

Case of epithelioma of the oesophagus involving the pneumogastric nerve with its recurrent branch on the right side, and where the symptoms closely pointed to aneurysm of the arch of the aorta / by J. Souttar M'Kendrick.

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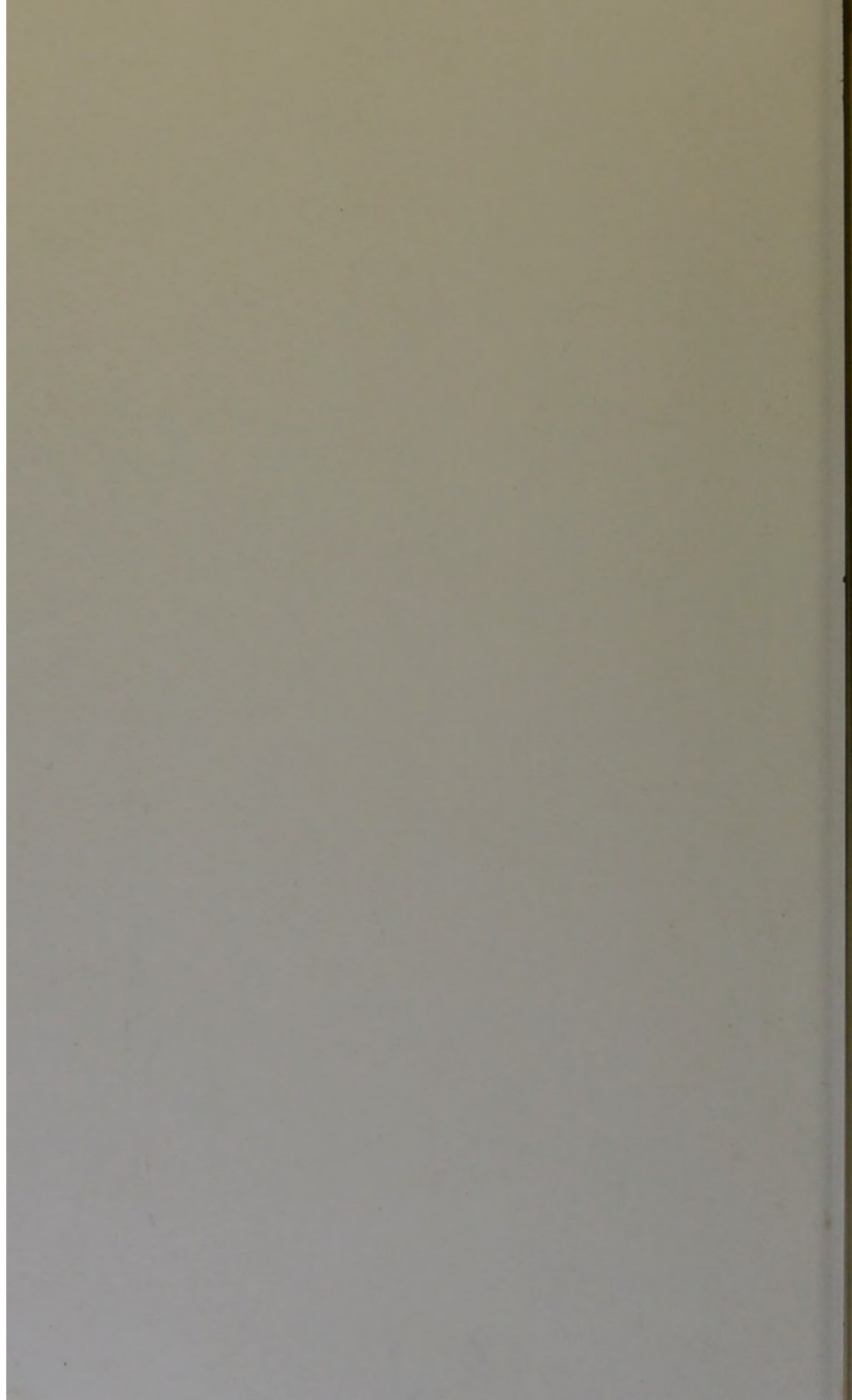
