain is definitely related to exercise and disappears when the patient rests, which she is forced to do at once. She also has had attacks of nausea, vomiting and flatulence for many years. Intolerance of fats reported. Has become jaundiced in present attack. Dyspnoea on exertion for some years.

Habits: Mild beer drinker. No tobacco.

F.H. Nil significant.

Clinical Findings: Patient of normal proportions, jaundiced and experiences dyspnoea on the slightest exertion. No evidence of focal sepsis. Edentulous for some time.

Abdomen: Tender over G.B. which is probably palpable.

C.V.S. Arterio-sclerosis not excessive. Cardiac enlargement 5". First sound poor and second accentuated at all areas. B.P. 255/108

Case No.56.

E.C.G.

Other Systems: N.A.D.

Investigation: Trace of albumin. Faeces: Clay-coloured E.C.G. L.V.P. S-T deviation lead 1. Invertion of T waves in all leads. - Gross myocardial degeneration with coronary artery lesion. U.C.T. Poor renal function. Straight Xray of G.B. No stones. Icterus Index: 80. Ven den Bergh Reaction: Positive direct. Blood Examination: Severe secondary anaemia. Blood Cholesterol: 140.

Impression: Hypertensive cardio-vascular degeneration with effort syndrome. Chronic cholecystitis. Probably cholelithiasis.

Course: Patient improved with rest in bed and small doses of digitalis, diet and saline aperients. Jaundice disappeared and icterus index returned to normal. Patient was considered too old for operation and was discharged home.

Follow-Up: Death occurred at home eight months after admission to hospital. Cause: Angina Pectoris. Lived one hour after onset of attack.

Conclusion: Chronic cholecystitis. Probably cholelithiasis with cardio-renal degeneration and angina pectoris. Death occurred in eight months time from a fatal heart attack.

Case No.57. Sex: Male. Age:52 years.

Complaint: Pain in the praecordium and shortness of breath.

P.H. Typhoid fever twenty-one years ago. Appendicectomy three years ago.

H.P.C. Attacks of stabbing pain affecting the praecordium, left arm and shoulder, on exertion, during the past four months. The pain is completely relieved by rest. Dyspnoea on exertion for four months. Palpitation for six months, and swelling of the feet, legs and hands on exertion, at intervals, for nine months. The patient was in hospital eight months ago with a history of dyspepsia of eight months duration. At this time the F.T.M. showed hyperchlorhydria and there was no evidence of peptic ulcer.

Habits: Mild consumption of beer and tobacco.

F.H. Nil significant.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Slight tenderness in the right hypochondrium over a ? palpable G.B.

C.V.S. Moderate arteriosclerosis. Cardiac enlargement $4\frac{3}{4}$". Poor heart sounds with extrasystoles. B.P. 168/120.

Other Systems: N.A.D.

Investigations: W.R.negative. Exercise Tolerance: Impaired

Case No.57.

Investigation E.C.G.

Follow-Up E.C.G.

with praecordial pain and spreading to the left arm.

E.C.G. Poor P.1. U.C.T. Impaired renal function. Urine: Normal. Icterus Index: Normal. Cholecystogram: Subnormal G.B. No evidence of calculus. F.T.M. normal. X-ray of Chest: Heart and aortic shadow normal.

Impression: Cardio-renal degeneration with angina of effort and chronic cholecystitis.

Course. The patient was discharged and advised to lead a restricted life.

Follow-Up. Four months later: Anginal attacks, dyspnoea and oedema as before.

C.V.S. No cardiac enlargement. Heart sounds weak. Multiple extra-systoles. Impaired Exercise Tolerance. B.P. 190/150.

E.C.G. P.1 poor. Slight S-T deviation in leads 2 and 3.

Conclusion: Cardio-renal degeneration with anginal symptoms and chronic cholecystitis.

Case No.58. Sex: Male. Age:40 years.

Complaint: Severe praecordial pain.

P.H. Patient was investigated in another hospital nine months previously and was diagnosed as gastric ulcer.

H.P.C. Fifteen minutes after a meal the patient was suddenly seized with very severe pain in the praecordium and right arm, and experienced a choking sensation. He fainted almost immediately and vomited on regaining consciousness, ten minutes later. He was sent to hospital diagnosed as "perforated gastric ulcer"

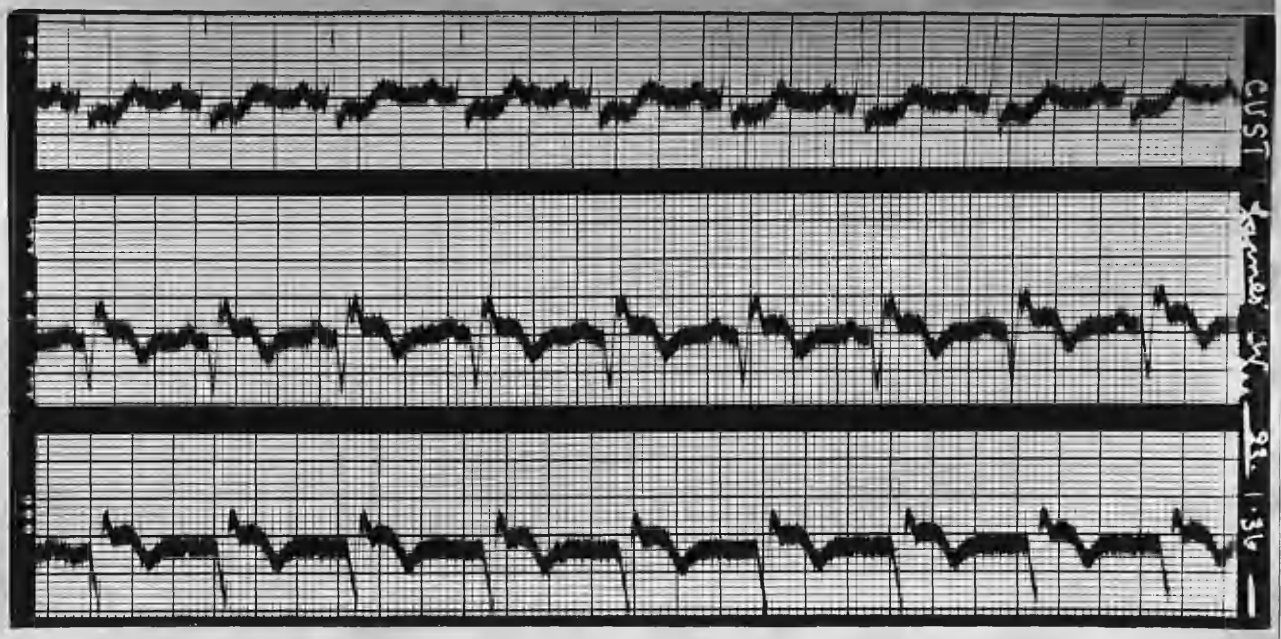
Clinical Findings: On admission, the patient was found to be a middle aged man of normal nutrition and with no evidence of anaemia, jaundice,or focal sepsis. He was cold, sweating, with some degree of shock and slight dyspnoea and cyanosis. The abdomen showed slight epigastric tenderness and the liver dulness was normal. Moderate arterio-sclerosis, no cardiac enlargement, weak heart sounds and occasional extra-systoles were present. B.P. 140/118. The other systems were normal.

Impression: Coronary thrombosis.

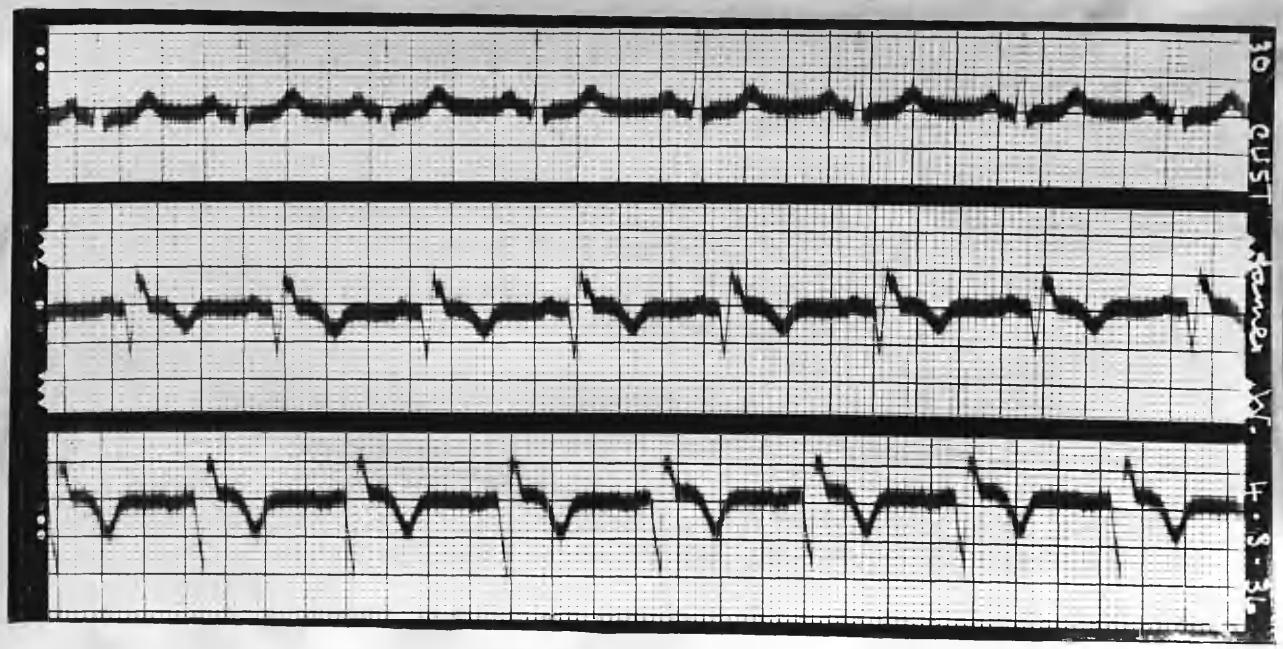
Investigation: W.R.negative. U.C.T. Moderate renal function. Urine: Normal. E.C.G. (11 days later): S-T deviation. Bifid QRS complex. P.2 and P.3

Case No.58.

