CARCINOMA OF THE COLON.

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Pathology, Symptoms, Diagnosis and Treatment, with notes of a case involving the Splenic Flexure of the Colon and giving rise to Acute Obstruction:

by

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Carcinoma of the Colon is the most frequent form of primary malignant growth to be found in the Large Intestine. The other variety of malignant disease - Sarcoma - is extremely rare. Of course, Carcinoma of the Colon may arise secondarily to primary malignant disease in other organs, or be caused by direct extension from some neighbouring part, for example, the Uterus. This paper deals with the disease occurring as Primary Carcinoma of the Colon. In my opinion it is not a rare affection. I believe it is more frequently present than is generally considered. It may be stated that Carcinoma of the Colon is a disease of adult life, being usually met with in persons over forty years of age, although cases have been recorded between the ages of thirty and forty, or even younger than that. In three cases which came under my notice lately, the age of one, a woman, was forty-eight. The other two were men, aged forty-two and thirty-six respectively.

The average age of 28 cases collected by Treves was 48 - six of these only were under 40 years. The oldest was 66, and the youngest 22.

(Treves on Intestinal Obstruction, page 286).

Mayo Robson reports a case occurring in a girl at the early age of 14. The growth which involvad the Ascending Colon was successfully excised.

(Brit. Med. Journal, 1895, Vol. II., page 964).

Such cases are exceedingly rare. While non-cancerous stricture of the Colon is much more common in women than men, this affection attacks males and females in about an equal proportion, with a slight preponderance in favour of females. If we except Hernias, Carcinoma of the Large Intestine is the most frequent cause of intestinal obstruction, and on the authority of a leading Glasgow Surgeon, Dr. T. K. Dalziel, I make this general statement, that when obstruction of the Colon arises in a person over 40 years of age, in nineteen cases out of twenty, the cause will be found to depend

upon the presence of a carcinomatous stricture in this part of the gut. As a rule, the growth is single and localised to a particular region and very often progresses without implicating other organs by secondary formations. This, in my opinion, is an extremely important point to consider in relation to treatment, because, if a radical operation is performed at an early period in the history of the malady, we may be enabled to thoroughly and successfully excise the growth, and thus cure the patient of what must sooner or later prove to him a certain and immediate cause of death. In some exceedingly rare instances, however, more than one malignant growth has been found present. In a case reported by Symonds, a malignant stricture existed in the Segmoid Flexure and another in the Ascending Colon.

(Brit. Med. Journal, 1893, page 638).

Carcinoma may attack any portion of the Large Intestine but the different segments of the gut vary greatly in

their liability to the affection. No part, however, is immune. It is especially liable to occur at the various flexures of the Colon, and more particularly at the Sigmoid Flexure, that is to say, at those parts where the faeces are apt to be delayed in their passage onwards, and are therefore more exposed to the irritating influences of the intestinal contents. The site where Carcinoma of the Colon is most frequently met with is the Sigmoid Flexure. After that it occurs most often in the Caecum and Descending Colon, and then less frequently in the Ascending Colon, Transverse Colon Hepatic and Splenic Flexures.

Of 50 cases collected by Dr. Maylard, 13 were at the Segmoid Flexure, 13 at Caecum and 8 at Descending Colon.

(Surgery of Alimentary Canal, Maylard, page 464).

Of 30 collected by Butlin, 9 occurred at Segmoid Flexure 7 at Caecum and 7 at Descending Colon.

(Operat. Surgery of Malignant Disease, page 231).

Of 37 cases collected by Kendal Franks, 10 were at the

Segmoid Flexure, 10 at the Caecum, and 9 at the Descending Colon.

The following tables show how often the different regions of the Colon are affected by Carcinoma relatively to one another.

Of the 50 cases collected by Maylard, 6 occurred at the Ileo-caecal Valve, leaving therefore 44 in the Colon proper:

Caecum:	Ascending Colon:	Hepatic Flexure:	Transverse Colon:	Splenic Flexure:	Descdg. Colon:	Segmoid Flexure:
13	4	1	3	2	8	13

37 cases collected by Kendal Franks:

Caecum	Ascending Colon:	Hepatic Flexure:	Transverse Colon:	Splenic Flexure:	Descdg. Colon:	Segmoid Flexure:
10	1	2	3	2	9	10

30 cases collected by Butlin:

Caecum:	Ascending Colon:	Hepatic Flexure:	Transverse Colon:	Splenic Flexure:	Descdg. Colon:	Segmoid Flexure:
7	4	...	3	...	7	9

PATHOLOGY of Carcinoma of the Colon.

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The knowledge we possess as to the pathology of Carcinoma of the Colon is founded chiefly upon a study of the disease in its advanced stages. Of all the different varieties of primary Carcinoma - Scirrhus, Medullary, Colloid, and Epithelial, the form which one almost invariably meets with in the Large Intestine is the Columnar - called Epithelionia.

No case of primary Scirrhus or Medullary Cancer of the Colon, and confirmed as such by microscopical examination, is on record, and where Colloid Cancer has occurred (Plate I.), it is due to degenerative changes taking place in the cells of a Columnar Epithelioma. Carcinoma of the Colon may vary greatly both as regards its shape and the manner and rapidity with which it progresses. The disease begins first in the Columnar Epithelium of Lieberkuhn's glands, producing increased thickening in the glandular layer of the mucous membrane.

Gradually all the other tissues become involved. The submucous coat becomes infiltrated and thickened unless where destroyed by ulceration. The muscular coat immediately around the stricture becomes attenuated. Great contraction occurs. With regard to the shape it assumes: by far and away the most common form is the Annular or Ring-shaped Stricture of the Large Intestine (see Plates II., III., IV.) This developes in a very chronic manner, and has a very characteristic appearance.

Externally, at the seat of the stricture, the bowel appears suddenly constricted, as if a ligature were tied tightly round it. As a rule, the stricture is quite annular, completely encircling the gut. This peculiarity of travelling round the intestine is due to the growth following the direction of the blood-vessels, which here run transversely to the Long Axis of the Colon. In this direction (Long Axis) the tumour does not extend far, sometimes for an inch or an

inch and a half, or much less than that. The peritoneum immediately around becomes indurated and adhesions may form between it and the neighbouring parts. On examining the gut from the inside, there is seen at the same situation a zone of hard and contracted material projecting into the lumen of the bowel and quite annular in shape. The stricture goes on contracting and may narrow the calibre of the intestine to any degree. Its surface very frequently presents an irregularly ulcerated appearance; the upper border becomes thickened; infiltrated and ~~warted~~ everted, and the mucous membrane immediately above it thrown into folds. In some instances, little more than an ulcer with indurated edges may be found - even the amount of induration may be very small. All the other coats of the intestinal wall are found infiltrated. Great contraction occurs and produces the stenosis of the bowel. In fact, the most characteristic feature of malignant stricture is the extreme degree of stenosis it may produce.

In the centre or situated more on one side of the hard cancerous mass will be found a small, tortuous channel, which represents the alimentary canal. Very often the lumen of the bowel, especially in the later stages of the disease, is so narrowed or constricted that only a probe may pass through.

It has been reported as being almost closed,-having only the diameter of a goose quill - so tight as only to admit a No.12 catheter (Treves' Clinic.Journal, Feb.,1893). - almost completely obliterating the lumen of the Colon.

(Brit.Med. Journal,1895, Vol. II.,page964,Mayo Robson).

This narrow and tortuous channel allows the more fluid contents of the bowel to pass through, but occasionally, or at any moment in the course of the disease, it may become completely blocked by a mass of hardened faeces, or bit of undigested food, or a fruit-stone or by one of the folds of mucous membrane above the stricture over-

lapping the orifice and thus acting like a valve to the stenosed part, or by kinking or twisting of the bowel above the stricture. Complete obstruction brought about in these different ways may exist for several days and then a portion of the growth may ulcerate and slough away. Consequently, the obstruction becomes relieved, but only temporarily, and an enormous amount of faeces may be passed. On more rare occasions the carcinomatous stricture presents in a different manner. The growth increases laterally along the wall of the Colon, forming a flattened, tuberous mass, protruding into the lumen of the bowel. Its edges are well defined and abruptly raised, and its surface often irregularly ulcerated in appearance. This form does not extend in a circular manner round the gut, but involves only a portion of its circumference. As it increases in size, it projects more and more into the lumen of the bowel, and tends to cause obstruction or entirely block the canal by its mere bulk. Should ulceration take

place on its inner surface, as very commonly happens, a sloughing mass, irregular in shape, is formed, from which parts come away and so relieve the obstructive symptoms for the time being. Where the ulceration is very extensive in its nature, the intestinal wall becomes very much puckered in appearance.

In still rarer instances, the cancerous stricture begins as a nodule, which sometimes forms a tumour of considerable size and which often assumes a polypoid shape. Great contraction takes place around it.

As to how these growths arise, nothing is known. Sometimes they develop in connection with a cicatrix, which resulted from previous ulceration, as in dysentery. Probably the fact that the Large Intestine is most exposed to the irritating action of retarded faeces is partly the reason why Carcinoma is infinitely more common in the Large than in the Small Intestine. Secondary Infection is much less frequently present in this disease than in Carcinoma of other organs. The Mesenteric Glands

generally become involved, although in many cases to a very slight extent, and not till the disease has advanced to its later stages. Extension to other organs, for example the Liver, sometimes occurs. The peritoneum may also be invaded by the disease. Certain other pathological lesions of a very important nature are produced and result from the chronic stenosis of the gut and the progressive destruction of tissue induced by the malignant stricture. Immediately above its site, the intestine becomes dilated owing to the retention of faeces and the walls of the bowel become hypertrophied. This distension of the Colon may attain a considerable size. The pressure of the retained faeces on the mucous membrane leads to ulceration, and occasionally Gangrene Ulceration is a very common coincidence in cases of malignant stricture and frequently leads to perforation, which is not an unusual cause of death. The ulceration is generally limited in extent, but it may involve a large surface of the

mucous membrane. The usual seats of these Faecal Ulcers, as they are called, are either just above the situation of the Stricture or in the Caecum, - the mucous membrane between the two places remaining normal. Consequently, when perforation occurs, it frequently is due to the giving way of an ulcer in either of these two regions. Even when the stricture is situated in the Descending Colon, the Caecum very often becomes greatly distended with fluid faeces, which lead to ulceration and perforation. The effects produced, when perforation takes place, depend very much on the part of the bowel affected. If it allow the faecal contents to escape into the peritoneal cavity, then Septic Peritonitis is set up, which may prove fatal in a few hours. On the other hand, should perforation occur at the Caecum, Ascending or Descending Colon, the intestinal contents may escape behind the Peritoneum and give rise to the formation of a faecal abscess. Such abscesses may point in the Iliac Region in the neighbourhood of

Poupart's Ligament, or the pus may burrow between the muscular layers of the abdominal parietes as far as the Linea Semilunaris. The abdominal walls may even become ordematous from the presence of intestinal gas. (Tumours, J. Bland Sutton, p.268). Suppuration in connection with a malignant stricture of the Colon frequently occurs, and may point in its neighbourhood or pyaemic abscesses may form in other organs, especially the Liver. This is brought about by septic infection occurring through an ulcerated patch, owing to the presence of stagnant faeces.

