A

CLINICAL STUDY

OF

MEDIASTINAL TUMOURS

By

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Mediastinal tumours, aneurysms of the thoracic aorta, and abscesses of the mediastinum, in their early stages, have so many points of similarity, that a positive diagnosis is not easily arrived at. Their clinical features are so much dependent upon pressure symptoms that one is not surprised that a tumour is often mistaken for an aneurysm and an aneurysm for a tumour.

Not only is it the case in the initial stages of the disease, but it not infrequently happens that, throughout the whole duration of the illness, the physician is unable to decide what pathological condition he has to deal with, and it is only after death that the real cause of the illness is revealed.

In a series of cases of mediastinal tumour which came under my observation, in a space of time covering some ten years, two were women and three were men; their ages ranged from 38 to 56 years, and in none of the cases was there any history of syphilis.

Whilst the universal history of these cases is one of progressive extension, it is of the utmost importance that an early diagnosis should be arrived at, more especially when we consider that, should the case be really one of aneurysm, early treatment might have at least a palliative effect.

Typical cases of mediastinal tumour and aneurysm, however, present such well marked features, that there is little difficulty in arriving at a true diagnosis.

In the case of a mediastinal new growth, there is considerable difficulty experienced in determining its origin; for these tumours, though clinically inseparable, may originate in various tissues. It is commonly supposed that they have their origin in the bronchial and other lymph glands; and this in all probability is correct in cases where there is a general lymphosarcoma or Hodgkin's disease; or where a primary growth is situated in some other organ of the body, as in a case which I shall describe. Still, the pathologist sometimes finds that the glands have been only partially attacked, some of them being embedded in the mass whilst others have been infiltrated with the new growth. The thymus gland, the mediastinal connective tissue and fat, or the periosteum of the sternum or vertebrae have in such cases been regarded as the starting point.

The clinical effects of these tumours are dependent upon

the relations which the tumours bear to the various structures contained in the thoracic cavity, more especially the trachea and bronchi, and the great systemic veins; and it is mainly to this fact that we trace the clinical similarity between aneurysm of the aorta and intrathoracic new growths. The aorta almost invariably escapes, but the subclavian or innominate artery may be pressed upon, with the result that the corresponding radial pulse is weaker and smaller on the one side than on the other. So also, pressure upon the sympathetic trunk on one side at the root of the neck causes contraction of the pupil on that side. Both of these symptoms are far more commonly met with in cases of aneurysm, and are regarded as classical symptoms of the latter disease.

Histologically, these tumours have the characters of sarcomas, are commonly spoken of as lymphosarcomas, although, in some cases, they have been described as true carcinomata, and again as syphilitic gummata. They grow to enormous sizes, incorporating, and infiltrating the neighbouring structures. They extend to the bronchi, grow through their walls, and fungate along the interior. So also in the vena cava, obstruction to the flow of blood is produced by the pressure of the new growth upon the walls of the vessel; so that the lumen of the vein may be reduced to a mere slit. The wall of the vessel itself may be

infiltrated, and the new growth extend along its interior, and completely obliterate the blood vessel. Coats relates a case in which the pericardium and the wall of the heart itself were infiltrated, so that the tumour presented itself inside the right auricle. Such growths, besides infiltrating tissues like these, will often grow into the lungs, growing within the loose connective tissue surrounding the bronchi and vessels. The growth, in extent, becomes enormous, and in many instances occupies the whole of the lung area, usually the left; actually in some cases causing bulging of the spaces between the ribs.

The result of such pressure is obvious. When the superior vena cava alone is obstructed, a collateral channel for the passage of the blood may be afforded by the azygos vein which becomes dilated, but when both innominate veins are blocked, the intrathoracic vessels are unable to carry on the circulation thoroughly, and as a consequence the circulation depends upon the anastomoses between the superficial veins of the chest with those of the lower part of the trunk. The upper part of the body assumes a deep purple or claret colour as the result, and becomes covered with dilated tortuous veins. The tortuosity is, no doubt, due to the presence of valves in the veins, and to the current of blood flowing in the reverse direction.