Investigation E.C.G.



E.C.G. after two months.



Case No.58.

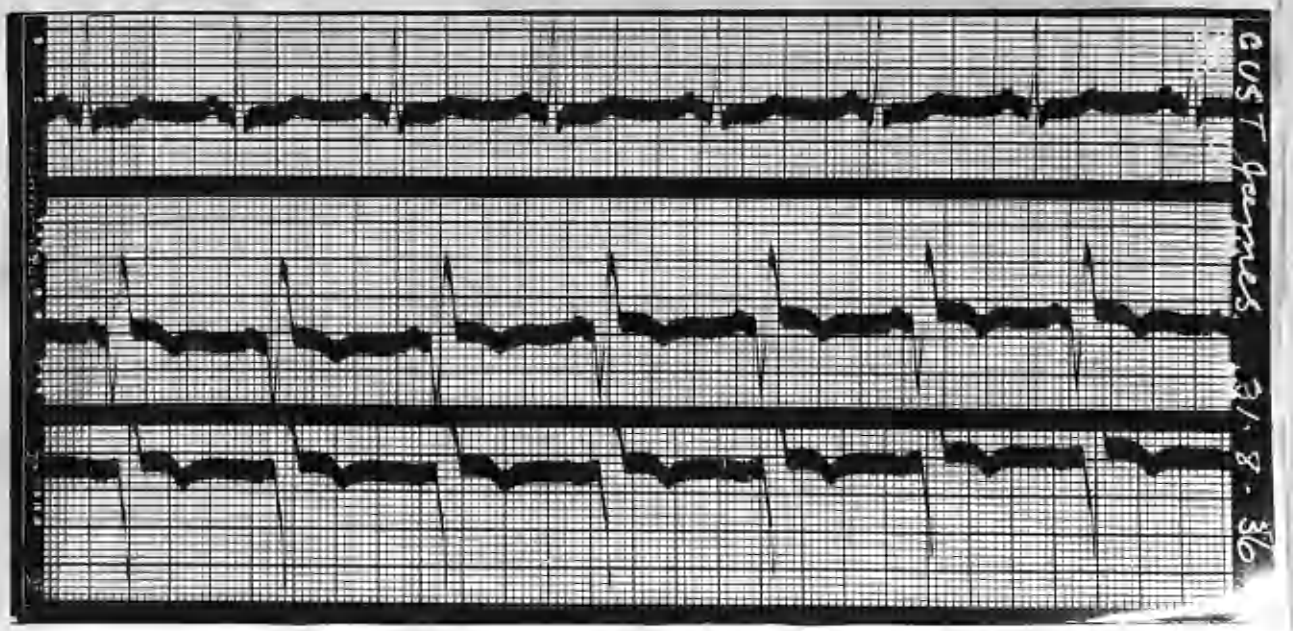
E.C.G. after three months.

E.C.G. after Three and half months.

Case No.58.

E.C.G. after six months.

E.C.G. after eight and half months.



poor. Cholecystogram: Subnormal function of G.B. F.T.M. Hyperchlorhydria. Depressed by regurgitation of bile.

Course: One week after admission: Pulse of poor tension, rate 104/minute. B.P. 124/82. Apex beat displaced to the left and diffuse in nature. Heart sounds more distinct.

E.C.G.(Two months): I.S.Q. (Three months): Ventricular extra-systoles. Splaying of QRS complex and Pardee Curve in leads 2 and 3. P.3 poor. (At three and half months): I.S.Q. After three and half months patient was discharged from hospital.

Follow-Up: Eight and half months later: Apex beat forceful. Tic-tac rhythm. Systolic murmur at the apex. First sound at mitral area rough and P.2 accentuated and reduplicated. E.C.G. I.S.Q.

Conclusion: Severe coronary artery thrombosis developing in a man of forty years, the subject of chronic cholecystitis.

Case No.59: Sex: Female. Age:58 years.

Complaint: Severe pain in the epigastrium.

P.H. Cholecystectomy performed ten and half years ago after one year's history of biliary colic. A few gall-stones were removed.

Obstetric History: Eight normal pregnancies.

H.P.C: Patient experienced sudden severe pain in the epigastrium and left arm while walking about in the house fifteen minutes after a small breakfast. The pain was relieved by rest. Dyspnoea on exertion with palpitation and oedema of ankles during the past five years. No dyspepsia since cholecystectomy was performed.

Habits: No alcohol or tobacco.

F.H. Patient's mother died, aged 43 years, with jaundice.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: N.A.D.

C.V.S: Mild arterio-sclerosis. Slight cardiac enlargement $4\frac{3}{4}$". First sound of poor quality. Second sound accentuated at all areas. Faint aortic systolic murmur. B.P. 124/80.

Other Systems: N.A.D.

Investigation: W.R. negative. U.C.T. Impaired renal function. Urine, icterus index and blood cholesterol normal.

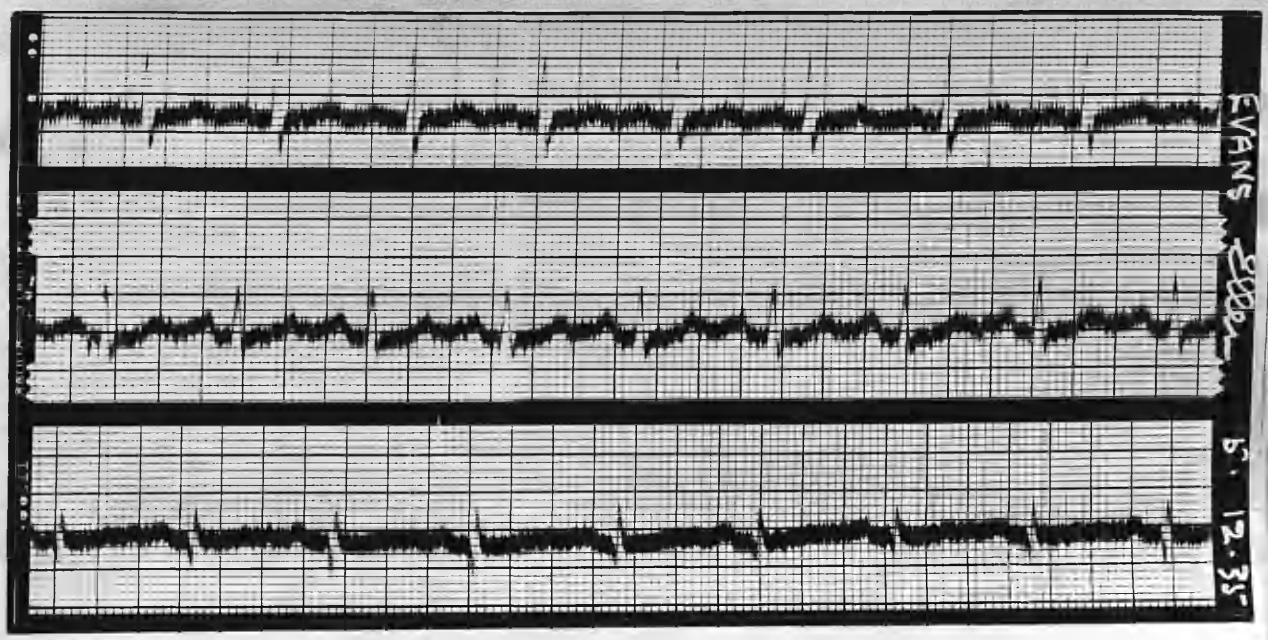
E.C.G: (10 days after attack of pain): Low voltage. P.1, P.3 and T.3 poor.

Impression: Mild coronary thrombosis, occurring in a patient who had had cholelithiasis ten years previously.

Follow-Up: One year later: Patient is very well and has been free from further symptoms.

Conclusion: Cardio-vascular degeneration and mild coronary artery thrombosis occurring in a patient ten and a half years after cholecystectomy.

E.C.G.



Case No.60. Sex: Female. Age: 51 years.

Complaint: Abdominal pain.

P.H. Rheumatic fever at thirty years. Chorea at ten years and frequent attacks of tonsillitis.

H.P.C. Patient experienced an attack of severe pain in the mid-epigastrium, left hypochondrium and under the right scapula on the day of admission to hospital. She vomited and collapsed. Increasing dyspnoea on exertion with palpitation had been present for three months previously. Intolerance of fats for one year with some flatulence during the past few weeks.

Habits: No alcohol; occasional cigarette smoker.

F.H. Nil significant.

Clinical Findings: Thin patient with no evidence of anaemia, jaundice or focal sepsis. Slight dyspnoea present while at rest in bed.

Abdomen: Slight tenderness in the left hypochondrium. Murphy's sign weakly positive.

C.V.S: No excessive arterio-sclerosis. Very slight cardiac enlargement. Heart sounds well heard and tumultuous in nature. Auricular fibrillation present.

Other systems: Hyperaesthesia of inner side of left arm and forearm and over the praecordium.

Investigation: Daily B.P. record from admission: 144/80; 115/60; 115/70; 118/80; 108/78. W.R.negative.

E.C.G.(fourth day in hospital): Auricular fibrillation. T.2. and T.3 inverted. Low voltage in lead 1. Slight S-T deviation in lead 3.