As the result of the formation of adhesions, fistulous communications are sometimes established between the distended portion of the bowel above the stricture and another coil of healthy intestine, which also becomes infiltrated with the Cancer, as the disease progresses. Communications may also be established between the bowel and some other organ such as the Uterus or Bladder, or a communication may be established between the Colon and Stomach itself.

These fistulous openings may be so situated as to give temporary relief to the obstructive symptoms by allowing the faeces to pass, but very often in malignant stricture of the Colon they prove of no avail, as the distended part of the bowel forms a communication with a coil of intestine situated above the stricture as well.

The intestinal walls above the stenosed part may become gangrenous. Gangrene of the Colon may be very widespread and lead to rupture of the gut. It is brought about by the blood-vessels being obliterated, owing to the pressure and distension caused by, and the irritating action of the faecal contents.

The illustrations at the end were taken from cases occurring in the Western and Royal Infirmaries.

SYMPTOMS OF CARCINOMA OF THE COLON.

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The symptoms by means of which we may recognise Carcinoma of the Colon are of the most varied description. They usually arise from, and are dependent upon, the presence of the malignant stricture. I classify them into two main divisions:-

I. Those indicating Chronic Obstruction of the Colon;

II. Those indicating Acute Obstruction of the Colon.

I. Those indicating Chronic Obstruction:

This class is produced by the gradual narrowing of the lumen of the Large Intestine at some part of its course by the increase in growth and contraction of the malignant stricture. This is more especially the case when the stricture assumes the Annular form, and even when the amount of new neoplastic tissue is small, the stenosis of the Colon may be very marked. In by far the greater proportion of all cases, the

symptoms belonging to this class are most commonly complained of.

At the beginning of the illness, the patient, who is generally a man or woman past middle life, may suffer from very little or no constitutional disturbance whatever - the early manifestations of malignant stricture of the Colon being very insidious in their onset. For some time before the nature of the disease ultimately discovers itself - several weeks, or at the most, eighteen months, the patient may be troubled with various indefinite symptoms, indicating some interference with the digestive processes. It may be merely a sense of uneasiness, or discomfort, in the abdomen. He has no inclination for food and becomes subject to attacks of biliousness, constipation, or flatulence, for which he seeks relief. In spite of remedial measures, however, and the administration of aperient medicines, he obtains no permanent benefit. The symptoms persist and gradually become more intense in their nature. The patient

now begins to suffer from Attacks of Pain which come on in paroxysms. These paroxysmal attacks occur at irregular intervals and are frequently very severe in their nature. The pains are described as "colicky", "griping", and are popularly called "cramps of the bowel". The severity of the pain increases as the lumen of the Colon becomes more and more constricted, depending therefore more on the degree of stenosis present than on the extent of the disease, so that, as the stricture progresses, the paroxysmal attacks become more frequent and distressing.

The paroxysms of pain are, in my opinion, one of the most characteristic symptoms of Carcinoma of the Colon, and point to some temporary blocking of the orifice of the stricture. They are much aggravated by the use of aperient medicines, which do more harm than good, owing to the solid faeces being forced further down towards the stricture, but are not much influenced by the taking of food. Pain of an inter-

mittent character may be the very first symptom complained of, as in a case reported by Treves in the "Lancet", 1875, Vol.I., page 369, where the stricture was situated in the Sigmoid Flexure and the pain referred to the back. In several instances the pain is more fixed in its nature, that is to say, it can be localised over some particular part of the Colon and digital pressure over this region may elicit tenderness. Should the malignant stricture be situated low down in the Large Intestine, as in the Sigmoid Flexure, the pain may become more intense just before a motion is passed and is frequently referred in that case to the Sacral Region or down the thighs.

Associated with the paroxysms of pain, the sufferer occasionally has attacks of vomiting. Like the pain it thus comes on at irregular intervals, but is not a common symptom, except in the final stages of the disease, when it becomes more or less constant. The higher the stricture is situated in the Colon, the sooner will

the vomiting develop and become more troublesome. As a general rule the vomiting is slight, consisting for the most part of the gastric secretions and particles of food. It is not such a prominent symptom as when the stenosis is placed in the small bowel, and it seldom becomes stercoraceous before complete obstruction arises. Out of 20 cases mentioned by Treves, eight only were stercoraceous and 12 non-stercoraceous.

(Intestinal Obstruction, Treves - page 307).

and in those cases where faeculent vomiting was present the stricture was situated higher up in the Colon than in the others where it was non-faeculent.

Retching and eructations of sour material are often present with the vomiting, while flatulent distension, of which the patient complains a great deal, varies with the amount of vomiting and the food taken.

With regard to the state of the bowels, there is great variation in different cases. A good deal depends upon the site of the stricture in the Colon. In

the great majority of cases, the patient complains of constipation from the very first. At the beginning, in the early stage of the disease, this may be relieved by the use of laxative medicines and enemata, but by and bye these lose their effect, constipation persists, becomes more troublesome and ultimately ends in complete obstruction of the bowel. This is the usual state of matters when the stricture is at the Sigmoid Flexure, owing to the faeces being naturally more solid here. A good example of such a case is the following reported by Paul.

Woman aged 49 - suffering for the past few months from gradually increasing chronic obstruction, recently culminating in absolute constipation. She was a spare woman. Pulse small. Temperature normal. Obstruction complete. Frequent vomiting of greenish fluid and constant attacks of violent, colicky pain. Abdominal distension very marked and peristalsis quite visible. On palpation, Caecum and Large Intestine seemed to be dis-

tended. Handling at once set up colic and peristalsis wave could be seen to move along the bowel from Caecum to Segmoid Flexure. The Rectum was found quite empty. Stricture was therefore in upper part of Rectum or in Segmoid Flexure. Exploratory incision revealed a small Malignant Ring Stricture in Segmoid Flexure. Excision was performed, but patient succumbed to the operation (Brit. Med. Journal, 1895, Vol.I., page 1136, by F. T. Paul, F.R.C.S., Surg. Liverpool Royal Infirmary). In several instances, and more especially when the stricture is high up in the Colon, diarrhoea, instead of constipation, may be the most prominent symptom. This state is usually followed by one of diarrhoea, alternating with constipation. The diarrhoe is more or less spurious in its nature, being partly due to the more liquid portion of the faeces escaping past the more hardened mass of faeces lying in the gut immediately above the stricture, and partly to the Chronic Enteritis and ulceration of the mucous membrane set up

by the pressure of the intestinal contents, whereby an excess of mucus is poured out and the peristaltic movements of the bowel increased. The obstinate constipation is produced by a hardened bit of faeces blocking up the constricted lumen of the bowel for the time being and then being passed with great difficulty. When the obstruction becomes absolute, then the bowels can not be made to act and the second class of symptoms or the symptoms of acute obstruction arise.

Treves collected 28 cases, and gives the following proportions as to the prevailing state of the bowels: in 14 cases constipation was the prominent feature: in 11 cases constipation alternating with marked diarrhoea: in 3 cases diarrhoea was prominent throughout (Intestinal Obstruction, Treves, page 305). Valuable information as to the existence of a carcinomatous stricture is also furnished by an examination of the faeces which the patient passes. The character of the stools may be altered in various ways - in regard to their format-

ion, size and odour. When the stricture is situated high up in the Colon, the faeces when passed may be quite natural in every way,- more usually, however, especially when there has been a history of constipation, they are passed in the form of large or small round balls. When the stricture is situated low down in the Colon, the faeces are flattened or pipe-stem-like or shaped like a ribbon or otherwise narrowed, and this is more particularly the case when the part of the Large Intestine implicated is the Segmoid Flexure. When ulceration of the surface of the growth takes place, the motions become extremely offensive in smell, and may be mixed with blood or portions of the stricture which have come away in sloughs.

Haemorrhage, in the form of a bloody discharge from the Anus, occurs in about 15% of all cases, according to Treves. It may be very trifling in amount, or be so great that it brings about the death of the patient. It chiefly occurs in stricture at the Segmoid Flexure:

the lower down in the Colon the malignant growth is situated, the less alteration will there be in the characters of the blood.

In those instances where the prevailing state of the bowels is one of diarrhoea, or diarrhoea alternating with constipation, the patient suffers from and complains greatly of tenesmus, more especially when he goes to stool. This is also common when the stricture is low down in the Colon. Except under these two conditions, tenesmus is not a prominent symptom in Carcinoma of the Large Intestine.

Flatulent distension of the abdomen, with rumbling and gurgling amongst the Intestines is a very constant and troublesome symptom. As a rule it is slight at the first, but gradually increases in severity, and ultimately when obstruction becomes complete, may be very considerable.

As the progress of the malignant stricture of the Colon advances, the general state of the patient grad-

ually gets worse and worse, and sooner or later, according to the length of time the disease has lasted, the patient develops what is termed the Cancerous Cachexia. His general aspect becomes characteristic. He has an anxious look, becomes pale and sallow in appearance, with sunken cheeks, eyes hollow with dark circles round them. Emaciation and consequent loss of flesh and strength proceed - more rapidly if the stricture is placed high up, and less rapidly if situated low down in the Colon. This state of matters is brought about partly by the development of the growth, but more particularly by the interference with the vital processes of digestion, absorption and nutrition.

With regard to the state of the Urinary Organs, diminution in the quantity of urine passed seldom occurs in obstruction of the Colon from Carcinomatous stricture; an excessive amount of pale, limpid urine may be passed, accompanied at times by painful micturition.