In a typical case of mediastinal tumour, which came under

my own observation, a magnificent picture of pressure symptoms was presented in the later stages of the disease.

W. N., aged 50, was all his life an exceptionally powerful, well built man, standing six feet in his stockings, and weighing about fifteen stones. He had never suffered from any but the ordinary children's ailments; but for many years was a heavy beer drinker. In November 1902, he began to suffer from exhaustion and dyspnoea. Vomiting became an almost daily feature, and the lower limbs grew thinner and weaker. He complained of pains of a rheumatic nature in both shoulders and arms. His face was suffused, and his breathing slightly laboured and heavy.

On examination, the heart was found to be quite normal in size; the apex beat was in the fifth intercostal space, and the pulse was 80 per minute. Temperature was normal, and respirations 20 per minute. The liver and abdominal organs were normal and there was no ascites.

The percussion note on the right side was clear all over the lung, whereas that over the left scapular region, and in part over the left subclavicular region, was markedly dull. This dull area extended towards the midsternal line, but did not encroach upon the praecordial dulness. On auscultation, the respiratory murmur was good both before and behind on the right side; some moist rales were heard at the base however. On the

left side the respiratory murmur was slightly tubular in quality in the scapular region, and was less distinguishable near the base than it was on the right side. A slight cough was present, but was unaccompanied by any spit or haemoptysis. Several enlarged glands could be seen in the left supra clavicular region. There was no prominence of the sternum, or bulging of the chest wall, and on palpation, no impulse to the hand could be detected. There was no difficulty in swallowing. The urine was slightly acid, pale, and had no trace of sugar or albumen; its spg. was 1,024. The radial pulses were equal, so far as the finger tips could judge. The pupils were equal and responded well to light and in accommodation. The patient had cataract in one eye, but was able to read and write quite well with the other, and his voice was unaffected in any way. There was loss of appetite and sleeplessness, and as the days went on, the symptoms became more marked.

In January, 1903, orthopnoea became more noticeable, and the head, neck, and arms seemed swollen. The percussion dulness had gradually enlarged in area, so that the base and scapular area on the left side were absolutely dull. Only a very faint vesicular murmur was audible in front, and the percussion area of dulness had markedly spread, especially from the infra clavicular region over towards the sternum. By the middle of Febru-

ary the left side was absolutely dull. This dulness was of a most decided type, and extended across the middle line. There was no respiratory murmur. No movement could be detected upon inspection or palpation, and there was a complete absence of vocal resonance and vocal fremitus. The patient's appearance by this time was very striking. The head, neck, arms, and upper chest were all very markedly enlarged and oedematous. His expression was apathetic and cyanotic. His conjunctivae were injected, and he was unable to read. The veins of the neck and head stood out, and were much enlarged. The arms were very oedematous, and the patient complained of their great weight and his inability to bend them. The supra clavicular glands had enlarged considerably, and breathing was laboured and noisy. Orthopnoea was now a very marked feature, and only small snatches of sleep could be got. The head would fall forward in sleep, and in a few moments the patient would wake up choking and gasping for breath. The radial pulses were still equal, and the heart sounds normal. Vomiting had now ceased, but there was occasionally a difficulty in swallowing. The emaciated and weakened lower limbs formed a striking contrast to the upper part of the body. Delirium now began to manifest itself, and optical illusions were an accompaniment. In his sensible moments he said the paper on the wall at the foot of his bed

seemed to come falling unevenly towards him.

His whole appearance was a pitiable one of suffocation, and he died struggling for breath, after having several times practically undergone the same struggle.

Well marked cases like the above, when compared with equally typical cases of aortic aneurysm, show points of similarity; but there are often such striking dissimilar characteristics, that a mistaken diagnosis is well nigh impossible.