U.C.T. Moderate renal function. Urine: A Trace of albumin with occasional hyaline and cellular casts. Cholecystogram(intravenous): G.B. concentrates the dye well but there is marked delay in emptying. Blood Count: Slight secondary anaemia with mild leucocytosis.

Impression: Coronary thrombosis.

Course: Five days: Increased cardiac dulness $4\frac{3}{4}$". Auricular fibrillation coming under digitalis control. Discomfort in left hypochondrium still present.

Three Weeks: Pulmonary Embolism in right lower lobe.

Five weeks: E.C.G.: Auricular fibrillation. T.2 and T.3 inverted and T.1 flat. P waves poor. S-T deviation in lead 3.

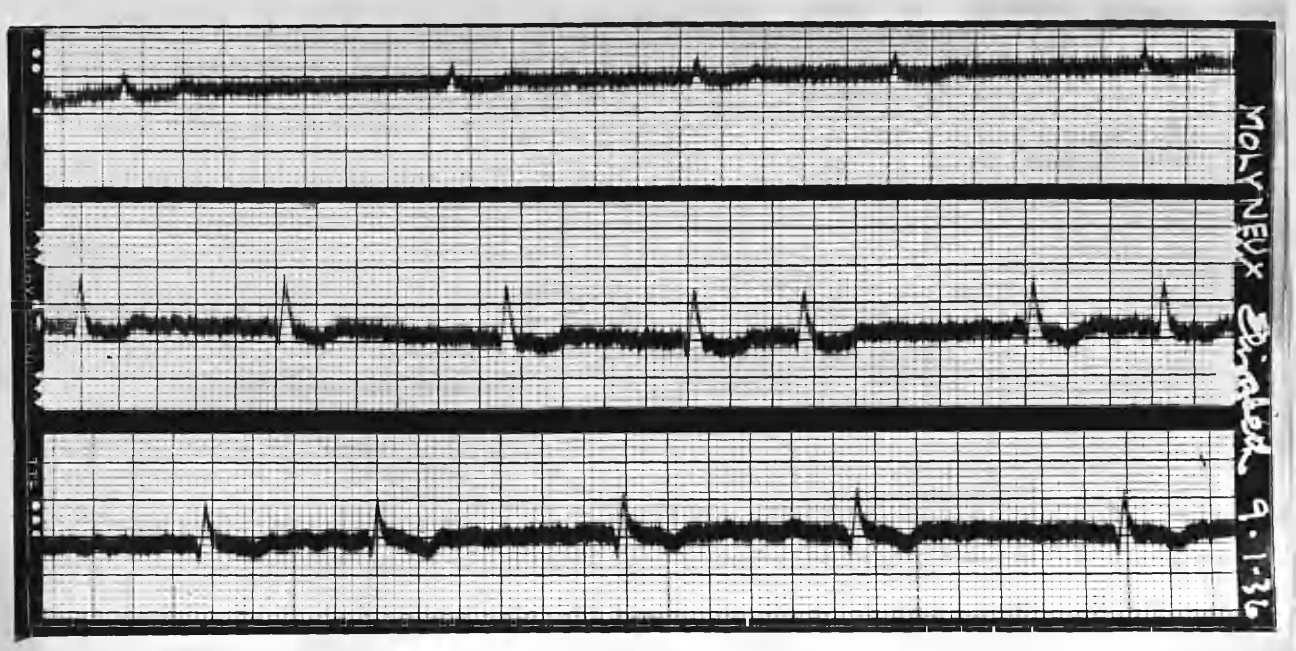
Eight Weeks: Blood picture, blood urea and icterus index normal. Patient discharged home.

Follow-Up: One year later: Some dyspnoea on exertion, dyspepsia, flatulence and intolerance of fats still present. No pain or oedema. Patient able to perform household duties and has been having digitalis regularly. C.V.S. Cardiac enlargement $4\frac{3}{4}$". Auricular fibrillation well controlled and heart sounds of moderate quality. B.P. 166/110.

Case No.60.

E.C.G. on fourth day.

E.C.G. at five weeks.



E.C.G: QRS splayed. S-T deviation. Auricular fibrillation. T.3 inverted. P waves poor.

Conclusion: Cholecystitis with coronary thrombosis, producing auricular fibrillation. After one year patient's gall-bladder condition was unchanged and the cardio-vascular system still presented evidence of degeneration.

Follow-Up E.C.G.

Case No.61. Sex: Male. Age:38 years.

Complaint: Sudden pain in the praecordium and right upper limb twelve days before admission.

P.H. Syphilis fifteen years ago, treated for six weeks. Influenza two years ago.

H.P.C. Sudden severe pain in praecordium and right upper limb twelve days before admission. Patient thought he was dying. Flatulence for two years and slight dyspnoea on exertion with palpitation for one year.

Habits: Mild alcohol and tobacco consumption.

F.H. Nil significant.

Clinical Findings: Thin patient with slight cyanosis and no evidence of anaemia, jaundice or focal sepsis.

Abdomen: N.A.D.

C.V.S. Moderate arteriosclerosis. No cardiac enlargement. First sound poor with accentuation of the second sounds at the base. B.P.160/110.

Other Systems: N.A.D.

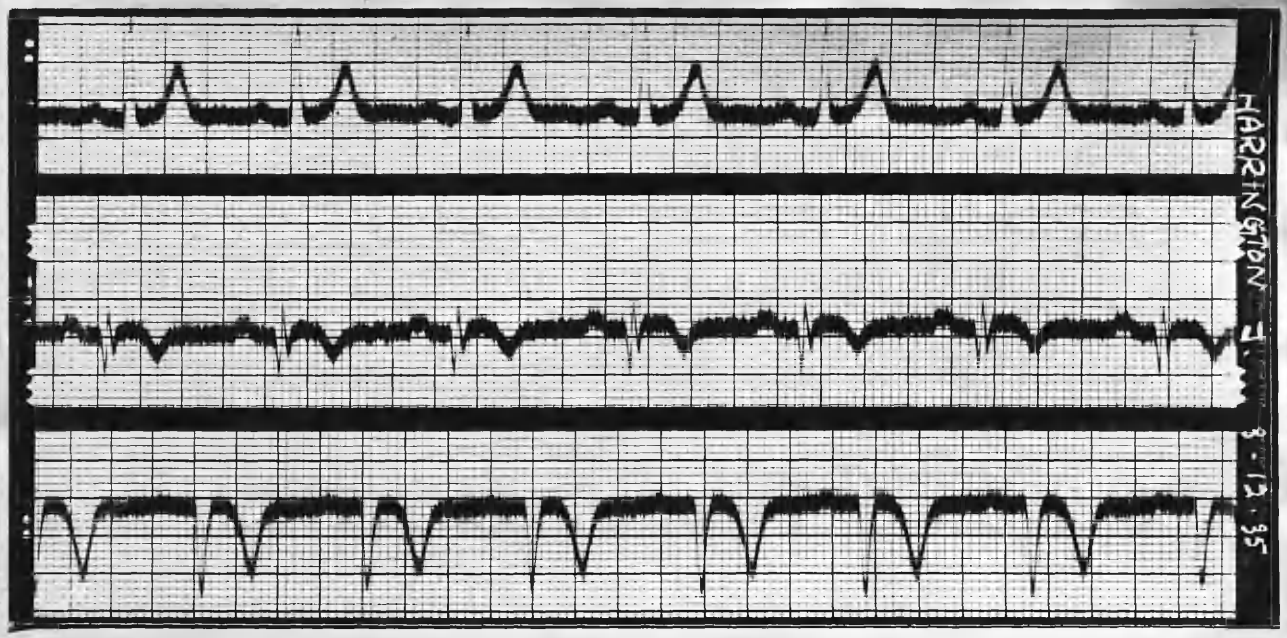
Investigation: W.R. negative. Exercise Tolerance: Slightly impaired. U.C.T. Satisfactory renal function. Urine: Normal. Icterus index and blood cholesterol: normal. E.C.G: QRS complex biphasic in lead 2. T.2 and T.3 inverted. P.3 poor. T.1 and T.3 large. Subnormal G.B. function.

Impression: Coronary thrombosis.

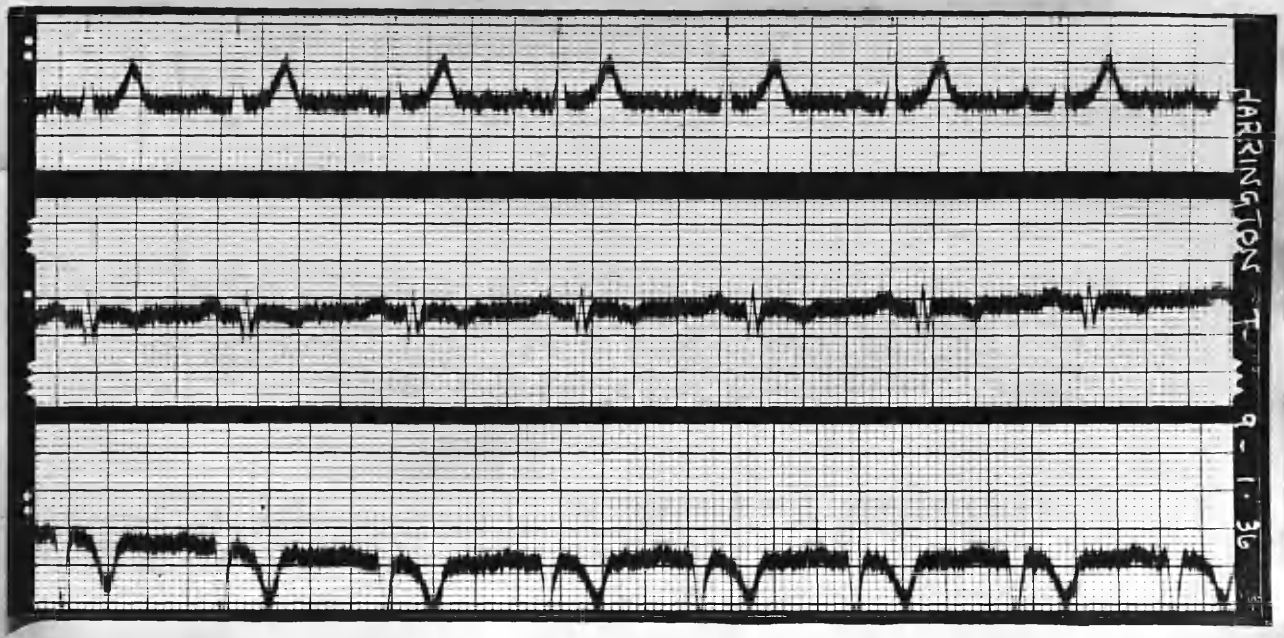
Course: The patient's condition improved after rest in

Case No.61.