In all cases a careful physical examination of the abdomen should be made. This, in my opinion, may afford very valuable evidence as to the nature of the disease. In cases that run a chronic course, the abdominal walls will generally be found to be thin and flaccid. Inspection of the belly will reveal the presence of a certain amount of tympanitic distension, which is frequently very pronounced, and through the thin parietes peristaltic movements of the intestimes will be distinctly visible, especially during the paroxysmal attacks of pain. These paroxysmal movements are due to the involuntary muscles of the intestinal walls contracting around their contents and pass on towards the seat of the obstructing stricture. However, they fail to relieve the obstruction, and as the stricture becomes narrower, they recur with greater frequency and severity. Peristalsis is one of the most characteristic features of chronic obstruction from stricture, and moreover it is an indication that peritonitis has not set in. This is very important

from a clinical point of view. In carrying out an examination of the abdomen, our efforts are particularly directed to whether we can locate the existence of a morbid growth or not in any part of the Colon. Palpation and percussion may or may not reveal the presence of such a tumour. There may be no evidences of a tumour at all, more especially when it assumes the form of an Annular Carcinoma, which acts by narrowing and constricting the lumen of the bowel. The presence of such a stricture may not be detected owing to the hypertrophy and distension of the Intestine immediately above it. A sense of fullness at a particular part, which cannot, however, be properly defined, may be all that can really be said to exist. While making the examination, palpation of the abdominal walls may set up peristaltic movements of the bowels, giving rise at the same time to griping or colicky pains, more or less severe in their nature, and combined with the rumbling and loud gurgling of

the intestinal contents. In many cases the presence of a tumour can be definitely determined, and located to a particular part of the Colon. Especially is this the case where the walls of the Large Intestine are near the abdominal surface. For example, when the Transverse Colon is involved, palpation may detect the existence of a tumour, which is generally limited in extent and tender on pressure. Moreover, in this region, the tumour is generally larger in size than elsewhere, because of the tendency it has to invade the surrounding fatty tissue, which is here more abundant.

In other instances, physical examination of the abdomen may reveal a hard, irregular mass, varying in size and depending for its irregularity to a large extent on the presence of hard masses of faeces.

Should the growth happen to be situated at the Hepatic or Splenic Flexures, it must attain a considerable size before it can be detected. It would be

quite impossible, in my opinion, to make out the presence of an Annular Stricture at these situations. Its existence could only be guessed at. The presence of a tumour has not been determined in more than 40% of all cases according to Treves.

An examination by the Rectum and in women the Vagina also, should always be carried out to ascertain the probable cause of obstruction in doubtful cases.

On introducing the finger or very occasionally the whole hand, if it be of small size, into the Rectum, we may be able to reach a stricture situated in the lower part of the Sigmoid Flexure, or a tumour pressing on the Rectum. In Carcinoma of the Colon, the Rectum will generally be found empty, and when an injection is given, it comes away unaltered in appearance.

II. Symptoms indicating Acute Obstruction of the Colon affected with Carcinoma.

These symptoms, which are very acute and grave in their nature, may arise in different ways. First of all they may set in suddenly and without any previous illness, but more usually follow on chronic obstruction. They are produced by the complete narrowing of the canal at the constricted part by the growth and contraction of the stricture, or the narrowed channel becomes entirely blocked by a mass of hard faeces, bit of undigested food or a fruit-stone, which becomes impacted in it and is too large in size to pass through. The consequence is that the obstruction becomes absolute, and the bowels cannot be made to act. Repeated injections into the Rectum fail to bring away faeces, except what is in the Rectum or part of the Colon below the stricture. The injections, as a general rule, are not retained long and come away in the same state as when introduced. On examining with the finger, the

Rectum is found empty. Constipation, therefore, becomes absolute. A patient who has lived to this stage however, may exist for a long time. The average duration of life is from two or three days to three weeks. Thirty days is not uncommon (Treves) - five to six weeks (Erichsen). The pain, which before was intermittent, becomes more constant, but subject at times to severe exacerbations and is accompanied by increased peristaltic movements and the rumbling and gurgling of flatus in the Intestines.

The vomiting now becomes constant, the patient rejecting everything he takes, even water and milk coming up immediately, and associated with it, there are eructations of sour material and hiccough, which I consider to be very unfavourable signs. The vomiting is not always faeculent, but if the case lasts for several days, it is most likely to be so. At times, and especially towards the final ending, it consists more of a welling up of the stomach contents.

Flatulent distension of the abdomen becomes very pronounced and symptoms of peritonitis may arise. The part of the bowel above the constriction becomes greatly distended, and the intestinal contents accumulate there. The muscular layers of the intestinal wall become paralysed by the internal pressure. As a result the faeces decompose, and give rise to the formation of gas, which still further distends the bowel, producing a condition known as Meteorism. The general condition of the patient is now one of great anxiety. The features become sunken, and patient has an anxious look. He is evidently suffering from great nervous prostration.

A very important prognostic symptom, in my opinion, is the state of the pulse, which bears more relation to the depressed state of the nervous system than to the temperature. The temperature may remain normal throughout the case, or not rise above 101°F. or 102°F. Before death, it may be even subnormal, whereas the

pulse is very rapid and feeble and may continue at 140, finally becoming quite imperceptible. The following case is a good illustration of this class, occurring in my own practice.

Case of Carcinoma of Splenic Flexure of the Colon, giving rise to Acute Obstruction.

Resection - Death 48 hours after operation.

Mrs. N., aged 48 years, a very active woman, watching more after the interests of her family and friends than attending to herself, was always in exceptionally good health. I was called to see her on Sunday afternoon, the 27th day of February, 1898, and found her suffering from an attack of constipation, accompanied by vomiting, severe griping pains of an intermittent nature, and rumbling in the Intestines, of four days' duration, these symptoms having begun and persisted since the 23rd February. Her chief complaint was that she could get no passage or movement of the bowels during that time.

The physical condition of the patient was good: she was robust, well coloured and the body well nourished. The following were the notes I took of the case during the patient's illness:-

She was of opinion that she had a movement of the bowels on the 23rd February, four days ago, but was not perfectly certain. Her bowels had moved daily with regularity up till that time. On the 24th, patient took a dose of castor oil, which didn't operate and for the first time suffered from severe griping pains in the belly, coming on at irregular intervals and accompanied by the rumbling of flatus in the Intestines.

On the morning of the 25th, she had a dose of epsom salts, half an ounce, which also had no effect in relieving the constipation. She still suffered a good deal from several paroxysmal attacks of pain, combined with the rumbling of flatus. On the 26th, another dose of castor oil was taken, which, however, was immediately vomited. This was absolutely the first appearance of

vomiting - on the 4th day of her illness.

The severe griping pains and rumbling of intestinal gas were still troublesome and a source of much annoyance, and for these she sensibly applied hot turpentine fomentations over the surface of the abdomen.

On Sunday, 27th February, she became very anxious and alarmed about herself, owing to the fact that no evacuation of the bowels could be obtained. I saw her about 3 p.m. and found her in the following condition:- Suffering a great deal from severe griping pains all over the abdomen, constant in their duration, but more intense at some times than others. Vomiting very troublesome, and consisting of glairy, greenish material: any food she had partaken of on this day, even milk and water, came up immediately and in the same state as when swallowed. Pulse 92. Temperature 99°F. On making a physical examination of the abdomen, peristaltic movements could be readily seen at those times when the paroxysmal attacks of severe pain came on.

Loud gurglings and rumbling of the intestinal contents could be easily heard standing by the bedside of the patient. She stated she felt as if the working of the bowels and gurgling reached to a certain point and then stopped. The abdominal walls were well nourished and loaded with fat. Very marked distension was perceived on inspection, more or less over the whole abdomen, but this was not uniform in its nature. In addition there was a longitudinal bulging extending directly up and down on the right side, which was quite tympanitic on percussion. This swelling was evidently a greatly distended Ascending Colon. On making pressure over this region with the hand, it disappeared entirely for a short period, but pain, increased peristalsis and rumbling amongst the Intestines were greatly intensified. No flatus, however, escaped per Anum on these occasions. Careful palpation could detect no specially tender part or localised seat of pain, but gave rise to retching and hiccough. No hard area could

be felt. Friction over the abdominal parietes, even of the slightest degree, set up very readily the peristaltic movements and pain. Percussion revealed no dull region whatever. No flatus escaped from the bowel at any time.

Examination per Rectum proved negative. It was found quite empty. No faecal mass was present, and no evidence of stricture or other growth as far up as the finger could reach.

There was no history of a bloody discharge or haemorrhage from the Anus or Tenesmus. Both of these symptoms were conspicuous by their absence throughout the whole course of the case.

The symptoms all pointed to a serious obstruction of the bowel, acute in character, and situated somewhere in the Large Intestine, but lower down than the Ascending Colon. The precise nature of this obstruction it was impossible to determine, without making an exploratory incision. There was no history of any

injury and the condition of the Lungs, Heart and Urinary Organs was perfectly normal. The serious nature of the case was at once manifest, and both the patient and her family were properly made aware of the fact, and also of the possibility of an abdominal operation being required. Showing the difficulties which country practitioners have to contend against, compared with their city brethern, whose patients are generally near at hand or easily reached, I may mention that in this case the patient's home was situated six miles away and at that seasonable time of the year plenty of snow had fallen and covered the ground, which rendered travelling all the more tedious and uncomfortable.

The treatment carried out then and there was first of all the administration of an enema of soapy water, containing two tablespoonfuls of castor oil and one tablespoonful of turpentine. Two pints were injected and retained for about ten minutes. It was then evacuated, bringing away several small pieces of hard faecal

matter and a large quantity of intestinal gas. This, in my opinion, came from the part of the Colon situated below the obstructing cause. The nurse in attendance was ordered to administer a tablespoonful of castor oil and to repeat the injections at 6 p.m. and 10 p.m. The castor oil which was given one hour after I left was immediately vomited and the two injections were given at the hours mentioned but with no beneficial result. Pil opii gr. $\frac{1}{4}$ given for pain as required. Milk diet. Ice to suck.

28th February. Nurse administered an injection at 6 o'clock this morning, which was retained only for a very short time and came away unstained with faeces. I saw her at 11 a.m. Patient felt easier and better and thought she had no need of a doctor attending her if only she could get the bowels to act.

Pulse 92. Temperature 98.6°

Vomiting constant. Everything she takes being rejected immediately - even milk coming up curdled.

Retching and hiccough frequent.

The abdominal symptoms much the same as before, the longitudinal bulging of the Ascending Colon still very prominent and tympanitic. Seeing that the ordinary enemas were proving of no avail and bringing no relief to the patient, I then passed the long tube of the stomach pump through the Anus and Rectum and into the Ascending Colon without much difficulty or encountering any cause of obstruction and injected about a pint of soapy water only. On withdrawing the tube, it showed not the slightest trace of being stained with faecal matter. The enema came away in the same state as introduced. This showed that the seat of the obstruction was still higher up in the Large Intestine. To-day the griping pains were not so severe or constant, but probably were masked by the opium. All food given by the mouth - milk, beef tea and thin soups - now prohibited and patient fed entirely on injections of milk, whisky and beef tea.

