TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

NEW GROWTHS IN THE LUNG

BY

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Malignant new growth of the lung is a common condition at the present time. It is unprofitable to speculate as to whether there has been any increase in incidence in the last few years, for our diagnostic facilities have multiplied to such an extent that any statistical comparison with previous periods is full of fallacies, and is unlikely to yield any accurate conclusion. It is sufficient to note that, according to the most reliable published statistics, the condition ranks next to cancer of the gastro-intestinal tract, breast, and uterus.

The great majority of tumours found in the lung tissue are carcinomata which arise in connexion with the mucous membrane of the bronchi. The growth may originate in a main bronchus or in one of the smaller bronchioles embedded in the lung substance. According to the exact site of the growth, there will be various mechanical effects produced which will give rise to certain definite symptoms and signs, the correct interpretation of which should lead to the adoption of appropriate diagnostic investigations; these will be considered later. Early diagnosis is much more important from the point of view of prognosis than of treatment, for the results of all therapeutic measures are so disappointing that an accurate prognosis can be given in the majority of cases as soon as the diagnosis is established.

Symptoms

Recognition of the disease in its early stages is rendered difficult because there are no characteristic symptoms, and the diagnosis must be based on a suspicion of the presence of something more than a simple respiratory ailment. In about one-quarter of the cases the onset of the disease is sudden, and it may closely simulate "influenza," pneumonia, or pleurisy. In these cases it is certain that the growth must have been there for some little time without attention having been called to its existence by any symptoms whatever, and the acute condition may even resolve so completely that the patient may appear to recover his health for a period of several months.

In the majority of cases, however, the onset is insidious, with cough as the most prominent feature. Additional symptoms are occasional pain in the chest, shortness of breath, and blood-streaked sputum. It follows, therefore, that any patient of middle age who develops a persistent cough, especially with slight haemoptysis, should have investigations performed in order to exclude a neoplasm. At times the first symptoms are those of pressure on important structures in the mediastinum, resulting in dyspnoea, dysphagia, voice changes, and oedema of the face and arms. In a comparatively rare group of cases there may be no symptoms, and even no signs of a carcinoma in a bronchus, and attention may be called to its presence by the occurrence of a metastasis in a distant organ: the sites most commonly affected in this way are the liver, pancreas, and central nervous system. Thus cerebral symptoms, spastic paraplegia, or even an obstructive type of jaundice may occasionally be the earliest

clinical indication of a primary growth in a bronchus. The symptoms, therefore, are not characteristic until important structures are involved, by which time the opportunity for radical treatment has already passed away. As the condition progresses the symptoms increase in severity.

Cough may result from suppuration distal to the growth, in which case it is often accompanied by copious, and at times offensive, sputum; or it may result from pressure on the trachea, when it assumes the typical "brassy" character, and is not as a rule accompanied by much sputum. When a recurrent laryngeal nerve is involved the cough becomes husky and ineffective; pressure on the trachea is also responsible for the marked stridor which is a feature of the later stages. Haemoptysis is present in nearly all cases at some stage of the disease, but is rarely gross in amount; only very occasionally is haemorrhage severe enough to be fatal. Pain is a common complaint at some stage of the disease, and may be due either to the strain of coughing or to invasion of the pleura by the growth; it may, however, be caused by invasion of the bony chest wall or by the involvement of the posterior nerve roots by secondary deposits. Dyspnoea increases in severity as the disease progresses, and in most cases is the outcome of gradually increasing distortion of the trachea, although in some cases it may be brought about by rapid accumulation of fluid within the pleura; it does not seem to result from actual destruction of lung tissue by the growth.

The other symptoms of intrathoracic pressure, which appear almost entirely when the disease is far advanced, are dysphagia, voice changes or even complete aphonia, and obstructive oedema.

