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INTRATHORACIC TUMOURS.

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IT is convenient to divide intrathoracic new growths into three groups :—

- (1) Tumours of the mediastinum.
- (2) Tumours of the lung.
- (3) Tumours of the pleura.

Clinically, however, it is often found that the growth involves pleura, lung and mediastinum, and it is impossible to be certain of its origin. A tumour of the mediastinum, even if benign and small, will tend to produce early symptoms owing to pressure, whilst there may be quite a large growth of lung without any symptoms.

Secondary carcinoma of lung may occur

by extension from the breast, œsophagus, stomach, liver or other organs, and a general carcinomatosis of lung may follow carcinoma in some distant organ such as the prostate or ovary. In acute carcinomatosis the patient has increasing dyspnœa and cyanosis with a dry cough. There may be no physical signs or only those of bronchitis. X-ray examination shows small opacities scattered all over both lungs so that the condition is not unlike silicosis. I have known it to be mistaken for miliary tubercle, but in this latter disease the mottling is much finer. In secondary sarcoma of lung there may be no signs or symptoms until the condition is far advanced and has caused pressure symptoms. X-ray, however, will often show rounded masses like walnuts in the lung. Hypernephromas are especially liable to cause metastases in the lungs. For these secondary tumours no treatment is available and they have no interest except as a terminal complication of the original growth.

PRIMARY TUMOURS OF THE MEDIASTINUM.

Of the benign tumours dermoids are the least uncommon, though fibroma, chondroma, lipoma and simple cysts have been described.

Of the malignant tumours the small round-celled sarcoma is most common.

Dermoid Cyst.

There is a dry cough, dyspnoea and gradually increasing pressure symptoms. An effusion is common. X-ray shows the tumour which is usually situated in the anterior mediastinum. If left these tumours prove fatal by mechanical pressure, so surgical treatment should be advised. In a case of mediastinal tumour thought to be malignant and inoperable the possibility of a dermoid should be borne in mind and exploratory operation performed. It is not uncommon to find a large cyst distended with matter which can be removed, thus relieving the urgent symptoms, and at a subsequent operation the cyst can be dissected out.

Sarcoma.

This originates from the thymus, lymph-glands or bone. Growth is rapid and surrounding tissues are infiltrated so that a large mass of white growth may form spreading out into the lungs and involving the mediastinal structures. Symptoms and signs of mediastinal tumours are mostly due to pressure, and the chief ones are:—

(1) Cough and sputum. The cough is dry at first but later is associated with a little sputum which becomes purulent if there is secondary infection. It is often blood-stained and called red-currant-jelly sputum. When there is pressure on the recurrent laryngeal nerve a brassy cough may be produced becoming husky later.

(2) Dyspnoea is an early symptom and stridor common.

(3) Enlarged veins may be seen in the chest and neck, and there may be oedema of the face or arms.

(4) Pleural effusion is not uncommon. It is often blood-stained. I have seen a case where the first sign was a pleural effusion which cleared up after aspiration and did not recur. A diagnosis of tuberculous effusion was made but it proved to be mediastinal sarcoma. Sometimes the effusion is clear on some aspirations and blood-stained on others due to repeated small hæmorrhages. Hæmorrhagic effusion is suggestive of neoplasm but may occur in tuberculous cases.

Constitutional symptoms are not common and the patients frequently do not lose weight and are in good general condition at the time of death. On physical examination there is often dullness over the sternum but there may be very few signs apart from those due to pressure.

PRIMARY TUMOURS OF LUNG AND BRONCHI.

Benign tumours are rare. Fibroma of the bronchus is the most common form of simple tumour. The chief symptom is usually recurrent hæmoptysis and there may be no other symptoms at all. Usually, however, there is some associated bronchitis and if the tumour is large enough to obstruct the bronchus completely collapse of the corresponding portion of lung will occur. In cases of unexplained hæmoptysis bronchoscopy should be performed. I have seen one case in which the lower lobe of the right lung was removed for a tumour which proved to be fibro-adenoma. The patient, a woman, aged 47, developed mild bronchitis and later pain in the right axilla. The tumour was clearly seen by X-ray, and the lung was collapsed by artificial pneumothorax to see if the mass was extra- or intra-pulmonary. It was found to be in the lung tissue and lobectomy was performed. The patient made an uninterrupted recovery.

In another case a bony tumour was found. This was some years after a gunshot wound which had splintered a rib and probably carried a piece of bone or periosteum into the lung from which new bone had grown.

Of the malignant tumours carcinoma is the most common, and of these 90 per cent. originate in a bronchus and only 10 per cent. in the lung tissue. The common type of carcinoma is cylindrical celled, but occasionally the flat-celled epithelial type is found and it is this latter which probably originates in lung epithelium. Metastases are common and may occur in any part of the body, but the most frequent sites are liver 40 per cent., pleuræ 30 per cent., bones 20 per cent.

Signs and Symptoms.