Investigation E.C.G.



E.C.G. at sixth week.

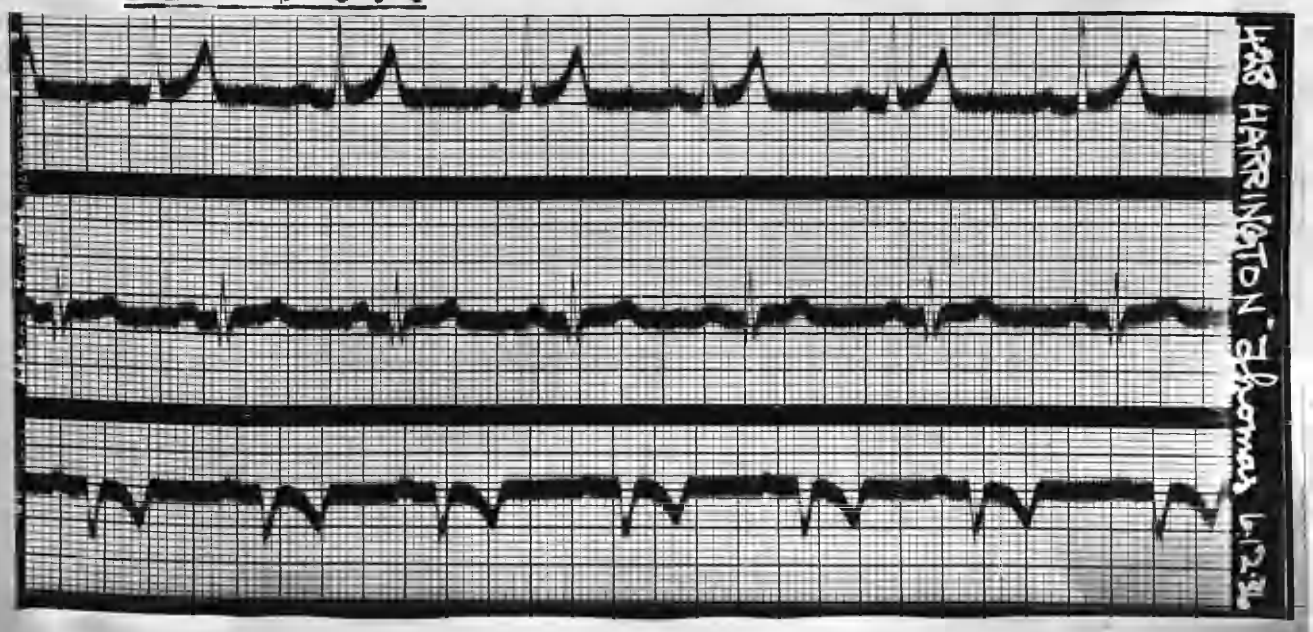


bed and he was discharged home. E.C.G. after six weeks: I.S.Q.

Follow-Up: One year later: The patient is doing light work and has no flatulence, dyspepsia, pain or dyspnoea. C.V.S: Moderate arterio-sclerosis. First sound slightly weak and the second is accentuated at all areas. B.P. 180/130. E.C.G. QRS complex bifid. T.1 large. T.3 inverted. Poor P waves.

Conclusion: Cardio-vascular degeneration with mild coronary thrombosis. Flatulent dyspepsia. Syphilis probably an aetiological factor in the heart lesion at this early age. The subnormal filling of the G.B. in the cholecystogram may be due to poor absorption from the stomach, as he has been edentulous for four years, but there may also be an element of cholecystitis.

Follow-Up E.C.G.



Case No.62. Sex: Female. Age: 62 years.

Complaint: Sudden attack of pain in both hypochondria.

P.H. Diphtheria at 16 years. Scarlet Fever at 18 years. Patient subject to attacks of pain in the right hypochondrium with some flatulence during the past four years. These attacks were stated to be different from, and less severe than, the present attack.

H.P.C. The present attack was of sudden onset and consisted of severe pain in both hypochondria, under the left scapula and down the inside of the left arm. The patient thought she was dying. Dyspnoea on exertion and when lying down, accompanied by palpitation, for four years. Definite intolerance of fats present.

Habits: Mild beer drinker.

F.H. Father, mother and two brothers have died from cardio-renal degeneration.

Clinical Findings: Rather obese patient with no evidence of anaemia, jaundice or focal sepsis.

Abdomen: Tender over G.B. which was thought to be palpable.

C.V.S: Moderate arterio-sclerosis. Cardiac enlargement 6½". First sound almost inaudible and second accentuated at all areas. B.P. 200/96.

Other Systems: N.A.D.

Case No.62.

E.C.G.

Investigation: W.R. negative. Exercise Tolerance: Not attempted. U.C.T. Satisfactory renal function. Urine: Normal.
Cholecystogram: Normal. G.B.
Icterus Index and Blood Cholesterol: Normal.
E.C.G: Poor.

Course: One month after Admission: Sudden attack of severe epigastric pain with spread to the praecordium, left arm and neck, accompanied by dyspnoea, sweating and slight vomiting. G.B. not tender. B.P. 180/90.
Five weeks after Admission: A further anginal attack, relieved by Amyl Nitrite.
Two Months after Admission: Patient much improved and was discharged home.

Impression: Hypertensive cardio-vascular degeneration, with anginal attacks and chronic cholecystitis.

Follow-Up: Eleven Months later: Anginal attack two months and seven months ago. Dyspnoea on exertion, palpitation and flatulence still present.
C.V.S: Cardiac enlargement 5¼".
Heart sounds slightly weak, especially at the base. A.2. accentuated..
Exercise Tolerance impaired. B.P.205/120.

Conclusion: Hypertensive cardio-vascular degeneration, Coronary sclerosis and angina pectoris, associated with cholecystitis.

Case No.63: Sex: Female. Age: 35 years.

Complaint: Pain in the back, near the left shoulder, on exertion.

P.H. Catarrhal Jaundice twenty-five years ago.
Appendicitis with appendicectomy seven years ago.

H.P.C. The patient when first seen was seven months pregnant, this being her first pregnancy. She had just had an attack of severe pain in the left shoulder and spreading down the left arm. This pain came on after exertion. The patient had experienced six attacks of nausea, vomiting and flatulence during the past year. Severe dyspnoea and sweating accompanied the pain. No history of recent jaundice or intolerance of fats.

F.H. Two blood-relatives died suddenly from heart disease, during the fourth decade of life.

Clinical Findings: Obese patient with no evidence of anaemia, jaundice or focal sepsis.
Abdomen: Thirty-four weeks normal pregnancy. Tender in right hypochondrium. Murphy's sign negative. Liver dulness normal.
C.V.S. Moderate arterio-sclerosis. Cardiac dulness normal. Heart sounds of very poor quality. B.P. 110/64.
Other Systems: N.A.D.

Investigation: W.R. negative. U.C.T. Satisfactory renal function.

Urine: Normal. E.C.G: T.3 inverted. Biphasic P wave in lead 2. Exercise Tolerance: Definitely unsatisfactory, even allowing for the pregnancy. X-ray of chest: Heart shadow normal. No lung pathology. No cervical rib.
No cholecystogram because of pregnancy.

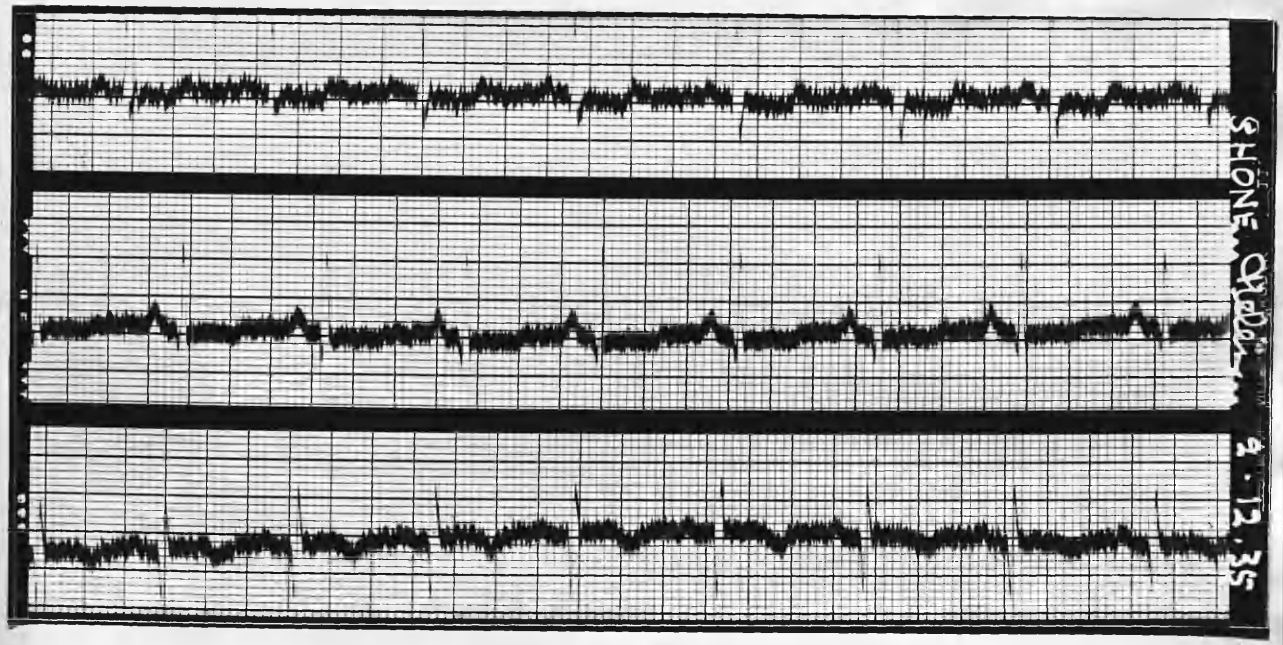
Personal Impression: Angina of effort, cholecystitis, obesity and cyesis.
Prognosis: Grave.