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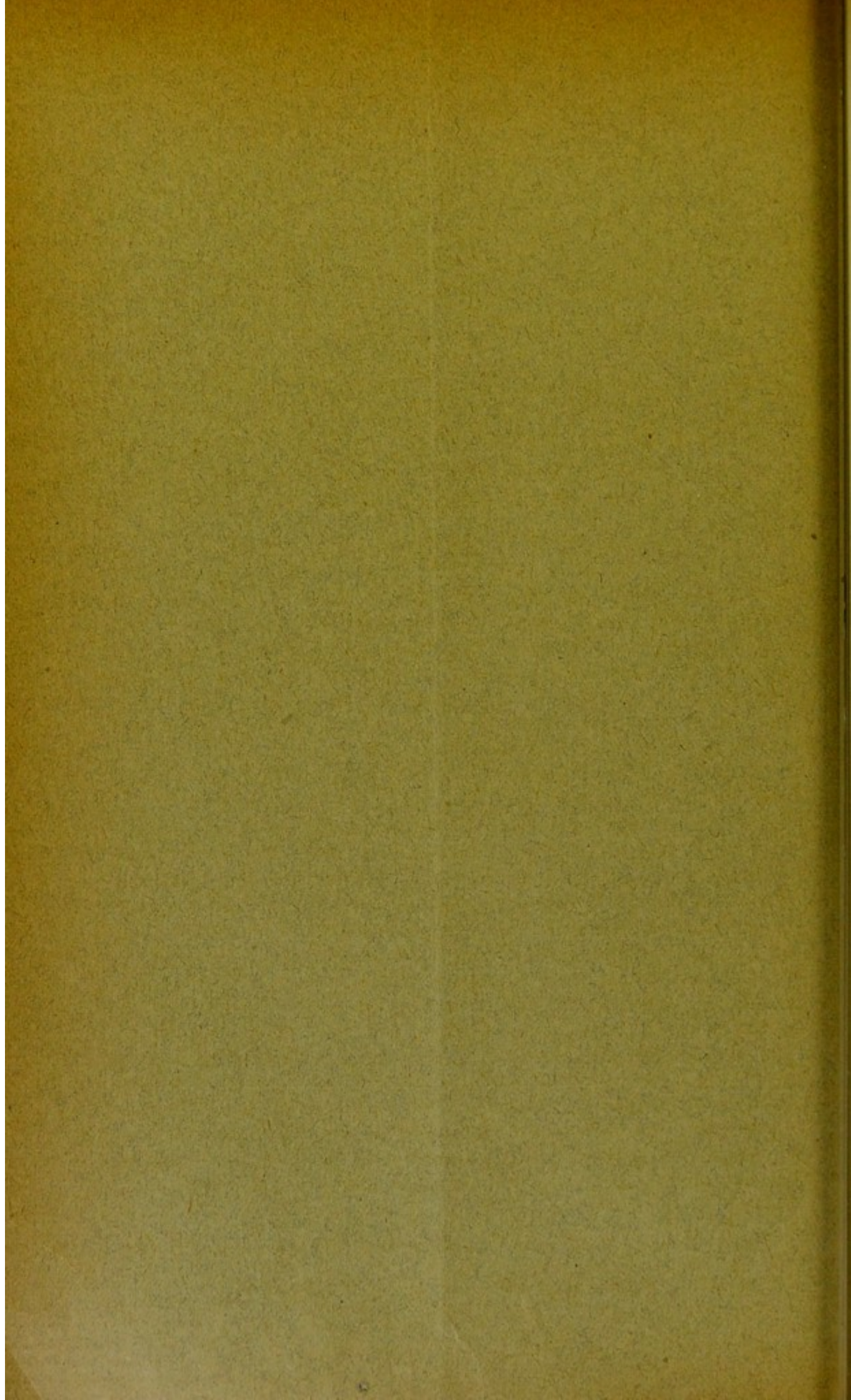
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CASE OF EPITHELIOMA OF THE ŒSOPHAGUS INVOLVING THE PNEUMOGASTRIC NERVE WITH ITS RECURRENT BRANCH ON THE RIGHT SIDE, AND WHERE THE SYMPTOMS CLOSELY POINTED TO ANEURYSM OF THE ARCH OF THE AORTA.