Physical Signs

The physical signs are extremely varied, and depend on the exact situation of the growth and on the presence of secondary changes in the lung, pleura, and mediastinum. Should a main bronchus or a large secondary bronchus be completely obstructed, the lung distal to the growth will collapse, and the physical signs will be diminished movement, impaired percussion note, and weak breath sounds, while the heart and trachea will deviate towards the affected side: in the absence of foreign body, new growth is by far the commonest cause of these phenomena in adults. In a considerable number of cases secondary suppurative changes arise in the lung distal to the growth, and the physical signs may be those of consolidation or even of cavitation, and the condition at this stage may closely simulate primary lung abscess, gangrene, or pneumonia. In the more chronic cases bronchi may become dilated and secondarily infected, the clinical picture resembling bronchiectasis. The pleura is not uncommonly involved, and effusion may complicate the picture in the very early stages of the disease. Clinically there may be no points of distinction from pleural effusion from other causes, and the occurrence of this condition in middle age, without any obvious reason, should always lead one to suspect a growth.

The presence of metastases confirms the diagnosis of malignant disease. In bronchial carcinoma these are most commonly found in the regional glands of the mediastinum,

neck, and axilla, and in the upper part of the abdomen, especially the liver, pancreas, and suprarenals. Metastases in the central nervous system are not uncommon, both in the brain and in the spinal cord. Rarely, cutaneous deposits may appear in the chest and abdomen.

The general condition of the patients varies greatly. Wasting is not so marked, on the whole, as might be expected. The temperature depends to a great extent upon inflammatory complications. Clubbing of the fingers is seen in about one-fifth of the cases, but has no diagnostic significance. Dilated veins over the chest or abdomen are a valuable sign of mediastinal pressure, and result from malignant disease more commonly than from any other cause. It may also be noted that the physical signs in cases of new growth of the lung are almost always confined to the affected side, and this point is sometimes of value in the clinical distinction between malignant and inflammatory conditions.

It can be seen, therefore, that the symptoms and signs are so varied that it is impossible to describe any single characteristic picture of bronchial carcinoma, although the three types which are most common give the physical signs of collapse, suppuration, and pleural effusion respectively, and in these the diagnosis should be made with very little difficulty. It is in the other cases, in which a small growth is present without causing mechanical changes in the chest and possibly very little in the way of symptoms, that adoption of special diagnostic investigations is of the greatest importance, and it is, nowadays, possible in most cases to carry these out in a routine manner, so that an accurate diagnosis is assured in a high percentage of cases.

Methods of Investigation

The only absolute proof of the presence of malignant disease is histological, and the positive value of the different diagnostic methods must be judged to some extent according to whether they fulfil this criterion.

Sputum.—It should be noted that the finding of tubercle bacilli in the sputum does not negative a growth, for occasionally the two conditions may coexist. It is possible that in the future we shall be able to make an absolute diagnosis by the detection of malignant cells in the sputum, but our methods are not yet sufficiently reliable to permit them to be used as a routine.

Wassermann Reaction.—This reaction is positive in about 20 per cent. of the cases of bronchial carcinoma, and little weight should therefore be attached to it. New growth is common, and pulmonary and mediastinal syphilis are extremely rare. In cases of genuine difficulty it may be desirable to give the patient the benefit of the doubt by instituting an energetic course of anti-syphilitic treatment.

Pleural Fluid.—Although sometimes blood-stained, the pleural fluid is more commonly clear, and may have the characters either of an exudate or of a transudate. The only finding of positive value is the detection of Foulis cells, which are a fairly reliable indication of the existence of malignant disease.

X-Ray Examination of the Chest.—This is the most important confirmatory evidence in suspicious cases, and we have now reached a stage in the diagnosis of chest diseases at which x-ray examination has become an essential part of our routine. A skiagram should be taken in every case in which there is any suspicion as to the presence of serious underlying disease, even although there are no definite physical signs at the time. It is only in this way that the diagnosis can be made sufficiently early for treatment to be applied with any hope of success. Preliminary observation on the screen is most important in all cases, particularly with a view to establishing the function of the diaphragm on the affected side. Immobility or paradoxical movement, indicative of paralysis of a phrenic nerve, is strong evidence of malignant infiltration. The presence or absence of pulsation is important in the distinction between tumour and aneurysm.