At present, I have under my care a patient, J. McF., male, 46 years, a joiner, In 1888, he suffered for eleven weeks from pneumonia. With this exception, he has always enjoyed good health. Four years ago, in 1900, he "racked" himself whilst helping to lift a heavy skylight, and complained of pain over the right nipple. He resumed work after four weeks, and was in his ordinary health for about a year when the pain returned. The pain was paroxysmal in character, extended from the right nipple across to the left, and, whilst present, compelled the patient to relinquish his work for the time being. He became very languid and, as time went on, became more and more easily tired.

During the last two years excessive perspiration has been a very marked feature, but at the present moment that symptom has disappeared. The perspiration, although general throughout

the body, was much more copious upon the right side of the head than upon the left; and it is of interest to note that cases of sweating on the same side as the contracted pupil have been reported by Gairdner in 1856, and also by Bramwell in 1878.

About 18 months ago, whilst working in the rain, he had a rigor. Several days afterwards he felt very short of breath, and the pain over the right nipple was very constant. He had a fit of haemoptysis, and vomited about half a cupful of blood.

On three different occasions since then, he has had a return of haemoptysis. About this same time, he became aware that his voice occasionally left him, and breathlessness, even whilst walking on the flat, became more and more marked.

About 14 months ago, he began to experience sharp pains along both arms, and this feature is now of daily occurrence. Dysphagia has been a well marked symptom for over 12 months, even water being with difficulty swallowed. At present, he is unable to finish almost any meal without requiring to stop until the attack of dysphagia passes off.

He is easily disturbed in temper, and easily excited. He has gained three stones during the last 18 months; his present weight is 14 stones 5 lbs.

He is pale and puffy in appearance, talks slowly, and often stops for breath. He feels as if something came up and

choked him. His voice shows little or no sign of the laryngeal quality, but leaves him altogether occasionally. The right pulse is weaker than the left, and both are easily compressible. The pulse rate is 112 per minute. There is no bulging of the sternum or ribs, but the epigastrium and the lower half of the sternum are tender to the touch. Pressure upon the upper half of the sternum produces a sensation of suffocation, and it is impossible to introduce the finger between the trachea and the sternum. The right pupil is smaller than the left, but both pupils react to light and in accommodation. During the last two years his legs, from below the knees, and his feet have felt very cold. Pains, of a sharp severe nature, in the region of the heart, darting through to the back, are of daily occurrence. The apex beat is in the fifth intercostal space, and there is no enlargement of cardiac dulness; but an area of absolute dulness is detected in the pre-sternal region, extending the whole length of the sternum. The right border of this dull area is situated about 2¼ inches to the right of the midsternal line, and in breadth this area measures about 4 inches. There is no murmur, but the second sound is accentuated and reduplicated, the reduplication being heard most distinctly along the sternum.

In this case, the history of severe strain in the midst of a laborious occupation; the laryngeal symptoms; the unequal

pupils and radial pulses; the absence of oedema, and engorged blood vessels; the absence of enlarged cervical glands; the comparatively small size of the tumour; its position and the absence of any sign throughout the illness of further extension into the lung; the absence of pleural effusion; all offer striking contrast to the former case, and lead, undoubtedly, to a diagnosis of aneurysm of the arch of the aorta.

Many cases of mediastinal tumour, in their early stages, are almost indistinguishable from phthisis pulmonalis, continued fever and night sweats being common symptoms; and occasionally, cases are to be met with where phthisis pulmonalis and mediastinal cancer exist in the same lung.

Pleurisy with effusion and chronic pleurisy with great thickening of the walls, so resemble mediastinal growths, that it is, in some cases, hopeless during life, or at any rate until the final stages in the development of the intrathoracic cancer have been reached, to distinguish between them, and one has only to consider that there may be an abundant effusion into the pleura as an accompaniment of mediastinal growth, or, on the other hand, a case of pleurisy may be complicated by the presence of old adhesions or tubercular deposits in the lung, to understand the difficulties of diagnosis.