Further Course: The above personal impression was not generally accepted and the patient was allowed to go to full term. Labour was uncomplicated but the second stage was shortened by the application of forceps. Gas and oxygen anaesthesia was employed, and the patient was deeply cyanosed both during, and for several hours after, the operation. The puerperium was normal, but the mother refused to breast-feed the child.
Five weeks after discharge in the third week of the puerperium, the patient had a severe anginal attack and was admitted to hospital in a moribund state. The heart was enlarged, the heart sounds were almost inaudible and triple rhythm was present. The patient was cyanosed, dyspnoeic, oedematous, and died suddenly a few hours after admission.

P.M.Report: Obese patient. Anasarca present. The heart showed thrombosis of the anterior coronary artery

Case No.63.

E.C.G.



and also evidence of a previous infarct. The lungs showed oedema and some collapse with free fluid in the pleural cavities. Fatty degeneration and "nutmeg" changes were present in the liver. The G.B. was of the "Strawberry" type. The uterus was puerperal with slight sub-involution. The renal tract showed mild pyelitis, cystitis and the dilatation of the right ureter common in pregnancy.

Conclusion: This exceptional case showed myocardial involvement at an early age, terminating in coronary artery thrombosis and death, after a few premonitory anginal attacks. "Strawberry" G.B. was present and the history suggested that the cholecystitis was of at least one year's duration. The family history of heart trouble is of interest. While the ultimate prognosis was very grave, it seems possible that the strain of labour and general anaesthesia hastened the fatal termination. Caesarean section at the thirty-sixth week, under spinal anaesthesia, as suggested personally, might possibly have enabled the maternal myocardium to postpone its eventual failure to a later date.

Case No.64. Sex: Female. Age: 47 years.

Complaint: Four attacks of colic in the right hypochondrium during the past six months.

P.H. Thyroid operation twenty-two years ago.
Rheumatoid arthritis for two years.
Obstetric History: One normal pregnancy eighteen years ago.

H.P.C. Four attacks of severe colic during the past six months, confined to the right hypochondrium, accompanied by nausea. No vomiting, flatulence or jaundice.

Habits: No alcocol or tobacco.

F.H. Nil significant.

Clinical Examination: Thin patient. No focal sepsis detected. No definite anaemia.
Abdomen: G.B. just palpable.
C.V.S. Slight cardiac enlargement 4½".
First sound weak. Second sound slightly accentuated at all areas. B.P. 142/72.
Other Systems: Uterine Fibroids.

Investigation: Exercise Tolerance- Satisfactory.
U.C.T: Moderate renal function.
Urine: Normal.

Impression: Biliary colic. Slight myocardial weakness.

Operation: Cholecystectomy performed. Empyema of G.B.
One large cholesterol stone. G.B. very thickened.
Evidence of recent acute inflammation.
Hysterectomy performed three months later.

Condition on Discharge: General condition much improved.
C.V.S. Cardiac enlargement 4¼".
First sound weak.

Follow-Up: One year after operation: No pain, dyspepsia, dyspnoea or oedema.
Rheumatoid arthritis improved.
General condition excellent.
C.V.S. N.A.D.

Conclusion: Cholelithiasis. No definite improvement in cardiac condition three weeks after operation but a year later the C.V.S. was normal.

Case No.65. Sex: Female. Age: 45 years.

Complaint: Pain in the right hypochondrium, radiating to the back, for one week.

P.H. No previous illness of significance.

H.P.C. Attacks of severe pain in the right hypochondrium, radiating to the back, and associated with vomiting and flatulence for over one year. Moderate dyspnoea on exertion and occasional oedema of ankles for six months.

Clinical Findings: Nutrition normal. No evidence of anaemia, jaundice or focal sepsis.

Abdomen: Tender over right hypochondrium.

C.V.S. Slight tachycardia. Cardiac enlargement 4½". Heart sounds normal. Tic-tac rhythm.

Other Systems: N.A.D.

Investigation: Cholecystogram: G.B. fills with dye, concentrates well but shows delay in emptying.

E.C.G: Low voltage in lead 2. Ventricular extra-systoles in lead 1 and 2. P.1 poor.

Urine, blood urea and blood cholesterol normal.

Impression: Cholecystitis and myocardial insufficiency.

Course: Patient refused operation and was discharged.

Follow-Up: Seven months later: Still has occasional attacks of pain in right hypochondrium, associated with flatulence. Dyspnoea on exertion and oedema of ankles as before.

C.V.S. Slight orthopnoea. Tachycardia. Cardiac enlargement 4½". Heart sounds satisfactory.

Case No.65.

Investigation E.C.G.

Follow-Up E.C.G.

Tic-tac rhythm.

E.C.G. L.V.P. T.3 inverted. P.1 poor. Lead 3 slightly improved.

Conclusion: Chronic cholecystitis and myocardial insufficiency. The latter was unimproved after seven months.

ANALYSIS OF CASES.

The cases of the present series are analysed under the various headings indicated. Although percentages are stated, in addition to the actual numbers of this series, any statistical significance attaching to them must be accepted with caution, on account of the relatively few cases studied.

THE INCIDENCE OF AGE, SEX AND HEART DISEASE.

The series consisted of 65 cases of disease of the gall-bladder and biliary tract. The number of female patients was 58 (89%) while seven (11%) were males. In this series 50 cases (77%) had a clinical cardiac lesion (Case Nos. 16-65 inclusive) while the remaining 15 (23%) had no clinical evidence of a departure from normal in the state of the cardio-vascular system (Case Nos.1-15 inclusive). The incidence of cases per decade and the sex distribution were as shown in Table 1 (P.179).

Table 1 indicates that the cases occurred between the third and eighth decades inclusive; that the largest numbers occurred in the fifth and sixth decades; that many more females than males were affected and that all the male cases had an associated cardiac lesion.

TABLE No.1.

TO SHOW THE RELATIONSHIP OF AGE, SEX AND CARDIAC INVOLVEMENT IN 65 CASES OF G.B. DISEASE.

DECADE.	CARDIAC LESION.		NO CARDIAC LESION.	
	Female.	Male.	Female.	Male.
3rd.	4	0	1	0
4th.	5	1	5	0
5th.	13	1	3	0
6th.	11	3	3	0
7th.	7	1	3	0
8th.	3	1	0	0
TOTAL:	43	7	15	0

OBESITY AND HEART DISEASE.

It is common knowledge that obesity is frequently present in cases of gall-bladder disease, and this factor was considered of importance as a possible explanation of any myocardial insufficiency present in the cases of this series. Of the 65 cases, 24 (37%) were, by considering such factors as sex, age, height and weight, considered to be obese. (Case Nos: 1, 9, 12, 13, 16, 20, 22, 23, 24, 25, 27, 28, 31, 34, 39, 44, 47, 48, 49, 51, 52, 55, 62, 63.). The incidence per decade of obesity and heart disease in this series is indicated in Table 2. (P.181). Twenty cases (Case Nos: 16, 20, 22, 23, 24, 25, 27, 28, 31, 34, 39, 44, 47, 48, 49, 51, 52, 55, 62, 63) showed a combination of obesity and heart disease (83% of the obese patients), whilst four cases (Case Nos: 1, 9, 12, 13) or 17% of the obese patients, had obesity but no cardiac lesion. There were thirty cases (46% of the whole series) with heart disease in which there was no obesity (Case Nos: 17, 18, 19, 21, 26, 29, 30, 32, 33, 35, 36, 37, 38, 40, 41, 42, 43, 45, 46, 50, 53, 54, 56, 57, 58, 59, 60, 61, 64, 65), and eleven cases (17% of the whole series) showed no evidence of obesity or cardiac disease (Case Nos: 2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 15).

TABLE NO.2.

TO SHOW INCIDENCE OF OBESITY AND CARDIAC LESIONS IN 65 CASES OF G.B. DISEASE.