By J. SOUTTAR M'KENDRICK, M.D., F.R.S.E.

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CASE OF EPITHELIOMA OF THE ŒSOPHAGUS INVOLVING THE PNEUMOGASTRIC NERVE WITH ITS RECURRENT BRANCH ON THE RIGHT SIDE, AND WHERE THE SYMPTOMS CLOSELY POINTED TO ANEURYSM OF THE ARCH OF THE AORTA.¹

By J. SOUTTAR M'KENDRICK, M.D., F.R.S.E.

WITH the kind permission of Sir William T. Gairdner, in whose wards the following case occurred, while I acted as his house-physician, I have the privilege of bringing before the Society notes of a case where the symptoms (although not exclusively) pointed to aneurysm of the aorta, but which ultimately (*post-mortem*) were found to depend upon an extensive epithelioma of the œsophagus.

Although the symptoms resulting from epithelioma of the œsophagus are, as a rule, pathognomonic of the disease, this is by no means the only case where such a difficulty has arisen, and where the symptoms of the one have been almost identical with those of the other. Dr. Newman,² for example, quotes a case of epithelioma of the œsophagus at the level of the bifurcation of the trachea, wherein the symptoms bore a close resemblance to a case of aneurysm of the transverse and descending portions of the arch of the aorta, while literature teems with instances where the symptoms, themselves suggestive of aneurysmal disease, depended upon an œsophageal origin. In this connection, Sir William T. Gairdner, in his recent article on "Aneurysm of the Arch of the Aorta," in Dr. Clifford Allbutt's *System of Medicine*, when speaking of the difficulty of arriving at an absolute diagnosis of aneurysm, says "that the whole of the symptoms present may be those of stricture of the œsophagus, and instruments may be employed with disastrous results."

¹ Read before a meeting of the Glasgow Medico-Chirurgical Society held on 17th November, 1899.

² Newman, *Malignant Diseases of the Throat and Nose*.

As a rule, however, the difficulty of diagnosis in diseases at the upper part of the thorax is between aneurysm and mediastinal tumours of a carcinomatous or sarcomatous nature, and here, too, it is often only after a careful perusal of all the facts presented to us, and after a minute physical examination of the part under observation, that anything like an accurate diagnosis can be reached.

The symptoms and signs that are almost pathognomonic of aneurysm may be absent even in presence of aneurysm, or may be present when no aneurysm exists. Pain may be present or absent. Cough may be only slight, even when a large aneurysm exists, and may be extremely marked with a small aneurysm. The laryngeal nerves may be unaffected even in presence of an extensive thoracic aneurysm, although this is rare, whereas laryngeal paralysis in other cases may be one of the first symptoms. There may be excessive spasm and stridor from slight pressure on a bronchus, or there may be almost complete occlusion of a bronchus, with no evidence of spasm or laryngeal paralysis.¹

Hæmorrhage may be one of the first symptoms, even in small aneurysms, whereas, again, in some cases there may be extensive dilatation of the aorta, with no hæmorrhage, until, perhaps, the final gush of blood indicates perforation into the trachea or bronchial tubes, or, again, there may be in such cases no hæmorrhage at all, the patient dying from sheer exhaustion.

Dysphagia may be a severe symptom from the outset, especially if the aneurysm affect chiefly the transverse part of the arch of the aorta, where pressure is necessarily directed from above downwards on the œsophagus. As a rule, however, it is a symptom of minor importance, the slight dysphagia resulting probably from pressure on the pneumogastric nerve and its branches (œsophageal).