I ordered 5 gr. doses of Calomel combined with 1 gr. Pulv. Opii every four hours (the first of these powders was vomited, but next two retained). At 5 p.m. I saw her again, in consultation with my partner, Dr. D. Dougal.

Patient now not nearly so well. Pulse 108. Temperature 99°F. Tympanitic distension of the abdomen very pronounced. Great amount of rumbling and loud gurgling in the Intestines, which could be easily heard by those standing in the room. Never any escape of flatus by the Anus. For the first time patient complained of a slight tenderness on pressure, but not great, felt more particularly over the umbilical region. This fact, associated with the slight rise in temperature and increased frequency of the pulse, pointed, I believed, to the onset of peritonitis; but there was no evidence of fluid in the peritoneal cavity as yet. There never was any tenesmus or straining. It was evident that all medicinal meas-

ures and remedies were proving ineffectual. The thought that an operation involving the opening of the abdominal cavity would be required was ever before my mind. It was an utter impossibility, however, that it could be carried out before next day, as the patient and her friends would not consent to her going to the Infirmary. Another injection was given at 9 p.m. with no effect. 5 grs. of Calomel and Pil Opii gr. i. given alternately every 3 hours.

1st March. I again saw the patient with Dr. Dougal at 10 a.m. She stated that she felt easier: vomiting not so troublesome or persistent, but frequent retching. No action of the bowels. Pain extremely severe at times. A good deal of flatus passed per Anum after an enema was administered at 6 a.m. On the whole, the general condition of the patient not improving, but gradually getting worse and worse. Seeing that there was no abatement of the serious symptoms, that the patient was not obtaining any relief and recognising

the fact that such a state of affairs could only have one ending, and that a fatal one, it was decided to call in a surgeon with a view to immediate operation.

At 4 p.m. consultation with Dr. T. K. Dalziel, Glasgow, who was also of opinion that the seat of obstruction was in the Large Intestine. Abdominal Section was performed to find out the nature and situation of the obstruction, with all the usual antiseptic precautions. The most noteworthy features observed in the carrying out of the operation were the following: The Incision was made in the middle line between the Pubis and Umbilicus about four inches in length. On slitting up the peritoneum, a large quantity of dark coloured bloody serum issued from the wound. The walls of both the Small and Large Intestines were dark red in appearance, indicating the presence of inflammation and congestion, and in addition there were several black, glistening patches in the walls of the Small Intestines, pointing to com-

mencing ulceration. All these showed the great rapidity with which the peritonitis had developed and spread within 24 hours.

To get at the seat of the obstruction, an examination of the Intestines was made in a systematic manner. The Small Intestine was first examined, but no obstruction to the lumen of the gut was found there. Attention was next paid to the Large Intestine. The Caecum, Ascending Colon, Hepatic Flexure and Transverse Colon were very much distended with flatus and liquid faeces. On coming to the Splenic Flexure of the Colon, the nature of the obstructing cause was at once made manifest, and consisted of a hard, constricting mass involving the whole circumference of the gut. The bowel had very much the appearance as if it were tightly tied with a piece of string and its walls were somewhat puckered.

The question then arose whether to close the first incision and perform a Colotomy, or to Resect the

growth at once.

As the growth was quite limited in extent, and the mesenteric glands not invaded by the disease, Resection of the stricture was performed. The growth was excised and the two ends of the divided bowel joined together by a Murphy's Button. A drainage tube was left in and the abdominal wound closed.

An examination of the growth afterwards showed it to be a Columnar-celled Carcinoma - in other words an Annular Carcinoma, constituting the true malignant stricture of the bowel. The lumen of the gut was so narrow that a probe could not be passed through. On slitting the growth up, a small piece of what looked like a vegetable fibre was seen completely filling up the channel, the surface of which was very irregular. The growth involved the whole circumference of the bowel and measured about one inch in its longitudinal diameter.

The patient was under chloroform for 1½ hours and

stood the operation well.

Pil Opii gr.i every three hours was ordered, and chicken tea for nourishment.

The after history of the case was as follows:-

2nd March. I saw the patient at 10 a.m., and learned from the nurse that she had passed a very restless night. Urine had been drawn off with a catheter twice during the night. Patient had a very anxious look and altogether she was not progressing favourably. Temperature 100°F. Pulse 120, small and weak. In the evening about 9 p.m., I visited her again, and changed the dressings as they were becoming soaked with the discharges. Urine was drawn off with the catheter an hour previous to this. Temperature 100.6°F. Pulse very fast and feeble.

3rd March. Patient had passed a good night up till 2 a.m., sleeping well during that time. Then diarrhoea set in and continued constantly. Temperature now 101°F. and the pulse quite imperceptible. It was apparent,

therefore, that the case had become perfectly hopeless. The patient gradually sank, and died from exhaustion at 3 p.m., forty-eight hours after the operation, or eight days after the first onset of the symptoms. This case, in my opinion, affords an excellent illustration of a Carcinomatous Stricture of the Large Intestine occurring without presenting any of the usual symptoms associated with the development of a cancerous growth. First of all, the patient was always an extremely healthy woman and looked healthy. Her family history was very good, no other member of the family being affected with Cancer or having died of it. There was no cachexia, no emaciation, no previous history of pain, constipation or other digestive derangement of a chronic nature. I may safely say that there was not a single symptom in the case, which pointed directly to it being of a malignant character. Fortunately such instances, so acute in nature and so sudden in development, are extremely rare, and, in my opinion,

an accurate diagnosis can only be made by making an exploratory abdominal incision. It is quite impossible to state definitely that a malignant stricture is present. Its existence can only be a matter of conjecture.

Complications of Carcinoma of the Colon.

During the progress of the disease, certain intercurrent complications may arise, and prove the immediate cause of death.

One of the most frequent of these is the onset of Peritonitis, more or less diffused in character. As a general rule, it originates at the seat of the stricture, spreads more or less rapidly and then becomes general. The occurrence of this very serious and dangerous complication will be evidenced by a rise in temperature. This, however, may be very slight in degree. The pulse becomes small, rapid, and thready. The distension of the abdomen becomes greater and more

uniform all over its surface. The abdominal walls, instead of remaining flaccid, become hard and tense. The hepatic dullness will be found to have disappeared, and the patient may complain of great breathlessness (Dyspnoea), owing to the pressure upwards on the heart and lungs. A most important sign that Peritonitis has set in is that the peristaltic movements which before were a very marked feature in the case, cease entirely. Pressure with the hands, also, over the abdominal surface gives rise to great tenderness. The patient now assumes a characteristic attitude. He lies on his back, with his knees drawn up, in order to relax the tension of the abdominal parietes. The pain from which the patient suffered most severely becomes less intense, owing to the cessation of the peristaltic movements, but on the other hand, it becomes more continuous in its nature.

The vomiting increases in severity and persistency, and is a source of great distress to the patient. Sometimes the presence of fluid can be clearly made out in

the peritoneal cavity, especially by eliciting dullness at the flanks, which disappears on turning the patient to one or the other side. By palpating with both hands, one may readily feel the wave of fluid.

When complete obstruction comes on, a certain amount of Peritonitis is present in every case. It may be confined to one region, or more diffused over the abdominal cavity. Greig Smith states in his book on Abdominal Surgery (page 662) that Peritonitis is an essential concomitant of the disease.

Another complication which is apt to arise results directly from the presence of ulceration in the dilated portion of the Colon immediately above the stenosed part. This ulceration, as I have before mentioned, is brought about by the pressure of the retained faecal matters on the intestinal walls, and occasionally perforation takes place by the giving way of one of the faecal ulcers. This allows of the escape of the intestinal contents into the peritoneal cavity, which set up Septic Peritonitis. This serious state of

matters may prove fatal in a few hours and is generally indicated by the patient suddenly sinking into a condition of profound collapse and prostration. He suffers from the most intense pain. The surface of the body becomes cold and clammy. The characteristic features denoting the onset of Perforation and Septic Peritonitis are the suddenness and acuteness with which the symptoms set in and develop. In some instances, when Perforation occurs, the faecal matters escape not into the peritoneal cavity but behind the Peritoneum; more particularly is this the case in the regions of the Caecum, Ascending and Descending Colons, where the result is the formation of Faecal Abscesses. Such abscesses may come to the surface and point in the neighbourhood of Poupart's ligament or the Iliac Crest, then burst externally and form a fistulous opening. Pyaemic Abscesses may develop in more remote organs, notably the Liver. These owe their origin to the absorption of septic matters from the ulcerated surface of the malignant stricture. An excellent illustrat-

ion of this kind is reported by Dr. Finlayson in the Transactions of the Pathological and Clinical Society of Glasgow, 1893, Vol.III., page 145, where, at the post mortem examination, a number of small abscesses were found situated in the Liver.

The occurrence of such a complication as suppuration is chiefly indicated by rigors, heavy sweatings and increase in temperature and the pulse rate.

One more complication met with in this affection, but fortunately not a very frequent one, is severe Haemorrhage. As a general rule, haemorrhage is not excessive. When it is so, it indicates the presence of extensive ulceration in the malignant growth. This is most likely to happen when the stricture is situated pretty low down in the Large Intestine, as at the Sigmoid Flexure, and may be the immediate cause of death.

Prognosis and Duration of Carcinoma of the Colon.

In every case without exception, the prognosis is extremely bad, but more especially when the malignant

stricture has so narrowed the lumen of the Colon that it causes complete obstruction. Practically, there is no hope of recovery, unless Resection of the diseased part prove successful. The disease is a progressive one and rarely extends beyond a period of eighteen months to two years from the first onset of definite symptoms. The average duration of life in chronic cases is six months. The great majority of cases die from the effects of the obstruction, but the patient may succumb to exhaustion produced by mal-nutrition, pain and growth of the stricture, leading to gradual lowering of the vital powers, or death may be the immediate result of one or more of the Intercurrent Complications - Peritonitis, Perforation and Haemorrhage, which may develop at any period in the course of the disease.

Diagnosis of Carcinoma of the Colon.

The importance of making a correct diagnosis at an early period of the disease cannot be too greatly overestimated. Unfortunately, however, this is not always

an easy matter. In some cases the greatest difficulty is experienced and in others it is utterly impossible to come to an accurate decision without the aid of an exploratory incision. In many instances, the nature of the disease can only be guessed at from the gradual and progressive manner with which the signs develop, and from the age of the patient, or it is only discovered at the operation table or post mortem examination.