As the lungs are soft and easily compressible the tumour may reach a considerable size without causing any discomfort. If a bronchus is completely obstructed collapse of the corresponding part of the lung follows. This may occur suddenly and simulate pneumonia. Sudden pain, dyspnoea, fever and dullness on percussion are all present and a diagnosis of pneumonia is often made. The collapse usually occurs more gradually without producing any fever or sudden pain. When an area of dullness and absent breath-sounds is found in a middle-aged patient bronchial carcinoma should always be suspected. On injecting lipiodol into the trachea the site at which the bronchus is blocked can be clearly seen by X-ray and the diagnosis settled. On examination by a bronchoscope it is usually possible to see the growth. At first the cough is dry but later there may be purulent sputum which is often blood-stained, though frank hæmoptysis is rare. The growth is often in the upper zone of the lung and tuberculosis is usually diagnosed. The absence of tubercle bacilli and X-ray examination usually settle the diagnosis. More difficult is the diagnosis between unresolved pneumonia and carcinoma. In collapse from carcinoma, however, the heart is usually drawn to the affected side, but in pneumonia the position is unaltered.

A man of 55 had sudden pain in the chest. The next day he was feverish and saw a doctor who found the upper zone of the right

lung stony dull and diagnosed pneumonia. The temperature gradually settled, but the dullness persisted and X-ray showed a dense opacity in the upper part of the right lung. It was then thought that he had carcinoma, but the condition gradually cleared up and a year later he was in good health and there were no definite signs in the chest.

PRIMARY TUMOURS OF THE PLEURA.

Benign tumours are rare. Of malignant growths the least uncommon type is endothelioma. The first sign is the development of pleural effusion. This rapidly increases and on aspiration re-forms. I have known a case in which over 5 gallons were aspirated in three months. The growth usually attacks young people and is rapidly fatal.

In the diagnosis of intrathoracic tumours the following practical points may prove helpful :—

(1) When, after a diagnosis of pleural effusion, the exploring needle fails to find fluid, and especially if it is felt to pass through resistant material like cork, neoplasm is the most probable diagnosis.

(2) A large area of dullness with the heart drawn towards the affected side is very suggestive of collapsed lung following carcinoma of bronchus.

(3) X-ray examination after the introduction of lipiodol is a reliable and easy method of confirming a diagnosis of bronchial carcinoma.

(4) Bronchoscopic examination will also confirm the diagnosis, but is very uncomfortable for the patient and should be avoided if possible. In cases of unexplained hæmoptysis a bronchial tumour may be seen through the bronchoscope.

(5) Collapse of the lung by artificial pneumothorax will show whether a mass seen by X-ray is in the lung tissue or extra-pulmonary.

(6) A large effusion which rapidly re-accumulates after aspiration is very suggestive of endothelioma of pleura.

(7) Hæmorrhagic effusion is suggestive of

neoplasm, but sometimes occurs in cases of tuberculosis. The predominant cell in a pleural effusion due to new growth is the endothelial cell. Growth cells are practically never found though lymphocytes or degenerated endothelial cells may be mistaken for them.

(8) In lymphadenoma there are usually palpable discrete glands to be felt in the neck, axilla or groin, and the spleen is often enlarged. A mediastinal mass shown by X-ray may, however, be the only sign. The possibility of intrathoracic goitre should be remembered.

(9) In hydatid disease the right base is usually the site of the cyst. On X-ray examination there is a translucent area between the shadows of the cyst and that of the diaphragm. There is eosinophilia. The complement-fixation test is often negative in an unruptured cyst.

(10) A gumma is very rare, but I have seen a case in which there was one producing pleural effusion. Stridor may be due to syphilitic disease.

(11) In a case running an unusual course the possibility of actinomycosis should be borne in mind.

(12) A good general condition and absence of toxæmia should be taken as evidence in favour of neoplasm rather than of tuberculosis.

TREATMENT.

If the tumour is malignant the only possible chance of saving the patient is its removal by surgical operation. This chance is very slight but as the alternative is certain death it should be taken unless the tumour is obviously inoperable. In doubtful cases an exploratory operation should always be performed.

The apparent size of the tumour as seen by X-ray or determined by clinical examination is often due partly to collapsed lung, so that a case should not be considered inoperable merely because the tumour appears to be large. In one case a large

mass was seen but at the operation the tumour was found to be about the size of a walnut growing in and obstructing the bronchus. It was easily removed and the patient made a good recovery. It appeared much larger on X-ray examination owing to the associated collapsed lung. A tumour which is thought to be malignant and inoperable is sometimes found to be non-malignant and operable.

In no branch of surgery have there been greater strides in recent years than in intrathoracic operations, and in skilled hands exploratory thoracotomy is but little more dangerous than laparotomy. Dermoid and hydatid cysts can usually be removed quite successfully and even in the case of carcinoma of lung lobectomy may be possible.

For inoperable carcinoma of bronchus radium should be used. At present this offers but little hope, but it is still in the experimental stage and in the near future may prove as valuable as it is in carcinoma of the tongue or lip. X-ray treatment often gives good immediate results in lymphadenoma or sarcoma, but recurrence is the rule. Apart from these measures treatment consists in relieving the symptoms.

CRIME AND INSANITY. LECTURE V.

GIVEN AT THE MAUDSLEY HOSPITAL, MAY 28, 1929.

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(Continued from p. 67.)

THE principles involved in the determination of responsibility for criminal acts or omissions resulting from drunkenness and delirium tremens were outlined in a previous lecture. It is necessary now to refer briefly to pathological drunkenness, alcoholic automatism, and mania *à potu* before considering