Again, in making a physical examination, we may find that many symptoms, indeed, most, may be absent in aneurysm of the arch of the aorta. Stokes² tells us from his experience that "the absence of localised dulness on percussion should not make us conclude against the existence of an intra-thoracic tumour." There may be pulsation, but this is not necessarily aneurysmal. There may be no expansile pulsation even with aneurysm. There may be differences in the pupils and radial pulses, engorgement of the veins of the neck, it may be only on one side, but these symptoms are not

¹ Western Infirmary Pathological Reports, No. 5,381.

² Stokes, *Diseases of the Heart*, p. 537.

necessarily aneurysmal, while, again, in many cases of extensive aneurysmal disease of the arch there may be no apparent difference in the pulse and pupil of the two sides.

There need not be œdema of face, neck, or thorax, and the "tippet-like" neck of Stokes may be absent.

Although the sounds of the heart may be increased over the suspected aneurysmal site, in some cases there may be only little change. There need be no murmur; in fact, the presence of murmur is considered to be the exception. There may be a deficiency in the respiratory murmur, but this may depend on any intrathoracic pressure. Even with this deficiency there need be no "stridor from below," and, as in the instance above recorded, there may be almost complete blocking of a bronchus with no stridor or paroxysmal dyspnœa.

There may be stridor without aphonia, and, though less commonly, aphonia without stridor.

Of course, when a group of these symptoms occur together, and when inquiry is made into the history of the patient—the sex and occupation, the condition of the vessels and heart—the difficulty of diagnosis is considerably lessened.

One can see at a glance how difficulties in diagnosis arise. The symptoms depend on pressure exerted on the numerous structures crowded together at the root of the neck by a new growth. This new growth may grow rapidly or slowly; it may grow downwards, upwards, backwards, forwards, or to either side; it may push aside structures, or it may obstruct them; the structures which yield may escape, while those that are bound down or fixed are eaten away or occluded.

Tumours behave in different ways, and it is on this account mostly that the diagnosis of aneurysm can be arrived at, for the symptoms usually follow a particular march.

While an epithelioma of the œsophagus, as a rule, introduces a particular train of symptoms, yet we can see here also how such a tumour may involve all the important structures at the root of the neck, especially if the tumour be situated at the level of the bifurcation of the trachea.

It is for this reason that the following case is of interest, the more so as the right recurrent laryngeal nerve was involved in the growth, causing *paresis of the muscles of the right vocal cord*.

Dr. Newman looks upon paralysis of the left vocal cord as almost pathognomonic of aneurysmal disease, and he says, "for practical purposes, aneurysm may be looked upon as the cause of paralysis in 19 out of 20 cases."

Dr. Morell Mackenzie does not go so far, for he mentions

that out of one hundred cases of cancer of the Œsophagus, he observed that the left recurrent laryngeal nerve was involved in nine instances; the right in one; while in one case he noticed that both recurrent nerves were affected. In fact, in his definition of the symptoms that are characteristic of cancer of the Œsophagus, he says that there may be "progressive dysphagia, expiration of a fluid at first frothy but afterwards thick, muco-purulent, and sometimes tinged with blood; obstruction to the passage of a bougie, *frequent paralysis of abductors of the vocal cords*, with progressive emaciation and debility occurring in a person over 40 years of age."¹

A most interesting case in this connection was described by Dr. Finlayson and Dr. Coats.² It was a case of cancer of the Œsophagus involving the left recurrent laryngeal nerve, and the body of the last dorsal vertebra by a secondary growth. This article was followed up with a note by Dr. Macintyre on paralysis of the vocal cords from malignant disease. He gives a short bibliographical sketch of paralysis of the vocal cords in cancer of the Œsophagus, with the result that such men as Mackenzie, Sajous, Ziemssen, and Lennox Browne have not infrequently found the recurrent laryngeal nerve involved in an epithelioma of the Œsophagus.

Although, then, aneurysm of the arch of the aorta is the frequent cause of paralysis of the abductor muscles of the vocal cords, it is not the only cause, as mediastinal tumours, and certain tumours of the neck, may surround the nerve or press upon it, so as to produce a similar paralysis of these muscles.