A careful study of the symptoms and previous history of the patient, combined with a systematic physical examination must be made in every instance. Much will depend, I believe, on whether the illness has been chronic or acute in its nature from the beginning.

In that variety of Carcinoma of the Colon producing Chronic Obstruction, the initial symptoms pain, flatulence and sometimes vomiting are common to many other disorders, such as dyspepsia, bilious attacks. They are treated as such, but without success. Their gradual increase in severity, their progressive nature and resist-

ance to treatment, especially in a person over forty years of age, and who has a pale, sallow complexion and a history of having lost flesh and weight, should make us very suspicious of the malignancy of the case. Later on, the development of the Cancerous Cachexia, combined with severe paroxysmal attacks of pain and obstinate constipation, tend further to confirm our suspicions, even though on making a most careful physical examination of the Abdomen and by the Rectum, no indication of the presence of a tumour can be detected. If, however, we can make out the existence of a dull area, tender on pressure, limited in extent and located particularly at the Caecum, Descending Colon or Sigmoid Flexure, then we may be absolutely certain that we have to deal with a Carcinomatous Stricture of the Colon. The sooner this affection is recognised, the better chance will there be of the surgeon's efforts proving successful.

With regard to the Diagnosis of the seat of the

malignant stricture in the Colon, I am of opinion that in the great majority of cases the site of the obstruction cannot be ascertained with absolute certainty, owing to the growth increasing inwards towards the lumen of the bowel, thereby diminishing its calibre and forming an Annular Constricting Ring.

In a thin patient with relaxed abdominal walls, a malignant stricture of the Segmoid Flexure may be felt as an indistinct fullness, located to that particular part.

In all cases an examination of the Rectum by introducing the finger or the whole hand if that be possible should never be omitted. By this method, we may be able to diagnose with certainty the existence of a malignant stricture at the lower part of the Segmoid Flexure or differentiate it from a growth compressing the Rectum or a mass of hardened faeces. A bougie, or the long tube of the stomach pump may be used for the same purpose, but may prove very fallacious unless introduced

with great care, owing to their liability of becoming doubled up in the Rectum.

The injection of large enemata have been used for diagnosing the seat of the stricture, by seeing how great a quantity can be introduced into the Colon. This method of itself is not of much use, but, combined with Auscultation of the Colon, it is of great diagnostic value when acute obstruction has come on. The injection should be carefully and cautiously introduced, care being taken to exclude the entrance of air. While this is being done, auscultation along the Colon and at the Caecum should be carried out to hear if the water reaches that particular part. In a case published by Paul, the seat of the disease could not be located, but was thought to be high up in the Colon, as large enemata could be retained and this turned out to be correct, for after making a median exploratory incision, a tumour was found in the Ascending Colon (Brit. Med. Journal, 1895, Vol. I., page 1148. F. T. Paul). The distension of the upper part of the Colon, together with the peristaltic

movements may help us to some extent in diagnosing the site of the stricture, but great caution must be observed, as mistakes are very easily made; and the presence of hard masses of faeces may also tend to obscure the situation of the disease.

It is a very difficult matter sometimes to distinguish between a Cancerous Stricture in the Colon and one situated in the Small Intestine. In Cancerous Stricture of the Small Intestine, vomiting is one of the earliest symptoms, is present in nearly every case, and is more apt to be exaggerated by the taking of food. The administration of aperients relieves it, but it is more likely to become faeculent. In Carcinoma of the Colon, on the other hand, vomiting is often entirely absent, or appears at a late stage in the disease, or only after several days of absolute constipation. In both, the pain is of the same paroxysmal, intermittent nature, but more severe and persistent in cancerous stricture of the Small bowel. Meteorism, or flatulent distension of the abdomen, is a more marked feature in Stricture of

the Colon, and the outline of the dilated portion may be quite distinctly mapped out, whereas when the stricture involves the small bowel, especially at its lower part, the distension appears in the Epigastric, Umbilical and Hypogastric regions chiefly, the sides of the abdomen being depressed. In Stricture of the Small Bowel again, the constitutional effects of the growth show themselves much sooner than in the other. This is doubtless due to the fact that the Small Intestine is physiologically more active and plays a very important part in the process of digestion. The Large Intestine, on the other hand, is not so active, but acts as a kind of storage for the intestinal contents (faeces).

Carcinoma of the Large Intestine, when it suddenly gives rise to an attack of acute obstruction, and located at the Segmoid Flexure, might very readily be mistaken for Volvulus of the Colon on its Mesenteric Axis at that part. Volvulus almost always occurs at the Segmoid Flexure and occasionally at the Caecum and so the possibility

of the mistake arising is rendered all the more likely. As a general rule, it occurs in males and is seldom met with before forty years of age. As in Carcinoma there is generally a history of previous constipation. Volvulus, however, is usually very sudden in its onset. Pain sets in at once and frequently intermits. It is referred to the Hypogastric and Umbilical regions and sometimes in the Segmoid Flexure itself. The vomiting is never urgent, or it is absent altogether. When present, it appears at a late stage and becomes faeculent in 15% of cases only. A most distinctive symptom of Volvulus which helps to differentiate it from stricture is a circumscribed, distended area, tympanitic on percussion, which corresponds to the loop of Intestine involved in the twist. Another marked feature of Volvulus is the great distension of the abdomen, which comes on very rapidly and is produced by excessive accumulation of intestinal gas. Peristalsis, as a rule, is absent, and there is distinct evidence of the presence of a

tumour. Abdominal Section is frequently required to distinguish between the two.

Chronic Perityphlitis may give rise to symptoms very similar to Carcinoma of the Colon, when this attacks the Caecum and Ascending Colon, by producing emaciation, pain, constipation and meloena. In this instance, there will be a history of previous inflammation io the neighbourhood of the Caecum to guide us. Moreover, it generally occurs in females of a younger age. The prognosis is not so bad as in Carcinoma, for the majority of cases recover under treatment. It produces a tumour or swelling, immovable in its character, at the Caecum, whereas Carcinoma in this region generally forms a hard tumour, irregular in shape, and possessing a certain amount of movement.

Carcinoma of the Colon may also be very readily simulated by a Chronic Intussusception, which not infrequently owes its origin to the presence of a tumour,

especially a polypus or even a malignant stricture itself. The following is a good example of such a case:-

Carcinoma of Descending Colon with Intussusception, Reduction of Intussusception and Removal of Tumour by Colectomy (Brit.Med. Journal, 1895, Vol.II., page 963, Mayo Robson).

Mrs. B., age 27, admitted to Leeds Infirmary, March 6th, 1894. Married for 18 months, one child, born last August, which died five weeks after from Tabes Mesenterica.

Family History. Patient comes of a highly neurotic family. Mother died aged 51 from Cancer of Uterus. Present illness: In June, 1893, patient had an attack of colic with diarrhoea which passed off in a few days after appropriate treatment. In August, 1893, fourteen days after confinement, a similar attack recurred, and since that time, the attacks have been recurring with intermissions of a day or two. Some five weeks ago on palpation of the abdomen after a seizure, a hard mass

about the size of a small hen's egg, and situated above the Left Iliac Fossa, was discovered, to remove which, thinking it might be a small scybalous mass, five grain doses of Calomel were given from time to time, followed by Hunyadi Janos, and to relieve the intense attacks of colic, copious enemata of hot soapy water and turpentine were given. Difficulty was experienced in introducing beyond a pint. Patient then complained of intense pain at the seat of the obstruction, but with force the enema seemed to pass beyond it, the patient at the time exclaiming "there it is passed now," after which quite a quart could be got in without inconvenience. Slime had been passed occasionally, but no blood. Constipation had prevailed for over a year. After the first attack, there had been no diarrhoea. Passage of flatus usually gave relief for a time. Patient was very thin, having lost 1½ stones during the six months before admission. Abdominal walls were thin and flaccid and in the left inguinal region, a

hard swelling the size of a fist could be easily felt and moved in every direction - upwards under the ribs, downwards into the pelvis and from one side of the abdomen to the other. The tumour was not tender and gave no pain on manipulation. During an attack, the lump was forced into the pelvis and a hard sausage-shaped tumour could be felt in the course of the Transverse and Descending Colon.

Rectal and Vaginal examination was negative.

March 15th. Abdomen opened in Left Linea Semilunaris (Incision three inches in length), when it was found that the Descending Colon was intussuscepted into the Segmoid Flexure - a tumour of the intestine forming the apex of the intussusception. By pressing from below, reduction was easily affected as there were no adhesions. Tumour was brought to the surface and the base of the loop of intestine containing it, encircled with an elastic tourniquet, - After which a segment of the Colon about five inches in

length containing the tumour was excised. The divided blood-vessels in the cut meso-colon were ligatured and the cut ends of the Colon were united by means of a decalcified bone bobbin. Tourniquet was then removed. The parts which had been exposed sponged with carbolic lotion, and the abdomen closed. Operation lasted thirty-five minutes. No shock followed. Bowels were moved by an enema at the end of the week. The sutures were removed on the eighth day. Patient was up on April 6th and returned home on the 10th, looking and feeling well. As usual, no trace of the bobbin was found in the motions. The growth was a hard, nodular mass, nearly completely encircling the bowel. Its surface within the gut was ulcerated and greyish black in colour, and the summit was larger than the base. A finger could be passed through the lumen at the site of the tumour. Under the microscope the growth was found to be columnar-celled Epithelionia.

Chronic Intussusception of the Colon and Carcinoma have many symptoms common to each other. The former, however, is generally met with in males in active, adult life. Pain is not so marked or so severe as in Carcinoma, and is often absent altogether. Vomiting is generally present, is a very prominent symptom in about 50% of all the cases and in a few (7%) becomes faeculent. It only becomes distressing on very rare occasions. Sometimes it is brought on by the taking of food. As in Carcinoma, the peristaltic mowements of the bowels can be readily perceived through the thin and flaccid abdominal walls, but flatulent distension is not so pronounced a symptom as in malignant stricture. Two very prominent features of Chronic Intussusception are the presence of a bloody discharge from the Anus with the passage of a good deal of mucus and slime, and of Tenesmus which in many cases is very marked. The state of the bowels varies a good deal. There may be a history of con-

stipation, but the prevailing state in the majority of cases is one of diarrhoea. Emaciation proceeds and the patient becomes thin and anaemic.