DECADE.	OBESITY AND CARDIAC LESION.	NO OBESITY BUT CARDIAC LESION.	OBESITY WITH NO CARDIAC LESION.	NO OBESITY OR CARDIAC LESION.
3rd.	2	2	0	1
4th.	2	4	0	5
5th.	7	7	0	3
6th.	5	9	2	1
7th.	2	6	2	1
8th.	2	2	0	0
TOTAL:	20	30	4	11

The foregoing figures are summarised graphically. Graph 1. (Page 183) shows the incidence per decade of :-

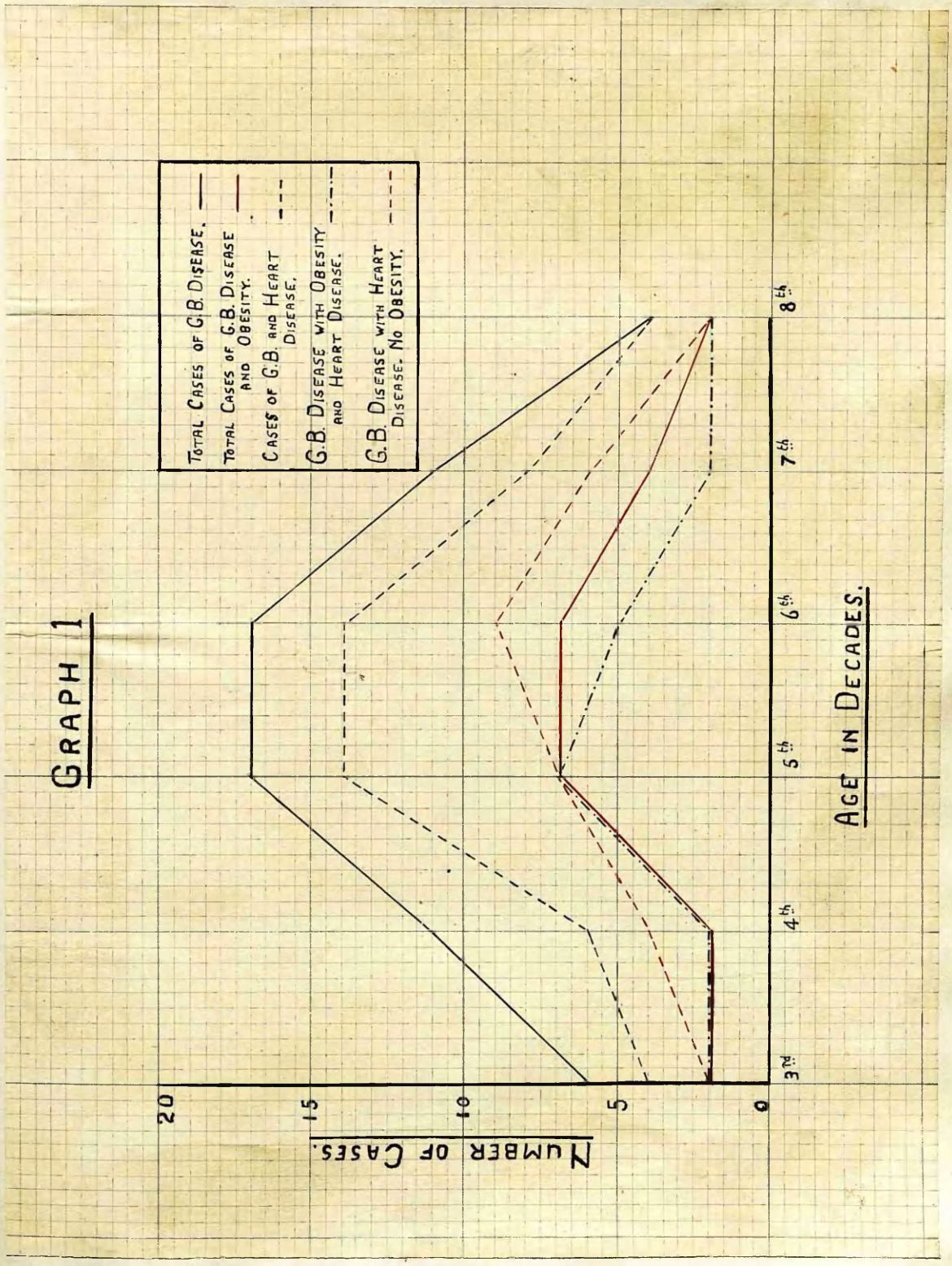
1. Cases with Gall-bladder disease.
2. Cases with Gall-bladder disease and Obesity.
3. Cases with Gall-bladder disease and Heart Disease.
4. Cases with Gall-bladder disease, Obesity and Heart disease.
5. Cases with Gall-bladder disease and Heart disease but no Obesity.

Graph 2. (Page 184) shows the total incidence of similar groups of cases.

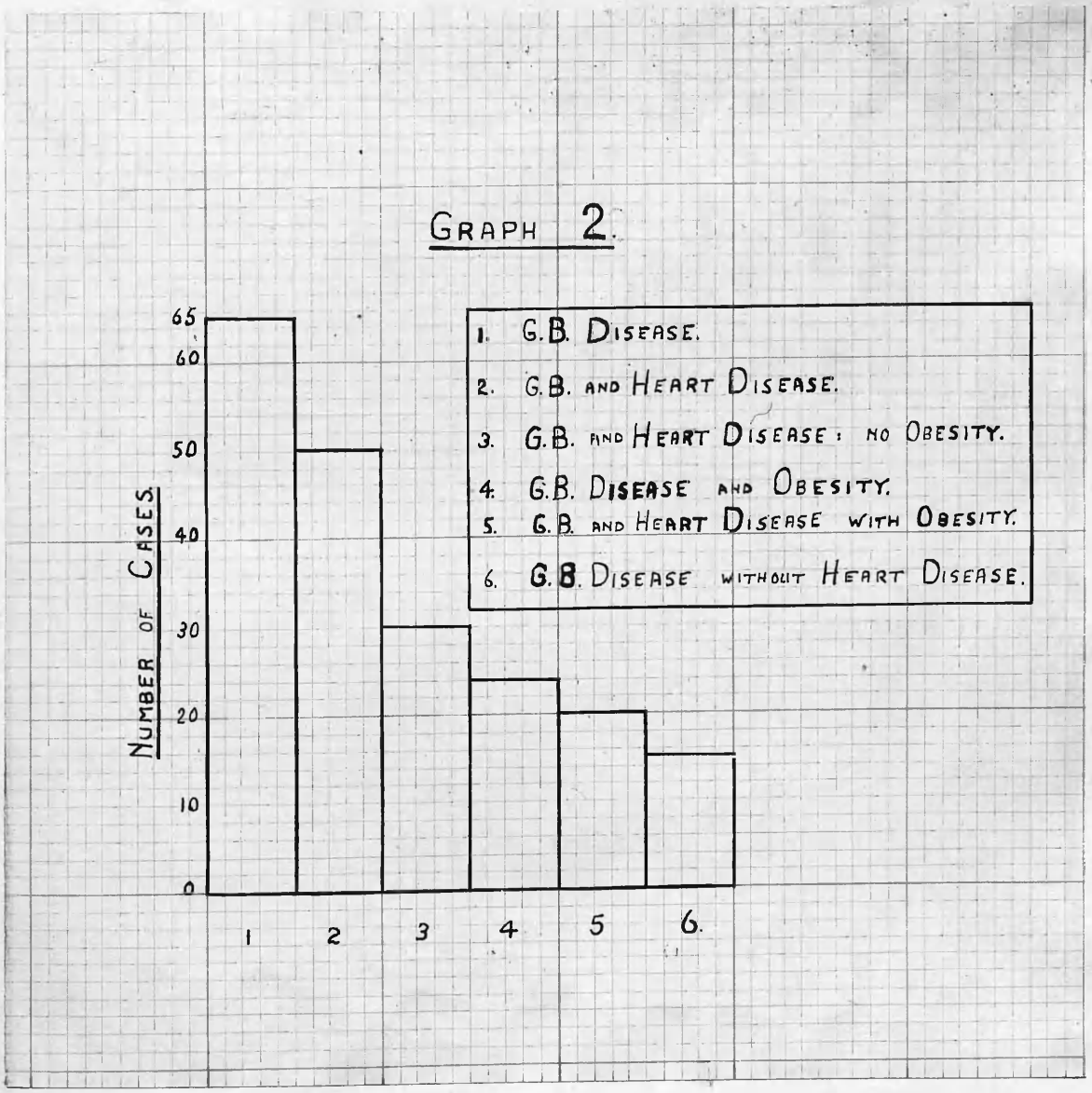
It is apparent that, in this series, the incidence of cardiac lesions, occurring in cases of gall-bladder disease, is greater than the incidence of obesity in the same series. This suggests that the obesity, if a factor, is not the whole explanation of the occurrence of cardiac lesions in these cases of gall-bladder disease.

TREATMENT AND RESULTS.

A follow-up examination was not obtained in 15 cases (Case Nos: 1, 7, 8,9, 10, 11, 14, 28, 33, 40, 41, 51, 52, 53, 54) or 24% of the whole series. The remaining 50 cases (76%) were followed up or were under observation until death occurred. Operation was performed in 40 cases (Case Nos: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24,25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 55, 64) and, of these, 13 cases (Case Nos: 1- 11, 14, 15), or 32% of operated cases, had cardiac manifestations.


GRAPH 1
TOTAL CASES OF G.B. DISEASE.
TOTAL CASES OF G.B. DISEASE AND OBESITY.
CASES OF G.B. AND HEART DISEASE.
G.B. DISEASE WITH OBESITY AND HEART DISEASE.
G.B. DISEASE WITH HEART DISEASE. NO OBESITY.
NUMBER OF CASES.
20
15
10
5
0
3rd
4th
5th
6th
7th
8th
AGE IN DECADES.

Graph 2.


Number of Cases.
65
60
50
40
30
20
10
0
1
2
3
4
5
6.
1. G.B. Disease.
2. G.B. and Heart Disease.
3. G.B. and Heart Disease: no Obesity.
4. G.B. Disease and Obesity.
5. G.B. and Heart Disease with Obesity.
6. G.B. Disease without Heart Disease.

Cholecystectomy was carried out in 36 cases; cholecystotomy in 2 cases (Case Nos: 1, 35); 1 case (Case No.15) had exploration and drainage of the common bile-duct, and a case of carcinoma of the common bile-duct (Case No: 14) had a cholecysto-duodenostomy performed. The latter two cases of disease of the common bile-duct presented no manifestations of heart disease.