The case was that of a woman, Mrs. R., aged 68, who was admitted into the Western Infirmary on 2nd June, 1897, with symptoms of dyspnœa, stridor, cough, and partial aphonia.

The following notes were received from her private doctor:—

In the first, he says that the patient was sent into the Helensburgh Infirmary last January for treatment of ulcer of the leg. While there a swelling was discovered in the neck, described as being the size of a duck's egg. He was of opinion that it was aneurysmal, and potassium iodide was given with good results, so that patient left hospital three weeks afterwards, and with slight subsidence of the swelling. Before he saw her again, which was about one month afterwards,

¹ *Diseases of Throat and Nose*, vol. ii, p. 92.

² *Glasgow Medical Journal*, September, 1890.

she had a severe bout of coughing, and ejected three-quarters of a cupful of blood, which corresponded with an almost complete subsidence of the swelling in the neck. She has recently been troubled with dysphagia, he writes, and attempts to swallow frequently cause fits of coughing. She is of opinion that her symptoms have been aggravated by personal worry during the last few weeks.

In the second letter, he describes the tumour as like a duck's egg, the one half projecting above the general surface. He says—"The undoubted fact is that there was a pulsating tumour of about this size, which afterwards so diminished in size as almost to disappear, and it was only after careful examination that I excluded thyroid enlargement as the cause of the swelling."

As well as these facts, many other details were presented to us by the patient herself. She feels sure that she noticed a swelling in the neck almost two years ago, situated above the right clavicle, and midway between it and the trachea. It had recently grown much larger, and then subsided again with the coughing up of the blood. The swelling was painless, and never caused any redness of the skin. Breathlessness commenced in February, 1897, and a few weeks later she complained of hoarseness of the voice. Cough developed, which was of a severely paroxysmal type, occurring frequently at night, and lasting for upwards of an hour at a time. She coughed up three-quarters of a cupful of dark, thick blood in the third week of March, 1897, and this she attributes to the bursting of a swelling which was in the right side of the neck, for after the gush of blood the swelling was reduced and the cough became easier. She spat up a little more blood in the middle of April, after which the swelling entirely disappeared.

For some months she has had difficulty in taking food, with a sense of contraction in the throat. Food frequently sticks in her throat, and she has been forced to take fluids lately.

She has now great difficulty in swallowing. Cough is very troublesome, and with it there is an abundant muco-purulent spit. She has lost flesh considerably during the last few months, and she feels very weak.

Previous health.—She has always been a healthy woman up to the onset of her present illness, except that when young she suffered from anæmia with palpitation. No history of rheumatism.

Habits.—She has never been addicted to alcohol, nor

accustomed to any laborious work. She has never had any form of venereal disease. She had eleven normal pregnancies, all her children doing her credit.

Family history is not noteworthy.

Present condition.—Patient is emaciated and anæmic, but with no distinctly cachectic appearance. The skin generally is flabby and loose. The muscles are soft. The pupils are moderately dilated, equal, and respond correctly to light and visual distance. The tongue is slightly furred. The veins on the right side of the neck are prominent and varicose, but there is no œdema of neck, thorax, or of the legs. The radial arteries are unduly thickened and irregular to the feel; and this is so also of the superficial arteries, more especially of the thyroid axis and femoral branches. The pulses are equal on the two sides, the sphygmographic tracings showing that there is no marked difference between them, but that they are both of low tension. Pulse-rate is 86 per minute; temperature is 99.2° F.; respirations are 28 per minute. Breathing is laboured, and, in a note by Sir William T. Gairdner, "the noise in inspiration, as well as in expiration, and the affection of the voice, taken in conjunction with the other facts, are strongly suggestive of pressure on the trachea; while the imperfection of the cough, as regards closure of the glottis, together with very manifest vocal alterations, which, she says, sometimes went the length of complete aphonia, seem to indicate pressure on one or other laryngeal nerve." Breathing is not relieved by any special posture. Pressure over the trachea causes some pain. There is visible pulsation of both carotids and in the suprasternal notch, and "distinct dilatation of the vessels at the root of the neck." To the outer side of the lower insertion of the sternomastoid muscle there is a pulsatile swelling, apparently due to the dilatation of the innominate and right subscapular trunks. This pulsatile swelling is about the size of an almond, and is not expansile.