Physical examination of the abdomen will very frequently reveal the presence of a definite tumour, the characteristics of which are pathognomonic of a chronic Intussusception. The tumour is generally elongated and sausage-shaped, and lies in the course of the Large Intestine. As the invagination progresses, the swelling will be found to alter its position. It has a doughy feeling to the touch and is tender to pressure, owing to peristaltic movements being set up in the intestinal wall. In Carcinoma of the Colon the symptoms develop in a very chronic manner in the majority of cases and gradually increase in severity. In Chronic Intussusception, on the other hand, the onset of the disease is, as a rule, sudden, and then the symptoms become more chronic. This, in my opinion, is a most important point to consider in diagnosing between these two conditions. In many instances, on

introducing the finger into the Rectum, one may feel the invaginated bowel in that region. Sometimes the invaginated swelling is protruded through the Anus. On many occasions extreme difficulty is experienced in distinguishing between Carcinoma and Chronic Intussuspection, and the only way of ascertaining the real state of matters is to be obtained by performing Abdominal Section.

A very interesting case was published in the British Medical Journal on February 19th, 1898, by Dr. J. Orton. The case was diagnosed as one of Chronic Typhlitis with ulceration, with the possibility of its being of a malignant nature. The symptoms were extremely offensive character of the motions and pain over the caecal region. A soft doughy mass was felt in the Iliac Fossa, and was thought to be faecal. It disappeared with enemata, but this gave no relief to the pain. The pain gradually increased in severity and was intermittent in character. Nothing abnormal was found on palpation of the abdomen. Bowels acted fairly

regularly. Occasionally a loose motion streaked with blood was passed. Patient died from exhaustion, as he would not give his consent to an operation being performed, after an illness lasting 3½ years. At the post mortem examination, on opening the abdomen, no Caecum was found in the Iliac Fossa. This, with the Ascending, Transverse, and Descending Colons were all involved, together with a great portion of the Small Intestine, in an intussusception which filled the left side of the Pelvis and extended to the first part of the Rectum. The condition was so chronic that it was impossible to reduce the Intestines, the adhesions being so very firm; part of the invaginated pohtion had become but a fibrous coat. On following up the narrow lumen of the canal with scissors, the part corresponding to the Caecum was found to be occupied by a gangrenous ulcerated mass, the size of a small egg, which had no doubt given rise to the offensive stools.

It is astonishing to my mind that in this case nothing abnormal was found on palpation of the abdomen,

but it emphasizes more and more the value to be set upon Abdominal Section as a diagnostic measure.

The presence of Faecal masses in the Colon might possibly give rise to the idea of the existence of a carcinomatous growth. Sometimes they conceal its presence, and the case is thought to be one of faecal accumulation, when in reality a stricture exists. The differential diagnosis between these two conditions is therefore a matter of great importance. Faecal accumulations are most commonly met with in females who have passed middle life and particularly occur in hysterical persons and lunatics. They present many features of a similar nature to Carcinoma. They are most usually located in the Caecum and Segmoid Flexure, but may be found in any segment of the Large Intestine, which even may be completely filled up and blocked with hardened faeces. There is a history of long-continued and increasing constipation, relieved at times by enemata, but becoming more and more intractable. Patient suffers from abdominal discomfort, loses

his appetite for food, and becomes dull and depressed. The abdomen becomes generally distended. Peristaltic movements of the bowels can be readily seen through the parietes. Patient complains of a fullness or weight in the abdomen, which later on becomes painful, as the obstruction increases. At first the pain is intermittent, but as time goes on it becomes more abiding although subject at times to severe exacerbations. The vomiting as in Carcinoma is late in appearing, and seldom becomes stercoraceous, unless the obstruction is absolute and continues so for some time.

The diagnosis between the two conditions will be assisted by taking into consideration the history of the case. The most characteristic and distinctive feature, however, in Faecal Accumulations is found in the nature of the tumour itself. A faecal tumour is usually most definite in character when located at the Caecum. There it may form a hard, irregular swelling in the Right Iliac Fossa, and corresponding to the

outer half of Poupart's ligament. As a rule, it is quite painless on pressure, unless there is present a localised peritonitis over its surface. In the Ascending and Transverse Colons, the tumour is somewhat softer, pits on pressure and feels doughy to the touch. Its shape corresponds to the outline of the Large Intestine and consequently it will be more or less cylindrical. Faecal masses in the Transverse Colon may cause the bowel to bend down even as far as the Symphysis Pubis (Treves). In the lower parts of the Colon, as at the Sigmoid Flexure, the tumour is hard and can be felt to be divided into Scybala or Nodules.

The general features of a Faecal Tumour, therefore, are as follows:- It pits on pressure, is usually painless on manipulation, doughy to the touch and capable of being altered in shape by squeezing. In addition, the mass may press directly on important structures such as the Lumbar and Sacral Nerves, causing pains in the back and down the thighs or on the Iliac and Pelvic Veins, leading to dropsy.

Acute Obstruction may set in at any time, just as in Malignant Stricture. A Faecal Tumour may exist for weeks or months, while the motions continue normal or diarrhoea of a spurious nature may exist during that time. When Acute Obstruction has set in, it may be quite impossible to tell with certainty whether a stricture or faecal tumour only is present until abdominal section has been performed - to confirm or correct our diagnosis.

Certain benign growths or Neoplasms,

situated in the Colon may simulate malignant stricture by inducing chronic obstruction, e.g. papillomata and adenomata. They either form sessile tumours, which are most frequently met with in children and are often multiple or they increase in size, become pedunculated and thus form a projecting tumour or intestinal polypus. These tumours give rise to obstruction by inducing an intussusception, or gradually block up the lumen of the canal by their increase in bulk. The surface of the growth very readily ulcerates. When situated in the Segmoid Flexure, the symptoms consist of tenesmus, difficult defaecation, and patient complains of a feeling as if there were a foreign body in the bowel. The symptoms are, on the whole, more chronic in their nature than those pertaining to Carcinoma of the Colon, and for some considerable time are much less pronounced than in the latter affection. In my opinion, it is almost

an impossibility to distinguish between the two, without the aid of an exploratory abdominal incision, except in those cases where the polypi are situated in the Segmoid Flexure and becoming detached have been passed by the Anus.

Various Tumours external to the bowel, even displaced viscera, may so compress the Colon that complete obstruction is brought about. In several instances the symptoms produced were very like those of malignant stricture, consisting of paroxysmal attacks and gradually increasing constipation, finally ending in absolute obstruction. As a general rule, however, we have sufficient evidence from the history of the case of the existence of such a tumour likely to cause obstruction, and the nature of the case is quite clear from the first.

These tumours produce their effects by compressing the more fixed parts of the Colon against some hard, resisting substance like the bony walls of the

Pelvis. Consequently the more movable parts of the Colon, such as the Transverse Colon, are practically free from this pressure. The segments of the Large Intestine most likely to be affected in this way are the Segmoid Flexure and Caecum. In the majority of cases of this kind the tumours induce Acute Obstruction by suddenly compressing the bowel owing to some abrupt change in their position or a loop of bowel getting between a tumour and the abdominal or pelvic wall.

The tumours most originate within the pelvic cavity. Ovarian tumours frequently cause obstruction. Cancer of the Omentum may also produce it, so may a displaced spleen. Abdominal Section will clear up all doubtful cases. Care must also be taken to discriminate between the presence of an Enterolith or Intestinal Calculus and a Carcinomatous growth in the Large Intestine. Intestinal Calculi are most frequently found in the Colon and more especially at

the Caecum. Their principal constituents are the Phosphates of Lime and Magnesia. They may exist for a long time in the Sacculi of the Colon without giving rise to any symptoms whatever, and are generally found in young or middle-aged persons. Like Carcinoma they seldom give rise to Acute Obstruction. The symptoms are usually of a chronic nature, consisting chiefly of derangement of the digestive system, intermittent attacks of pain and constipation. Where a tumour, therefore, can be palpated through the abdominal-walls and located at any part of the Colon but more particularly at the Caecum, associated with gradual loss of flesh and strength and all the usual symptoms of a chronic obstruction, the idea of it being a malignant growth might very readily suggest itself. In the great majority of cases, however, the Calculus is spontaneously passed by the bowel, and in others a careful study of the previous history will enable us to come to a correct and accurate diagnosis.

In clearing up doubtful cases, the value of an exploratory abdominal incision cannot be too greatly insisted upon. A correct and accurate diagnosis is very often only to be made by performing it, for even the most skilful clinical observers may be baffled. The operation nowadays is an extremely simple, and at the same time, a safe one. The sooner it is performed to ascertain the seat of a carcinomatous stricture of the Colon the better, for the patient will then have a better chance of withstanding a more radical operation.

Treatment of Carcinoma of the Colon.

The treatment of this affection may be divided into two kinds: (1) Non-operative: (2) Operative.

Non-Operative Treatment:

In a large number of cases, the treatment at the best can only be palliative and symptomatic, owing to the fact that a radical operation is unjustifiable under existing circumstances or the patient absolutely refusing to give his consent. In cases that run a chronic course, and where the existence of a malignant stricture in the Colon is not definitely ascertained but only a matter of conjecture, one of the most important points to attend to, in my opinion, is the careful dieting of the patient. Sufficient care, I believe, is not taken in this respect by many a patient. The importance of attending strictly to his diet cannot be too strongly impressed upon him, for the slightest indiscretion as regards his food, may precipitate an attack of acute obstruction at any moment. The food that he daily par-

takes of should be such as is most easily digested, containing a maximnm quantity of nourishing material for the tissues of the body, and the least possible quant ity of waste products. He should avoid all solid and indigestible food stuffs, and partake strictly of those that are light and nutritious, and most likely to keep the faeces in a soft, semi-fluid state. The best articles of diet for this purpose are Milk, or Peptonised Milk, Eggs, Beef Tea, Chicken Tea, Light Soups with very little or no vegetables, Custards, Arrowroot. An admirable preparation, I think, is Valentine's meat juice or Wyeth's Perfected Beef Juice, both of which contain all the nutritive and albuminous principles of beef in a soluble and easily assimilable form. By rigidly adhering to this kind of regimen, the patient may experience very little discomfort. In the majority of cases of stricture, however, the patient has no desire for food of any description. His appetite is completely gone, owing partly to the paroxysms of pain and vomiting caused by the disease. Anorexia then becomes a very

marked symptom in the case. On that account feeding by the Rectum has often to be resorted to in order to sustain the patient's strength, as he is very unwilling to take any nourishment by the mouth, and so gradually starves himself. Feeding by the Rectum consists in the administration of nutrient enemata of peptonised milk, beef tea and brandy every two, three or four hours, according to the requirements of the case. Two ounces of milk with a tablespoonful of brandy or port wine and the yolk of one egg, to which is added a teaspoonful of the liquor Pancreaticus or a few drops of dilute hydrochloric acid and a small quantity of pepsine may be given by injection,- after being gently warmed.