Twenty-eight (Case Nos: 2, 4, 5, 7, 8, 9, 10, 11, 18, 19, 20, 21, 22, 24, 25, 27, 28, 29, 33, 34, 36, 37, 38, 39, 40, 41, 55, 64), or 78%, of the thirty-six cases treated by cholecystectomy were completely cured of the symptoms referable to the gall-bladder; four cases (Case Nos: 6, 23, 30, 32), or 11%, were improved in this respect and four cases (Case Nos: 3, 17, 26, 31), or 11%, died. The operative mortality, in this series, was thus 10%.

Table 3 (Page 186) and Table 4 (Page 187) demonstrate the condition of the heart in twenty-seven operated cases (Case Nos: 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 55, 64), and eighteen unoperated cases of gall-bladder disease with cardiac manifestations (Case Nos: 16, 42, 43, 44, 45, 46, 47, 48, 49,50, 56, 57, 58, 60, 61, 62, 63, 65), as determined at the follow-up examination. As even mild cardiac decompensation was not considered a contra-indication to operation in this series, the numerical difference, between the cases showing improvement after operation and those showing improvement after the subsid-

TABLE NO.3.

TO SHOW CONDITION OF HEART AFTER OPERATION

IN CASES IN WHICH A FOLLOW-UP EXAMINATION WAS OBTAINED.

Decade.	Cardiac Cases with obesity after operation.			Cardiac Cases without obesity after operation		
	Improved.	Unchanged.	Worse	Improved.	Unchanged.	Worse.
3rd	0	0	1	1	2	0
4th	0	0	0	2	0	0
5th	3	0	3	4	0	1
6th	1	0	1	3	0	1
7th	0	0	0	1	0	2
8th	0	0	0	0	0	1
TOTAL:	4	0	5	11	2	5

TABLE NO.4.

TO SHOW STATE OF HEART IN QUIESCENT STAGE OF G.B. DISEASE IN UN-OPERATED CASES IN WHICH A FOLLOW-UP EXAMINATION WAS OBTAINED.

Decade.	Cardiac Cases with Obesity			Cardiac Cases without Obesity		
	Improved	Unchanged	Worse	Improved	Unchanged	Worse
3rd	0	0	0	0	0	0
4th	0	0	1	1	0	1
5th	0	0	0	0	1	1
6th	1	1	1	0	2	1
7th	0	1	0	0	3	0
8th	0	2	0	0	0	1
TOTAL:	1	4	2	1	6	4

-ence of the acute gall-bladder infection, but in which operation was not performed, assumes significance, as the unoperated cases did not necessarily present cardiac manifestations of such severity as to preclude any possibility of amelioration. The presence of obesity in the operated cases appears to mitigate the chances of cardiac improvement. It is interesting to note that the cases of gall-bladder disease, without obesity, in which the cardiac condition deteriorated after operation (12% of operated cases), were all over 40 years of age (Case Nos: 18, 26, 32, 35, 36). These figures suggest that cholecystectomy presents a satisfactory means of obtaining amelioration of the cardiac manifestations occurring in cases of gall-bladder disease, and that the presence of such evidence of heart disease, in some of these cases at least, does not constitute a contra-indication to operation.

THE RELATION OF THE DURATION OF GALL-BLADDER SYMPTOMS TO HEART DISEASE.

The duration of the symptoms of gall-bladder disease in relation to the incidence of associated cardiac lesions was considered worthy of investigation. This is open to the obvious objection that disease of the gall-bladder may be latent in some cases, but it is difficult to suggest a more satisfactory basis for estimating the duration of the gall-bladder lesion. Fifty-six cases (Case Nos: 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 65 (with cardiac lesions) and 1, 4, 5, 6, 7, 8, 9,

10, 12, (with no cardiac lesion)), or 86%, of this series had had gall-bladder symptoms for more than six months and of these cases forty-seven, or eighty-four percent, exhibited cardiac manifestations. There were nine cases (Case Nos: 2, 3, 11, 13, 14, 15, 27, 41, 64), or 14% of the whole series, in which the gall-bladder symptoms had developed within six months of admission to hospital, and of these only a third (Case Nos: 27, 41, 64) had clinical evidence of heart disease. This suggests that the longer the disease of the gall-bladder is permitted to exist the greater the possibility of cardiac manifestations appearing; but it must be admitted that this is equivocal evidence.

THE INCIDENCE OF FOCAL SEPSIS.

The possibility of sepsis, in foci other than the gall-bladder, being an aetiological factor in the production of cardiac lesions in these cases, must be excluded. The fifty cases in this series, with associated gall-bladder and heart disease, presented dental sepsis in nine cases (Case Nos: 17, 21, 26, 33, 34, 42, 44, 45, 46,), or 18%; fibrositis in two cases (Case Nos: 23, 25), or 4%; and cystocele and rectocele with infection of the urinary tract in one case (Case No:42), or 2%. The corresponding figures for the 15 cases of gall-bladder disease with normal hearts were four (Case Nos: 1, 4, 5, 10), or twenty-eight per cent; two (Case Nos: 1, 13), or 14% and one (Case No: 13), or 7%, respectively, while one (7%)(Case No.6) of these cases had leucorrhoea. It thus appears that foci of sepsis, other than in the gall-bladder,

are at least as frequent in the non-cardiac group as in the cardiac group.

THE INCIDENCE OF CORONARY THROMBOSIS:

Coronary Thrombosis, diagnosed on clinical and electrocardiograph findings, occurred in eight cases (12%), all? of which exhibited some evidence of gall-bladder dysfunction. Three cases (37%) were male, and five (63%) were female. Two cases occurred in the fourth decade; one in the fifth; three in the sixth; one in the seventh and one in the eighth decade. (Cases 56-63 inclusive).

"TEMPORARY" AND "PERMANENT" CARDIAC LESIONS.

The 46 cases of gall-bladder disease with cardiac lesions, which were followed up, were divided into two groups; one in which the cardiac manifestations were absent on discharge from hospital, or at the follow-up examination- i.e. "temporary cardiac cases", and the other in which a heart lesion was still detectable on discharge from hospital, or at the follow-up examination- i.e. "permanent cardiac cases". Nine cases, (Case Nos: 16, 19, 20, 34, 37, 38, 40, 55, 64.), or 20%, fell into the former group, all of which had been subjected to cholecystectomy, except one (Case No.16); while the latter group consisted of 37 cases (Case Nos: 17,18, 21, 22, 23, 24,25,26,27,28,29,30,31,32,33,35,36,39,41,42,43,44, 45,46,47,48,49,50,56,57,58,59,60,61,62,63,65), or 80%, of which only 18 (Case Nos: 17,18,21,22,23,24,25,26,27,28,29, 30,31,32,33,35,36,39) had had surgical treatment. The

incidence of obesity in these cases was 2 in the former group(Case Nos: 16, 34) and 14 (Case Nos: 22,23,24,25,27, 28,31,39,44,47,48,49,62,63) in the latter. There were five cases (Case Nos: 18, 22, 24, 25,30) in which the cardiac condition was improved on discharge from hospital but which showed further cardiac damage at the follow-up examination. All five cases have had cholecystectomy performed; 3 cases were obese (Case Nos: 22, 24, 25) and 1 was myxoedematous(Case No.25). The beneficial effect on the heart of the enforced rest in bed, prior to and following operation was probably responsible for the temporary, but unsustained, amelioration of the cardiac manifestations in these 5 cases.

ELECTRO-CARDIOGRAPHIC STUDY:

An electro-cardiographic study was made and 118 electro-cardiograms were obtained from 58 cases (all cases except Nos:3, 7, 18, 26, 51, 52, 64). In 18 (or 31%) of these cases (Case Nos: 8, 12, 13, 14, 15, 17, 22, 31, 35, 45, 46, 50, 53, 54, 56, 59, 62, 63) only 1 electro-cardiogram was obtained. The remaining forty cases (69%) have more than one electro-cardiogram available and thus permit of a comparison being made between the pre-operative, post-operative and follow-up electro-cardiograms. The analysis has paid attention to mild departures from the accepted normal and consequently some comment has been made in practically every electro-cardiogram. The points particularly noted were:- voltage; the condition of the P and T waves; the formation of the QRS complex; the

presence or absence of S-T deviation; the P-R interval; abnormalities of rhythm and ventricular preponderance.

The electro-cardiographic evidence has been compared with the clinical findings. An impression was gained early in this present investigation that the electro-cardiogram was not, in all cases, an accurate indication of the state of the myocardium, and was difficult, on occasion, to correlate with any change which the clinical cardiac manifestations might display, and this impression has been confirmed. Thus of the forty cases, in each of which several electro-cardiograms were obtained, the later electro-cardiograms appeared improved in twelve(Case Nos: 2, 4, 6, 20, 23, 27, 33, 34, 36, 38, 47, 55); unchanged in twenty-one (Case Nos: 1, 5,10, 11, 19, 21, 25, 28, 29, 30, 32, 37, 39, 40, 41, 42, 43, 48, 49, 61, 65); and worse in seven (Case Nos: 18, 16, 9, 24, 57, 58, 60). Of the twelve cases showing apparent improvement in the electrograms the clinical findings were in agreement in only 5 cases (Case Nos: 20, 23, 34, 38, 55). The clinical findings agreed in 10 (Case Nos: 1, 5, 10, 11,41, 42, 43, 49, 61, 65) of the twenty-one cases in which the electro-cardiograms remained unchanged, while in that group showing deterioration in the electro-cardiogram clinical agreement occurred in 3 (Case Nos: 18, 24, 58) out of the seven cases.