In every case that presents itself, the history of the

case must be carefully gone into, and the order of succession of the various symptoms considered, the physical signs noted and, by the principle of exclusion, we may often arrive at a diagnosis. Every case presents peculiarities of its own, and even physical examination will not, in every case, reveal to us the existence of a solid mass or the presence of fluid in the pleural cavity, or whether the lungs are implicated or not.

The presence of fluid, as detected by paracentesis, does not necessarily mean the absence of a tumour; nor does the fact that change of posture does not affect the area of dulness, denote the presence of a tumour. The presence of altered blood in the liquid, producing a dark brown tint, should arouse one's suspicion that there is a more serious condition existing than pleurisy with effusion.

One of the most striking features of intrathoracic growths is the absolute dulness elicited by percussion. The stony dulness is far more intense and resisting than that of fluid or pleural effusion, or any other abnormality within the chest.

The average duration of illness in mediastinal tumours is considered to be about six months. Chronologically, we may take it, that the first symptom in the majority of cases is some bronchial irritation.

Cough is usually one of the most frequent, and one of the

earliest symptoms mentioned by the patients themselves. This cough may, or may not, be attended by expectoration, either mucous or streaked with blood. Some writers attach considerable importance to any evidence of red currant jelly-like sputum, which they look upon as a powerful aid in the diagnosis of mediastinal tumour.

Dyspnoea is the next symptom, and was a marked feature in all my cases; but, the strange thing is, that in one of them the patient was working as a labourer until about three weeks before his death.

The position and shape of the tumour, of course, determine the rapidity of onset of the local subjective symptoms; but, on the other hand, the rapidity of growth of the tumour plays a very large part in the speedy or tardy onset of the various symptoms, more especially pain and dyspnoea.

One must not forget that, even at a very early period, the small tumour may so constrict the lumen of a bronchus or blood vessel as to produce distressing symptoms of pressure; whilst, on the other hand, a tumour may assume very considerable proportions at the base of the lung, or in the mediastinum, and yet not exert sufficient pressure upon the bronchi as to prevent the free access of air into the lungs.

The shape of the thorax may vary, and a local or general

bulging of one side may be met with as frequently as flattening or retraction.

The presence of pus in the sputum may lead to very serious doubt as to the real nature of the case under observation.

Both in aneurysm of the aorta and intrathoracic growths, gangrene of a portion of the lung may occur from pressure upon a main bronchus or upon the sympathetic plexus at the root of the lung, with the result that purulent expectoration at times in considerable quantity occurs, and the case may easily be mistaken for one of mediastinal abscess.

In a case which came under my notice, the patient had all the well marked features of a case of mediastinal abscess; yet, the postmortem examination revealed the fact that an aneurysm of the aorta was responsible for the symptoms.

The patient, J. S., when first seen, complained of shortness of breath. He had been a very heavy drinker, but there was no history of syphilis. For about three months, he had suffered from slight pain about the right shoulder. The dyspnoea had come on gradually, and was especially noticeable upon exertion. The sputum was streaked with blood, and the cough had a peculiar sound. He had for about five weeks, experienced difficulty in swallowing solid food. He was a powerful man. His lips and nails were livid, and there was no enlargement of

lympyatic glands, and no oedema of the legs. His left radial pulse was weaker than the right, and its rate was 68 per minute.

There was marked retraction of the lower intercostal and the supra clavicular spaces on inspiration. The right pupil was larger than the left, but both reacted normally.

On percussion, an area of dulness was detected over the manubrium sterni, extending upwards on either side under the clavicle. The heart sounds were normal, and the area of cardiac dulness was of normal size, and did not encroach upon that just mentioned. There was no praecordial impulse. The left vocal cord was paralysed, and the cough consequently had the laryngeal quality, but the paralysis did not produce aphonia. There was no oedema or distension of the veins of the neck. The trachea was deflected to the right side. The finger could not be introduced between the trachea and the sternum, and there was no impulse in the episternal notch.