Heart and vessels.—Physical examination of the heart and deep vessels reveals nothing abnormal. There is a "little undue impulse with the first sound near the right sternoclavicular articulation, and a little—scarcely perceptible—strengthening of the second sound."

Lungs.—There is nothing noteworthy in the examination of either lung, except that over the right interscapular region the respiratory murmur is somewhat hollow in tone.

Abdomen.—Hepatic dulness is normal to percussion. The kidneys are not palpable.

Urine.—Specific gravity, 1019; acid reaction; amber colour, with distinct albumen, but with no sugar, blood, or tube-casts.

Larynx.—The following is a note by Dr. Walker Downie:—

“On examination of the throat to-day, there is found to be marked œdema of the left aryepiglottic fold, most prominent over the left arytenoid cartilage. The left vocal cord is fixed, somewhat outside the line of complete adduction. The movements of the right vocal cord are imperfect, this being particularly noticeable during deep inspiration. There is no abrasion of the tracheal wall noticeable, nor is there bulging, such as from pressure, detected.”

Such, then, was the history of the case. She only lived for four weeks after her admission into hospital, but during that time notes were taken on the progress of the case.

She had an abundant muco-purulent catarrhal expectoration, with no trace of blood in it, except during the last two or three days of her life, when it was blood-tinged. Tubercle bacilli were never present, and the sputum had none of the appearances of a phthisical expectoration. Stridor and dyspnoea became very marked, but it was never of the highly paroxysmal or suffocative nature. Dysphagia was very marked towards the close of life, so that fluids even had to be abandoned, and nutrient enemata substituted.

Pain in the chest was never present. The swelling in the neck never returned to any size corresponding to that given in the history. No new symptoms developed suggesting the presence or absence of aneurysm, except that the cough became more imperfect, with somewhat of the brassy or clanging nature described by some writers. (Dr. Wyllie, of Edinburgh, giving it the name of the “bovine cough.”)

About a week before her death she had a sudden feeling of faintness and sinking, accompanied by coldness and numbness of the extremities.

The urine averaged, since admission, only 30 oz. in the day, and frequently contained distinct albumen. The temperatures all along tended to pyrexia, reaching, as a rule, 100° F. at night, but subsiding somewhat in the morning.

Patient died from dyspnoea and general weakness. Prior to death there was no sudden onset of symptoms such as might have been expected from hæmorrhage into the pericardium or respiratory tubes, and no change in the physical conditions of the heart and lungs as far as could be examined.

The following is a summary of the *post-mortem* appearances:—

There is slight prominence in the right supraclavicular region, and projecting above the right clavicle at its inner third is a portion of an ovoid, firm, white tumour, evidently glandular. In the deeper part of the neck in the left side, lying on the transverse process of the third cervical vertebra, is a small ovoid tumour, apparently glandular, almost 2 cm. in diameter. This projects in the mucous membrane of the pharynx.

Small cretaceous nodules are scattered throughout the spleen, while the kidneys show evidences of cirrhosis with small cysts. The adrenals, pancreas, stomach, and intestines are normal. The abdominal arteries are markedly atheromatous. Nothing specially noteworthy in condition of pelvic organs.

The lungs are loosely adherent by fibrous tissue to the chest wall. In the left apex are seen tolerably large cavities filled with caseous and cretaceous material. The lung is emphysematous at its margins. The upper lobe of the right lung shows numerous old tubercular lesions, more than in the left. The bronchial glands are not involved. No secondary tumours are found.

The heart is enlarged, and weighs 385 grs., chiefly owing to hypertrophy of the left ventricle, the wall of which attains a thickness of 2.5 cm. The valves are competent. The aortic cusps, first part of the aorta, and anterior segment of the mitral, show atheroma. This is also present around the orifices of the coronary arteries themselves.