A much more convenient way of feeding by the Rectum is, I believe, the introduction of zyminised meat and milk suppositories, as prepared by Burroughs, Welcome & Co. When using these, it is recommended that the Rectum be washed out once in every twenty-four hours with warm water. At the same time, thirst is very frequently complained of by the patient, and may be of a very distress-

ing nature. For this, small pieces of ice may be given him to suck in his mouth, or small quantities of tepid water taken, or an injection of four ounces of warm water only per rectum given every six hours.

Washing out the stomach may at times give considerable relief to the symptoms. In a case which I had under my care recently and whose symptoms resembled very much those of a malignant stricture, washing out the stomach gave very marked relief to the paroxysmal attacks of pain and the flatulent distension. I had the opportunity at the meeting of the British Medical Association held this year in Edinburgh, of hearing a paper read by Professor Kocher of Berne on "Ileus", in which he strongly advocated washing out the stomach for ameliorating the gastro-intestinal symptoms induced by stricture.

In every case of malignant stricture of the Colon, purgatives, in my opinion, should be avoided. They are to be condemned not only because they aggravate the symptoms by exciting pain and peristaltic movements, but by

their action they may induce sloughing and perforation or set up an attack of acute obstruction by blocking up the orifice of the narrowed lumen with a mass of hardened faeces.

In the early stages of the disease, large enemata may prove very beneficial and medicines of a laxative nature should be given regularly, with the view of rendering the faeces as soft as possible. For this purpose, I strongly recommend Cascara Sagrada in the form of Capsules or Tabloids, Sulphur, Castor Oil, Compound Liquorice Powder, or any of the natural mineral waters such as Hunyadi Janos, Vichy or Rubinat.

Very mild saline aperients may be administered the first thing in the morning with the same object in view.

For the relief of pain, which is such a prominent symptom, remedies of a sedative kind are required. Opium in some form or other is generally indicated - Tinct.Opii, Nepenthe Pil. Opii, or the subcutaneous

injection of Morphia, which is the best and most suitable. Belladonna, either given internally or painted over the surface of the abdomen as Liq. Emplast. Bellad. is very useful for allaying the spasmodic contractions of the Intestines. It may be given separately or combined with the opium. Opium ½-1 gr. with Extr. Bellad. 1/6-¼ gr. in pill may be given every 3 or 4 hours. The administration of opium plays a very important part in treatment, in not only mitigating pain and allaying spasm, but in promoting sleep. The one great drawback to its use is that it may so mask the symptoms that while the patient is apparently improving and the symptoms abating, he is really becoming much worse. More especially is this the case when complete obstruction has come on and consequently an operation is frequently too long delayed. The opium therefore should be administered in the smallest possible doses at the beginning, and should an operation be considered unjustifiable or

declined by the patient, or peritonitis set in, then it must be given in larger doses. When vomiting becomes severe and constant, it must not be swallowed, but subcutaneous injections of morphia and atrophine used as often as required. Great relief from pain and flatulent distension is often obtained by the application of flannels wrung out of very hot water to the abdomen, and covered with waterproof material to keep the warmth in or turpentine stupes may be applied in the same way and prove very efficacious. When haemorrhage occurs, it may be checked by the administration of Tincture of Hamameles or Rectified Spirits of Turpentine and Intestinal Antiseptics may be required to relieve the abdominal distension. One of the best of these in my experience is Salol in 10 gr.doses When Acute Obstruction arises and vomiting becomes persistent, all food given by the mouth must be stopped at once. We must trust to Rectal Alimentation for maintaining the patient's strength.

Operative Treatment:

I am strongly of the opinion that as soon as the existence of a malignant stricture of the Colon is diagnosed or even suspected, the sooner it is dealt with surgically, the better. When an operation is performed at an early period in the course of the disease, the better chance will there be of a complete cure being effected, because then the growth is most limited in extent, the Intestine is not so much damaged and the patient not so much reduced in strength. The indications for operation, however, in Chronic cases cannot be said to be definitely fixed, and it is only when the symptoms of complete and acute obstruction arise that an operation is usually decided upon. My belief is that the sooner a malignant stricture of the Colon is recognised and dealt with in a surgical manner, the more favourable will the surgeon's chance of success be. When the obstruction of the Colon becomes absolute, either suddenly and without any previous

warning or setting in after the Stricture has run a chronic course, the only hope of the patient recovering lies in an operation being performed at the earliest possible moment,- otherwise death must be the inevitable result. The operation should not be too long delayed, for the earlier it is performed, the more fitted is the patient to withstand it, much better in fact than when all drugs have been tried and failed to relieve the obstruction and the patient is rapidly sinking. Then the chances of the patient surviving the operation become remote or he sinks into such a weak and low condition that the operation becomes unjustifiable and has to be abandoned altogether. The question now arises which operation is the best one and most likely to prove successful. Various methods have been advocated by different leading surgeons. If the case is one where the situation of the Stricture can be definitely ascertained, but in the great majority of cases this is an utter impossibility; then Right or Left Lumbar or Right

or Left Inguinal Colotomy may be performed. In Colotomy we establish an Artificial Anus above the point of occlusion either in the Lumbar or Inguinal Regions. Of these two operations Lumbar or Amussat's operation seems to be the safer as it gives the best results, As a means of relief Colotomy is a very successful operation, and in country districts such as this, I am of opinion that it is the one to adopt in the first instance, as the operation is a very simple one and easily performed. The great drawback connected with it, however, is, it does not remove the original cause of the obstruction, namely the Cancerous Stricture, and so a permanent Artificial Anus is necessary. It may prolong life for a very considerable time, and when the obstruction is acute, it may ward off impending death by giving relief to the serious symptoms. In the majority of cases of malignant stricture of the Colon, the exact site of the disease cannot be definitely determined. When that is so, an exploratory ab-

dominal incision should be made in the middle line between the Umbilicus and Symphysis Pubis, large enough to admit the whole hand. A systematic examination of the Colon should always be carried out. The Caecum will generally be found greatly distended with liquid faeces and by tracing the Colon downwards, we will come upon the obstructing stricture. The abdominal incision should then be closed and Right or Left Lumbar or Inguinal Colotomy be performed, according to the requirements of the case and the situation of the cancerous growth. If this be located at the lower part of the Sigmoid Flexure, Left Lumbar or Inguinal Colotomy should be preferred, but if it be situated higher up in the Colon, at the Hepatic or Splenic Flexures, for instance, Right Lumbar or Inguinal Colotomy will be the operation of choice.

In his book on Colotomy at page 173, Dr. H. W. Allingham narrates a case, in which he performed a Transverse Colotomy for Malignant Stricture of the

Descending Colon, which completely blocked the lumen of the bowel. The patient was a woman, forty years of age. She lived for two months after the operation.

J. Bland-Sutton says: "In all patients that come under my care with intestinal obstruction supposed to depend upon Cancer of the Colon and in whom no tumour can be localised by physical signs, I prefer to explore the Intestines through an abdominal incision, and then perform a Right or Left Lumbar Colotomy as the case demands.

(Tumours Innocent & Malignant, Bland-Sutton, p.271).

After Colotomy is performed, it very frequently happens that the obstructing cause partially disappears and the faeces are allowed to pass into the more distant part of the bowel. This is partly brought about by the pressure being relieved, and the lumen of the stenosed part may become so patent that the Artificial Anus is allowed to close up.

The most perfect, and at the same time, the ideal

operation for Malignant Stricture of the Colon is Resection of the diseased part,- otherwise termed Colectomy. This operation involves complete excision of the growth, and the joining together of the divided ends of the bowel, in such a manner that the continuity of the intestinal canal is thoroughly restored. This union of the two ends must be so efficiently carried out that it is utterly impossible for the contents of the bowel to escape into the peritoneal cavity. The operation has been successfully performed, but, owing to the great difficulty and danger in carrying it out, it is attended by an exceedingly high mortality. Greig Smith puts this down at about 40%[I.] Thirty-three cases tabulated by Weir give a mortality of 51.5%[II.]

Kendal Franks collected fifty-one cases of Resection and these give a death-rate of 40.8%[III.]

Mayo Robson of Leeds operated in thirteen cases with a mortality of 23%[IV.]

Greig Smith performed the operation in six instances

with four recoveries[V.]

The danger to life is very much greater from the operation of Colectomy than from Colotomy. In the latter, the patient's life may be prolonged for a considerable time, but the malignant disease remains untouched. Colectomy is practically the only means of cure, and may involve the removal of several inches of the bowel.

I. Abdominal Surgery, Vol. II., page 593.

II. New York Medical Journal, Feb. 13, 1886.

III. British Medical Journal, March 2, 1889.

IV. British Medical Journal, Vol. II., page 965, 1895.

V. Abdominal Surgery, Vol. II., page 593.

When Colectomy has been decided upon, as being most suited to the case, that is when the tumour is small in size, free and non-adherent to the surrounding parts and the general condition of the patient good, there are three ways in which it may be performed, each of which have been successful:-

I. Resection is completed at one operation. Stricture

is first excised, the divided ends of the bowel are united by end to end or lateral anastomosis. The bowel so treated is returned into the abdominal cavity and the parietal incision closed.

II. The growth is excised, but the divided ends of the bowel are not united but brought outside and stitched to the edges of the skin incision and after a varying interval of time, the continuity of the canal is established later on.

III. The cancerous growth with the involved bowel is withdrawn outside through the abdominal incision and fixed there. An artificial Anus is then made and the growth subsequently resected, followed by closure of the artificial Anus.

The first operation has been performed successfully although it proved unsuccessful in my own case. There is not much difference between the second and third methods, but the interval that elapses between fixing the growth outside the abdomen and its subsequent removal makes these operations much safer than the first

one.

Reichel points out in his paper on Resection that the most satisfactory results are to be obtained by the formation of a temporary artificial Anus (Deutsche Zeitschrift für Chir, 1883, p.320). An example of a successful case where Resection was performed at one operation is the following:-

Case of Carcinoma of the Caecum and Ascending Colon. Colectomy. Recovery.