Dysphagia was not a marked feature, but orthopnoea was a constant symptom; and at times there were very severe attacks of dyspnoea, accompanied by a considerable elevation of temperature, and a very copious expectoration of pus and mucus, often measuring as much as nine ounces in the 24 hours.

During these attacks, the respiratory murmur in the inter-

scapular spaces and at the base of both lungs was markedly feeble. As time went on, the area of abnormal dulness seemed to decrease considerably, and there was still no evidence of any enlarged glands.

About two months after the first examination, a slight bulging was noticeable on the left side below the clavicle, just over the second costal cartilage. There was no impulse over the manubrium sterni to be felt, but there was a suspicion of tracheal tugging.

There was a slight thump to the stethoscope and the second sound was accentuated. There was no trace of oedema of the face, neck, or arm on either side; but the percussion note over the left apical region was dull and continuous with the dulness over the manubrium. About this same time, the respiratory murmur on both sides in front wss almost absent, though behind no dulness was to be found, and the respiratory murmur was equal on both sides.

The pulses were still equal to the touch. Orthopnoea continued to be a well marked feature, and the patient suffered from severe dyspnoea and had restless nights. The sputum was highly purulent, and had a bad smell.

During expiration, there was a slightly perceptible impulse conveyed to the hand on palpation, over the sternum.

The amount of pure pus expectorated in this case was very striking, and large quantities were expectorated daily, as though it were from an abscess. The temperature usually rose to 100° or 101° at night, and fell to 99° in the morning.

A V.S. murmur began to appear. The patient's general condition improved somewhat, and he was able to be up and walk about a little. It was noticed that the dulness over the manubrium was considerably smaller, and that the respiratory murmur over both lungs was fairly full behind, and highly tubular from the interscapular spaces upwards; but in front the respiratory murmur was feeble all over, more so on the left than the right side.

At this period, about four months after the first examination, the patient suddenly died, and on a postmortem examination being held, it was found that instead of evidence of an abscess of the mediastinum, a large thick walled aneurysm occupied the commencement of the aortic arch.

This case affords, in a striking way, an example of how gangrene of the lung may closely simulate abscess of the mediastinum. The more characteristic symptoms of abscess may be said to be pyrexia, a feeling of constriction and pressure with a dull boring pain, which radiates from a point behind the sternum, or between the shoulders, palpitation, nausea, laryn-

geal cough of a paroxysmal type, cyanosis of face, headache, vertigo, together with those symptoms common to the other thoracic abnormalities already spoken of, such as obstruction to the venous return, pain, difficulty in swallowing, dulness on percussion, bulging of the intercostal spaces, loss of respiratory sounds, etc.

The history of the case plays a most important part in guiding us to a correct diagnosis of mediastinal abscess. There may be a distinct history of injury to the sternum or caries of the spine; or there may be injury to the oesophagus from the impaction or perforation of foreign bodies; and again there may be a syphilitic node behind the sternum. Pyaemia, enteric fever, tracheotomy, extension from pneumonia, gangrene of the lung, and glandular suppuration, as an accompaniment of tubercular disease, have all been regarded as causes of mediastinal abscess, and cases have been reported as occurring after whooping cough. The pyrexia assumes the hectic type, and is accompanied by rigors and sweatings.

On inspection, some fulness over the superior sternal region may be noticed, and there may be a red blush over the surface and slight oedema. Aneurysm of the aorta may be closely resembled, by the impulse which the aorta communicates, in cases of large abscesses behind the sternum.

The pain experienced in both abscesses and tumours is so variable in different cases, that great reliance cannot be put upon it as a diagnostic aid. Whilst the pain in the chest, in cases of mediastinal tumours, is often of the darting occasional character peculiar to growths, more frequently it is a sense of uneasiness rather than actual suffering, except where the pleura is involved.