Variation in the P waves was a common finding and the series of forty cases was analysed to show this feature.

Impairment of P.1 was present in twenty-two cases (55%); of P.2 in 10 cases (25%) and of P.3 in 23 cases (57.5%). The P waves, after operation, were improved in 12 cases (30%); unchanged in 13 cases (32%) and showed further deterioration in 2 cases (5%), but here again the clinical findings disagreed as often as they were in agreement with the electro-cardiographic evidence.

Although the accuracy of the electro-cardiogram in cases of myocardial insufficiency was variable, the electro-cardiograms in the cases of this series in which coronary thrombosis occurred were in agreement with the clinical findings and were of definite value in diagnosis and prognosis.

FATAL CASES:

Of the sixty-five cases of this series eight had a fatal termination, giving a total mortality rate of twelve per cent. Only four were operative deaths (Case Nos.3,26,31, 35), the operative mortality rate thus being 10% of the forty cases in which operation was performed.

The fatal cases are enumerated and briefly summarised, as follows :-

Case No.3: Female. Age 38 years. Died on the third day after cholecystectomy from ? Pulmonary Embolism, ? Cardiac Collapse. No P.M. examination.

Case No.17: Male. Age 52 years. Died ten weeks after cholecystectomy from Lobar Pneumonia. No P.M. examination.

Case No.26: Female. Age 62 years. Biliary Obstruction. Died nineteen days after cholecystectomy, probably from hepatic failure. No P.M. examination.

Case No.31: Female. Age 52 years. Died twenty days after cholecystectomy from Pulmonary Embolism confirmed at P.M. examination. Fatty degeneration of the myocardium present.

Case No.35: Male. Age 72 years. Stone in common bile-duct. Senile diabetes, prostatic hypertrophy and myocardial degeneration. Died two days after cholecystotomy, probably from myocardial failure. P.M. examination reported.

Case No.50: Female. Age 56 years. Case of Cholelithiasis and Nephrolithiasis with Hydronephrosis. Died at home three months after surgical removal of ureteral calculus.

Case No.56: Female. Age 75 years. Cholelithiasis and cardio-vascular degeneration with anginal syndrome. Discharged as unsuitable for operation. Died at home eight months later from angina pectoris.

Case No.63: Female. Aged 35 years. Cyesis, Cholesterosis and Angina of Effort. Full-term delivery. Fatal coronary thrombosis eight weeks after confinement. Confirmed at P.M. examination.

ASSOCIATED DISEASES:

A list of the diseases, other than heart disease, found to be associated with disease of the gall-bladder in this series of sixty-five cases, is appended as follows:-

1. Osteo-arthritis	(Case Nos: 1, 9, 13, 50).	4 cases.
2. Leucorrhoea	(Case No.6).	1 case.
3. Dental Sepsis	(Case Nos. 1, 4, 5, 10, 17, 21, 26, 33, 34, 42, 44, 45, 46).	13 cases.
4. Anaemia	(Case Nos: 6, 29, 42, 43, 46, 48, 50,54).	8 cases.
5. Chronic Appendicitis.	(Case Nos: 7, 39).	2 cases.
6. Chronic Interstitial Nephritis.	(Case Nos.8,29).	2 cases.
7. Fibrositis.	(Case Nos.1, 13, 23,25).	4 cases.
8. Scoliosis.	(Case No. 12).	1 case.
9. Bronchitis.	(Case Nos: 12,29,33,35, 38,40,44,45,46,47,48, 51,52).	13 cases.
10. Cystocele & Rectocele.	(Case Nos: 13,42).	2 cases.
11. Prostatic Hypertrophy.	(Case Nos: 17,35).	2 cases.
12. Syphilis.	(Case Nos:19,42).	2 cases.
13. Hyperthyroidism.	(Case No.19).	1 case.
14. Myxoedema.	(Case Nos. 23,25,50).	3 cases.
15. Ovarian Cysts.	(Case No.25).	1 case.
16. Diverticulitis.	(Case No.27.)	1 case.
17. Varicose Ulceration.	(Case No.28).	1 case.
18. Cataract.	(Case No: 29).	1 case.
19. Phthisis.	(Case No:33).	1 case.

20. Visceroptosis.	(Case No: 43).	1 case.
21. Pes Planus.	(Case No.37).	1 case.
22. Diabetes Mellitus.	(Case No.35).	1 case.
23. Varicose Veins.	(Case Nos:45,28,)	2 cases.
24. Rheumatoid Arthritis.	(Case Nos:45,49,64)	3 cases.
25. Emphysema.	(Case Nos:47,51).	2 cases.
26. Renal Calculi.	(Case No.50).	1 case.
27. Uterine Fibroids	(Case No.64).	1 case.
28. Inguinal Hernia	(Case No.30).	1 case.

CHOLELITHIASIS:

The existence of gall-stones was proved at operation in twenty-nine (72%) of the forty cases in which operation was performed. Nineteen (65%) of these cases had cardiac manifestations, while the remaining ten cases (34%) had no clinical heart lesion. Cholecystitis without gall-stones was found in ten (25%) of the forty operated cases, and eight (80%) had cardiac manifestations. These figures suggest that, within the limits of the present investigation, heart lesions occurred more commonly in cases of cholecystitis without gall-stones than in cases of cholecystitis in which gall-stones were a prominent feature.

JAUNDICE:

Jaundice was present in ten cases (15%) of this series, seven of which had evidence of a cardiac lesion. In six of these latter cases the cardiac condition was permanent.

HEART DISEASE IN CASES WITHOUT GALL-BLADDER DISEASE.

No personal investigation was carried out to determine the incidence of heart lesions in a group of cases in which gall-bladder disease was thought to be absent, but the following figures are quoted from the paper by Schwartz & Herman (39):-

"The percentage of heart disease per decade in 109 patients without cholecystitis, comparing it to 109 patients with cholecystitis:

Decade.	Non G.B. Cases.	Cholecystitis Cases.
3rd.	20%	46.6%.
4th.	8%	41.6%.
5th.	41. 9%	58.6%.
6th.	54. 1%	79.1%.
7th.	100%	100%.
8th.	80%	100%. "

The non G.B. cases of Schwartz & Herman were "chosen at random from medical cases in identical age groups which were treated in the wards of the hospital. We excluded no cases except those which were cardiac per se, as rheumatic fever, sub-acute and acute endocarditis and so on."

For comparison the percentage of heart disease per decade in gall-bladder cases in the present series is added, as follows

Decade.	Percentage.
3rd.	80%
4th.	54.5%
5th.	82.3%
6th.	82.3%
7th.	72.7%
8th.	100%.

It is doubtful that these groups of cases are really comparable and the percentage of heart disease in the non-G.B. cases appears very high in the third decade, if cases of rheumatic endocarditis were rigidly excluded. Even if the large percentage is accurate for cases without gall-bladder lesions, the percentage of heart lesions in gall-bladder cases is higher in the series by Schwartz & Herman, and even greater in the present series.

CONCLUSIONS BASED ON THE PRESENT INVESTIGATION.

From the preceding analysis of the cases of the present series the following conclusions seem possible :-

1, Disease of the gall-bladder was commoner in females than in males, in the proportion of 8 : 1.

2. The cases of gall-bladder disease occurred between the third and eighth decades inclusive, and were most frequent in the fifth and sixth decades.

3. The cases of gall-bladder disease frequently exhibited evidence of a cardiac lesion (77%) and all the males, and 74% of the females, were affected in this way.

4. Obesity occurred in 37% of cases and thus the incidence of heart disease was greater than that of obesity in this series of cases. It thus appears that obesity, if a factor, is not the whole explanation of the occurrence of cardiac lesions in cases of gall-bladder disease.

5. Foci of sepsis, other than in the gall-bladder, were at least as frequent in the gall-bladder cases with normal hearts as in those with evidence of cardiac damage.

6. The cardiac lesion was temporary in some cases of gall-bladder disease and permanent in others and some of the latter group displayed an unsustained amelioration of the heart condition after operation, which was probably due to the beneficial effects of the enforced rest in bed.

7. The incidence of heart lesions in cases of gall-bladder disease was uninfluenced by the presence of jaundice.

8. Coronary artery thrombosis occurred in 12% of cases of gall-bladder disease and, on occasion, may present difficulty in differential diagnosis.

9. The electro-cardiographic evidence was inconsistent in many cases of myocardial insufficiency, when compared with the clinical condition of the patient, but was of great value in cases in which coronary artery thrombosis had occurred.

10. Cholecystectomy produced a cure of the gall-bladder symptoms in 78% of cases in which this operation was performed, and appeared a satisfactory measure for obtaining amelioration of the cardiac manifestations occurring in cases of gall-bladder disease. The presence of similar heart conditions in cases of gall-bladder disease does not constitute a contra-indication to cholecystectomy. Fatal pulmonary embolism occurred as a post-operative complication in 5% of cases.

11. There was some evidence to suggest that the longer disease of the gall-bladder is permitted to exist the greater is the possibility of cardiac manifestations making their appearance. The early treatment of gall-bladder disease by cholecystectomy thus appears to be indicated.

12. From a study of this series of 65 cases of gall-bladder disease the impression was gained that infection of the gall-bladder was a definite aetiological factor in the production of the myocardial lesions commonly found in these cases, and that the presence of obesity,

though almost certainly a factor in some cases, does not always explain the cardiac damage.

SUMMARY.

1. The reason for the present study is stated.
2. The relevant literature is reviewed.
3. Conclusions based on a study of the literature are presented.
4. The present investigation is described.
5. The clinical and electro-cardiographic records of the cases, which constituted the present investigation, are included in summary form.
6. An analysis of the cases is added.
7. The conclusions arrived at as a result of this investigation are presented.
8. The bibliography is appended.

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