J. S. H., aged 40, admitted to the Infirmary on March 27th, suffering from loss of flesh and strength with profound Anaemia. Swelling in Right Iliac Fossa, which he had noticed for the past twelve months. Had suffered from constipation, but there had been no complete obstruction. Operation performed on May 2nd. Incision was made in Right Linea Semilunaris. Widespread adhesions were found. Tumour was excised, and a Murphy's button used to join the divided ends of the bowel. This button was not passed till the 44th day. The excised bowel measured six inches in length, and the tumour was

a Columnar-celled Epithelionia, involving the Caecum and Ascending Colon (Mayo Robson, Brit.Med. Journal, 1895, Vol.II., 964).

When Intestinal Obstruction is present, Resection should not be carried out at one operation, but divided into two stages. On this subject, Greig Smith states: "I have come to the conclusion that to resect living Intestine during obstruction is surgically unsound and doubt if any improvement in methods will ever make it justifiable, owing to the great shock and illness following Resection of bowel, however small, during obstruction". (Abdominal Surgery, page 634). The method he advocates is the third one mentioned above, viz.: fixation of the Cancerous growth outside the abdomen with drainage of the Intestine above the Stricture, and later on Resection of the Cancerous growth and closure of the artificial Anus. Patients suffering from an attack of obstruction are well known to be peculiarly intolerant of operation, especially when the cause is situated in the Large Intestine and a large quantity of faecal matter is retained

in the Large and Small Intestines, whereby ptomaines or faecal products are absorbed into the system and produce a form of blood poisoning. This toxaemia causes great depression of the nervous system. Our aim should be to relieve the obstruction first of all, by the smallest possible operation; and then when the patient has recovered strength, to resect the growth later on.

Prof. Macewen, Glasgow, is in the habit of adopting the operation in two stages, but finds it not always applicable in the more chronic cases. (Brit.Med. Journ.,1895, Vol.II., p.965). When the malignant disease is situated low down in the Ascending Colon, or at the Caecum, and it is impossible to perform a Colotomy, Enterotomy should be carried out in the first instance, as in the following case, reported by Dr. McEwan of Dundee.

Case of Carcinoma of the Hepatic Flexure of Colon. Enterotomy. Colectomy. Recovery.

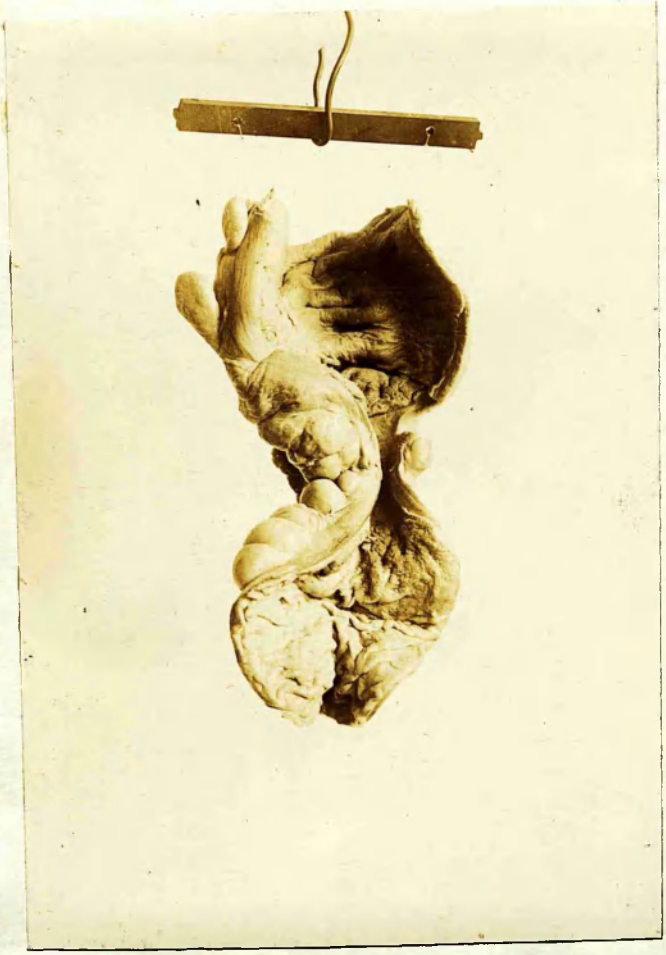
The patient, a woman aged 50, first came under notice with an attack of Acute Obstruction. She had been suffering for sixteen months previously from symptoms denoting chronic stenosis of the Large Intestine. The abdominal cavity was opened and signs of obstruction were found at the Hepatic Flexure. Owing to the exhausted condition of the patient, it was decided to form an artificial Anus, and with this view, a loop of the Ileum was fixed in the lower angle of the wound. During the night after the operation, the obstruction was relieved and the symptoms passed off, so the protruding piece of bowel was returned into the abdomen and the wound closed. In a fortnight, the usual attacks recurred and the abdomen was therefore re-opened, a portion of the hepatic flexure was excised and the ends of the bowels brought together by means of a Murphy's button. The wound closed in three weeks, and the patient made a complete recovery. (Scottish Med. and Surg. Journ., 1896, page 1126).

In those cases where Resection is impossible, owing to the extent of the disease or to secondary formation in other organs, then either a Colotomy may be performed, which is a very safe and successful operation, or the Ileum may be joined to the part of the Colon below the site of the malignant stricture (Ileo-Colostomy). Dr. Charles A. Morton performed this operation in a case of Malignant Stricture situated at the junction of the Caecum and Ascending Colon, bending down the bowel inseparably to the Iliac Fossa. The Caecum was stitched to the abdominal wall and opened. Three months afterwards intestinal anastomosis between the Small Intestine and the Sigmoid Flexure was successfully accomplished by means of Murphy's button. The patient lived for three months and then died from gradual exhaustion due to the increased growth of the tumour. (Brit. Med. Journ., Vol. I., page 859).

Mayer of New York published a very successful case where he joined the Ascending to the Transverse Colon

for Cancer at the Hepatic Flexure (New York Med. Rec., 1888), in other words, he performed a Colo-Colostomy. Should the patient decline to undergo an operation, or should the operation from some cause or other be deemed unjustifiable, the measures noted under non-operative treatment must be pushed to their full extent, in order to render the patient's condition as comfortable as possible.

Plate I

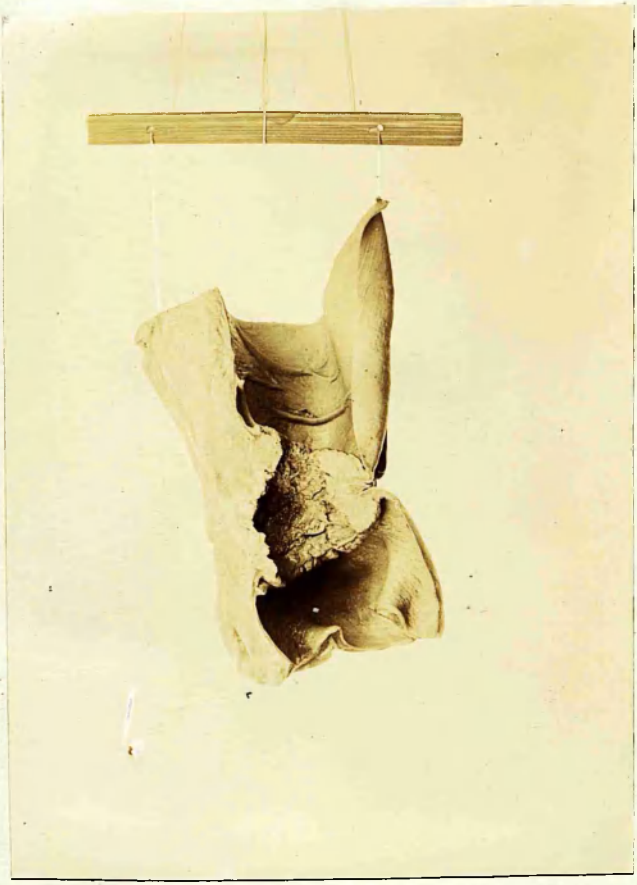


Colloid Carcinoma of Sigmoid Flexure — causing stricture of the bowel in a child 12 years of age.

Plate II

Columnar-celled Carcinoma of Transverse Colon causing extreme stenosis of the bowel. A piece of whalebone shows the narrowed channel

Plate III

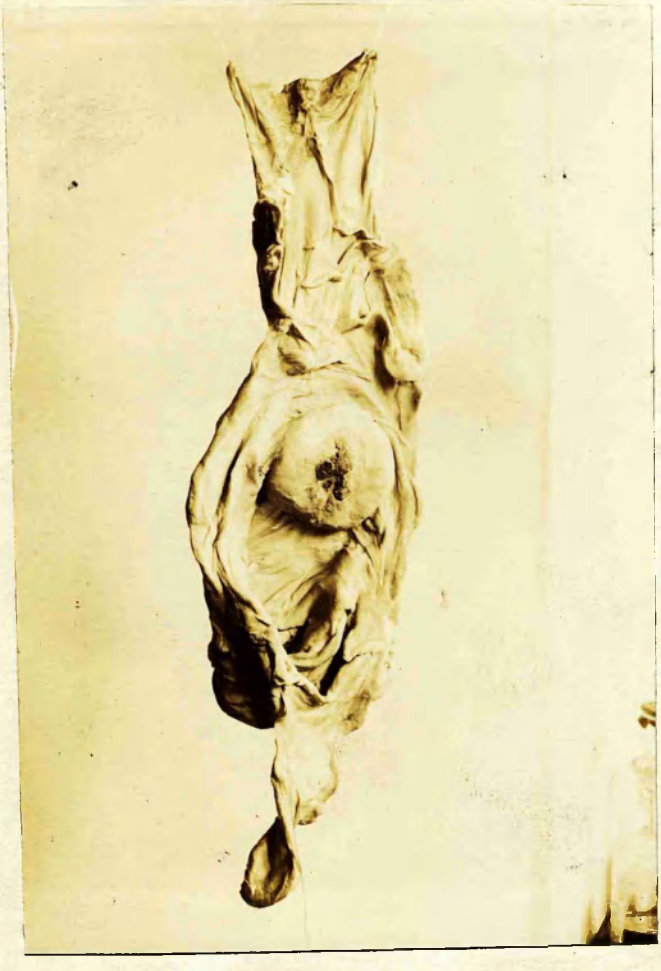


Carcinoma of the Colon producing ulceration and Stricture

Plate IV

Example of Stricture of Small Intestine
the result of a strangulated hernia

Plate V



Round-celled Sarcoma of Large Intestine
- Tumour caused no symptoms during life.
- Extremely rare -