The pressure symptoms of growths are more persistent and less variable than those of aneurysm, and are insidious in their occurrence. Dyspnoea, coming on gradually, is much less fluctuating, as a rule, than that in aneurysm. Again, dysphagia is, when present, a more abiding symptom in growths.

Pressure upon veins is more common in growths and a more marked symptom than in aneurysm or abscess.

In all cases of mediastinal tumour, though the disease is rarely symmetrical, the middle line is encroached upon.

The impulse, which is in some cases communicated from the aorta, is, when felt over the dull area, of the knocking character, quite different from the typical expanding nature of aneurysm.

This expansion is so typical of aneurysm, that its detection sets at rest all doubt as to the diagnosis of the disease.

Vocal resonance and fremitus are both increased over the

area of dulness, and the respiratory sounds are more or less bronchial. A systolic murmur is occasionally heard over some part of the dull area, but it lacks the rough expansive quality of the aneurysmal murmur.

The sedond sound, in the case of aneurysm, is very commonly reduplicated, and has a characteristic click due to the immense pressure of blood in the aneurysmal sac.

In those very obscure cases where, without any signs of effusion into the pleural cavity, the respiratory murmur is enfeebled or quite absent; it is safe to infer that there exists a small deep seated mediastinal growth which is obstructing the entrance of air upon that side.

Impaired mobility of one side of the chest is a prominent symptom of tumour, and in cases where the whole lung has become involved, it becomes almost impossible to distinguish between mediastinal tumour and extensive pleurisy with effusion. The heart in both cases is displaced, vocal fremitus and resonance, and breath sounds are all absent on account of the occlusion of the bronchi. In such cases, if the introduction of a fine trocar fails to produce fluid, and is felt to penetrate and remain fixed in soiid tissue, all doubt as to the existence of a tumour is at an end. Unfortunately, however, this is not always possible; and, as already said, we have often a combination of

mediastinal tumour and pleuritic effusion.

The lung condition, in mediastinal growths, presents several well marked varieties. The lung may be completely collapsed and greatly diminished in volume by pleuritic effusion, presenting the condition which is ordinarily met with in simple pleurisy with effusion; or we may find the lung so compressed by the tumour, as to be lying over its surface an airless condensed mass.

It may, after death, be found to contain numerous abscesses, the result of compression of the main bronchus with subsequent consolidation and disintegration.

Again, the volume may be markedly increased, as happened in most of my cases. There is marked enlargement of the affected side with, it may be, increased vocal fremitus, tubular breathing etc., according to the condition of the main bronchus.

In July 1895, I was called to see Mrs. C., aged 45, the mother of two children. She had always enjoyed good health, but had, during the past two or three months, had a persistent cough with a slight mucous expectoration. She looked pale and wearied, and complained of great pain in both shoulders and arms. The pain was very severe at times, and was almost always present.

It resembled rheumatism very closely, and this diagnosis

was apparently borne out by the presence of what appeared to be rheumatic nodules scattered here and there, upon the arms and legs.

Upon further inquiry, however, I found that the patient experienced some slight difficulty in swallowing, and it was noticeable that her breathing was slightly forced and heaving.

The pupils were equal in size, and responded well to light and in accommodation.

The radial pulses were equal to the touch, but irregular. Her appetite was poor, and she suffered occasionally from vomiting.

On percussion, the left antero-superior region of the chest was markedly dull, and posteriorly the dulness, though not so great, covered an area including the apex and scapular region.

There was no dulness on the right side, and the respiratory murmur, although feeble, could be heard all over this side. At the right base there were some mucous rales. On the left side, the respiratory murmur could scarcely be heard, and in character was distant, faint, and bronchial.

The heart was normal in size, and the heart sounds, though irregular in rhythm, were unaccompanied by any murmur.