"There is a very extensive growth involving the upper part of the Œsophagus. It may be traced from a point about 5 mm. beneath the interarytenoid membrane downwards for a distance of 11 cm. At its upper end it may be traced into the pyramidal fossa, and seems to have invaded the tissue at the posterior part of the larynx.

"The growth has the form of an irregularly outlined sloughing ulcer. Its upper limits are fairly well defined. Its lower limits are less distinctly made out. At the growing edge, especially at the upper part, there are secondary implantations of tumour tissue, involving the muscular wall. Within the irregular edge there is a quantity of shreddy, very friable, tumour tissue, which tends to form polypoid masses, which project into the calibre. One of these masses, 7 cm. by 2.3 cm., is attached to the right edge of the ulcer in its anterior wall. Centrally there is considerable destruction of the Œsophageal

wall. On the right side the pneumogastric nerve may be traced downwards till it loses itself in the growth mentioned above the clavicle. On the left side the pneumogastric nerve courses free of the growth in its whole extent."

It is unfortunate that no fuller statements were made concerning the recurrent laryngeal nerves, but, certainly, the opinion that those that were present at the *post-mortem* took away with them was that the right pneumogastric nerve and its recurrent laryngeal branch was involved in the more superficial secondary glandular mass, while the left recurrent laryngeal nerve was involved in the deeper glandular mass, which was in continuity with the œsophageal tumour.

In conclusion, I should like to make a few remarks on the diagnosis of this case.

In the first place, the history, so emphatically stated both by the patient and by her doctor, of a swelling about the size of a duck's egg, which rapidly disappeared on the coughing up of a quantity of blood, clearly pointed to an aneurysm of the arch or of its large branches.

It is extremely difficult to interpret the nature of this swelling. It might conceivably have been due to the glandular mass, which lay superficially over the large vessels, suddenly altering its position owing to want of support from the tumour tissue below, this want of support being due to a rupture of one of the larger vessels on the surface of the epithelioma, or the sloughing of a portion of the tumour tissue. It might have been due, again, to venous congestion, more especially of the thyroid veins of the right side causing enlargement of the right lobe of the thyroid gland, the sudden change in its size resulting from the relief of pressure on the veins owing to the want of support from below.

Aneurysm was also specially indicated by the involvement of the laryngeal nerves. (The right, certainly, was involved, and, I believe, the left too, although the œdematous state of the left vocal cord was quite sufficient to account for its immobility.)

There was also marked atheroma of the larger and smaller vessels, with distinct dilatation of the large vessels at the root of the neck, and pulsation in the suprasternal notch. The stridor, cough, and paroxysmal dyspnoea were alike suggestive, and the accentuation of the first and second sounds of the heart over the second right intercostal space made one closely suspect aneurysmal disease.

As against this, however, there were certain symptoms which were extremely suggestive of obstruction in the œsophagus by a malignant tumour. There was pretty marked dysphagia at an early period, pain in swallowing, clear spit, which after a time became muco-purulent and abundant, and was rarely tinged with blood. Swallowing increased the liability to cough, and produced dyspnœa. There was marked emaciation, although not so great as in cases recorded where the patient has lost 5 to 6 stones in almost the same number of weeks. There was the "dreadful sense of faintness," with cold extremities, and death occurred from exhaustion.

Dr. Morell Mackenzie tells us that out of his 100 cases, death occurred from exhaustion in 78 instances.

There was no deviation of the trachea, or tracheal tugging; no change in the pupils or pulses of the two sides; no œdema of neck, face, or thorax; no prominence in upper part of chest, nor heaving impulse; no marked alteration in the character of the sounds in the upper sternal region; and no distinct difference in the quality and quantity of the respiratory murmur on either side of the chest.

Had an œsophageal bougie been passed, the question of diagnosis would have been cleared up; but were we justified in adopting such a procedure in this case?