The temperature usually rose at night to 100 and on sev-

eral occasions reached 101, and in the morning was about 98.4 or 99. There was no haemoptysis or purulent expectoration, and microscopic examination of the sputum did not reveal the presence of tubercle bacilli.

The abdominal organs were normal in size and function, and there was not the least indication of disease in any other part of the body.

She continued to be under my care until her death, which took place in September 1895, two months after I had first seen her.

The dull area on the left posterior region of the thorax gradually increased in size. There was an entire absence of all respiratory sounds, and a marked diminution in the movement on that side. The dyspnoea increased, and was at times exceedingly distressing. The patient was quite unable to lie down, and complained constantly of the pains in her shoulders and arms. Throughout the illness there was never any enlargement of the veins in the neck, head or chest, but, on the left side, two enlarged glands were seen situated near the insertion of the sterno-mastoid muscle.

A single dose of six grains of sulphate of quinine, given about three weeks before her death, produced complete amaurosis.

Shortly before her death, the left side was absolutely

dull on percussion, and perfectly motionless. The heart's action continued throughout to be fairly powerful, but irregular.

She died on 24th September 1895, after a prolonged struggle for breath.

The above case and the one I have already described, W. N's., form two striking exceptions to the general run of mediastinal tumours, in that vomiting was a very marked feature.

There was no evidence of disease in any of the digestive organs in either case, and the assumption is that there was, in both cases, pressure by the tumour upon the cardiac plexus.

Cases have been recorded where a mediastinal tumour, whose existence was verified by post mortem examination, appeared in the chest wall even at the second intercostal space, a most common position in cases of aneurysmal tumour, and not only did this tumour appear there, but it was found to pulsate, and a systolic murmur was heard over it as well as at the base of the heart. Not only have such classical symptoms of aortic aneurysm been recorded in cases of mediastinal tumour, but cases have also occurred in which there was absorption of bone, both in the sternum and the spinal column, though not to such a marked degree as in aneurysm.

The temperature in cases of mediastinal tumour is, as a rule, low; but in cases of rapid cell growth, as in the case of

Mrs. C., a temperature running up to 101° and 102° is not infrequently met with.

In two other cases of mediastinal tumour, which came under my notice, both were males, the one 52 and the other 56 years of age, and both complained of failing health for about a year before the next symptoms of importance, cough and breathlessness, set in.

In the case of one of them, J. H., the spit was purulent in character. On one occasion he suddenly brought up pus in large quantities, due, no doubt, to the occlusion of a main bronchus, and resulting degeneration of the lung tissue. The radial pulses were equal in both cases, and the pupils equal and normal in reaction.

There was no oedema of the lower limbs, but there was enlargement of the veins of the neck in both instances.

The chest, in both cases, showed less movement of the left side as compared with the right, and in the case of J. H. there was marked retraction of the intercostal spaces, especially the second and third on the left side. In his case also, there was visible and tangible cardiac impulse in the fourth and fifth right interspaces near the sternum as well as in the epigastrium

There was no visible cardiac impulse at the fifth left interspace, though it could be slightly felt by the fingers at

that spot.

On percussion, the whole of the left side was dull, this dulness extending across the middle line for two inches at the manubrium sterni, and for three inches at the fifth interspace.

Rales were heard over both lungs, and the respiratory murmur over the left apex was tubular in quality. Over the rest of the left side the respiratory murmur was weaker than in the right, and was somewhat tubular. On the right side there was some dulness at the ~~right~~ apex, behind; but no marked tubular breathing.

In both cases there was bulging of the praecordium as well as of the manubrium; but in this case there was very little impulse in the praecordium, as compared with that in the epigastrium.

On auscultation, slight praecordial friction was heard over the third left intercostal space, and a well marked V.S. murmur heard over a considerable area, most distinct over the fifth and sixth left costal cartilages, about an inch from the sternum. There was no "clunking" of the aortic second sound, and no accentuation. The upper border of hepatic dulness was on the fifth space in the nipple line, in which line it measured 6½ inches. The lower border stretched across the abdomen just above the umbilicus.

In the other case, J. D., there was also depression of the liver. This case differed in several points from the other, however, when first seen; for instance, the cardiac sounds were pure and the area of cardiac dulness normal. His temperature was higher, rising to 101, and on rare occasions to 102, falling in the morning to normal. The respiratory murmur, as in the other case, was deficient on the left as compared with the opposite side.

About a fortnight after being first seen, a pericardial friction sound of a creaking quality, could be heard about the middle of the sternum, and there was occasionally irregularity of rhythm.

The respiratory murmur in this case gradually became less distinct on the left side, assuming a tubular quality in front as far down as the cardiac dulness.

As the disease advanced, the respiratory murmur, as in the other cases I have described, greatly diminished over the left side; the dulness increased in the left lateral region and at the extreme left base, whilst the respiratory murmur was hollow in character at the left apex behind. The pupils remained equal, and there was no swelling of either arm, or marked congestion of the veins on either side.

A postmortem examination held upon both cases, revealed a

large lymphosarcoma in each case, extending through the lung with, in the case of J. H., a considerable amount of effusion.

In another case, Mrs. M., I was unable to follow the events to their natural termination, as the patient left the district in which I was residing at the time. This case was the only one of the series which was undoubtedly a secondary infection. The patient was 49 years of age, married, had four children, and had always enjoyed good health. She was fairly well nourished, but suffered from ulceration of the os uteri, which was found to be of a malignant type. She complained, when I first saw her, of dyspnoea and pain in the right shoulder, and was troubled with an irritating cough and spit, which was mucous in character. She had a florid complexion, and her lips and nails were livid. There was no oedema of the lower limbs. The tongue was coated, her appetite poor, and two small glandular enlargements were visible above the right clavicle.

On examination, I found an area of absolute dulness in the upper sternal region extending slightly beyond the right sternal border.

The respiratory murmur all over the left side, in front and behind, was very deficient as compared with the right. The area of cardiac dulness was normal, and the heart sounds pure.

The pupils were equal in size, and responded to light and

in accommodation.

The radial pulses seemed equal to the touch.

About three weeks after I first saw her, I found, upon examination, that the area of dulness over the sternum had extended towards the subclavicular region on the left side; there was marked dulness over the left scapular region and marked tubular breathing. The glands in the supraclavicular region had increased somewhat in size; the breathlessness was more marked, and during coughing the venous engorgement in the subclavian and other veins was a notable feature. The cough became more troublesome, and the sputum, which was blood streaked occasionally, was muco-purulent.

In assuming that this was a case of intrathoracic cancer, and not one of aneurysm, we have evidence of the existence of a cancerous lesion in the uterus; we have the enlargement of the supra-clavicular glands which, in my opinion, is highly indicative of mediastinal tumour of the malignant type, and we have an area of absolute dulness of the most resisting nature, and one which is rapidly spreading.

These features, when taken into account with such negative signs as absence of laryngeal stridor and loss of voice, absence of inequality of radial pulses and of unequal pupils, absence of marked intermittent pain, no expanding impulse communicated

to the hand, or any sign of bulging, would lead one to exclude the question of aneurysm or intrathoracic abscess, and stamp the case as one of mediastinal tumour.

In conclusion, it may be said, that in a given case where the physical signs indicate the presence of a mass within the thorax, which is neither tubercular nor pneumonic, and distinct from, though often complicated by, pleuritic effusion, the diagnosis lies between mediastinal growth and aneurysm.

If the patient be a man, and one who has had to earn his bread by heavy, hard work; if he suffers severe pain, but without an elevation of temperature, the chances are, everything being considered, that the case is one of aortic aneurysm: if, on the other hand, there is oedema of one or both arms, enlarged glands, effusion into the chest, a history of a slow onset, and especially if the patient be a woman or a child, the diagnosis is mediastinal tumour.