The appearances in the chest vary greatly in different cases. There may be an irregular rounded shadow projecting from the hilum, and composed of a primary growth or of enlarged glands. There may be a mass in the mediastinum, or there may be a shadow, rounded and discrete at times, in the lung tissue itself. In the majority of cases, however, these shadows are merged, or altered by secondary changes. Occasionally the secondary changes are the most obvious part of the picture, and the appearances of pulmonary collapse, lung abscess, or pleural effusion may mask an underlying growth. It must be remembered that radiological appearances are not always conclusive when considered alone, and that the findings must be taken in conjunction with the clinical condition and the results of the other special investigations. Sometimes additional information may be secured by taking a picture after the induction of an artificial pneumothorax, for small tumours may thus be better defined, and intrapulmonary lesions may be readily differentiated from tumours attached to the chest wall.

Bronchial obstruction may be demonstrated after the injection of lipiodol. The value of this method has perhaps been overemphasized in the past, for it is by no means infrequent for a lipiodol examination to fail to demonstrate the obstruction, and more definite information may usually be obtained by bronchoscopy. It sometimes happens, however, that bronchial obstruction is unexpectedly detected by this method when the investigation is being performed with some other end in view. It is important to note, also, that lipiodol in the lung tissue may be prejudicial to x-ray treatment if this is to be subsequently employed, and that therefore this investigation should not be undertaken without due consideration.

Bronchoscopic Examination.—This is perhaps our most useful diagnostic method. It can be readily performed under basal anaesthesia, and a tumour situated in a main bronchus or in one of its larger divisions can be inspected and a piece removed for histological examination. In cases in which ulceration has not yet occurred in one of the larger bronchi, the walls of the trachea or bronchus may be seen to be distorted, and in such cases positive evidence cannot be forthcoming by this method. A negative bronchoscopy, therefore, is not definite proof of the absence of the disease.

Thoracoscopy.—In cases in which, for any reason, pneumothorax has become established, some knowledge may be gained by the examination of the state of the visceral pleura through a thoracoscope. Nodules may occasionally be seen in this way, and material thus removed for section.

Exploration.—Finally, in doubtful cases it may be desirable to explore the chest and to define the exact nature of the disease. In this way further material may be secured for section. In other cases the diagnosis may be clinched by the removal of a superficial metastasis.

Difficulties of Diagnosis

The histological findings are the only criteria on which a definite diagnosis can be based. The common appearances are those of a columnar or squamous-celled carcinoma, or the tumour may be composed of rounded or oval cells which at first sight resemble a sarcoma, but which have their origin in the deeper layers of the bronchial mucous membrane. As far as we know, the clinical behaviour of the tumour and its response to radiotherapy is independent of the histological picture.

The chief difficulties of diagnosis result from the presence of inflammatory conditions such as tuberculosis, lung abscess and syphilis, bronchiectasis, tumours in the mediastinum (including sarcoma, lymphadenoma, and aneurysm), and certain diseases affecting the pleura—notably pleural effusion of any type, and primary tumours arising in connexion with the ribs and pleurae. Secondary deposits in the lungs from a primary growth outside the chest are usually multiple and readily distinguished radiologically, but occasionally there may be a single mass which closely resembles a primary lung tumour, and in any doubtful case careful search should always be made for a possible primary growth elsewhere in the body.

Differential diagnosis, therefore, may be a matter of great difficulty, but by the proper application of the methods of investigation already detailed a correct diagnosis can usually be reached.

Treatment

The results of treatment of cancer of the lung have improved comparatively little in the past few years. The main methods of attack are surgical and radiotherapeutic.

Removal of the affected lobe can only be successfully achieved in those cases in which diagnosis is made so early that the growth is confined to a single lobe and in which a sufficient length of bronchus is free from growth to enable a pedicle to be defined. The presence of metastases is, of course, an absolute contraindication to operation. The operation is a very severe one, and it can only be attempted in a small proportion of cases.

The late results of x-ray treatment are disappointing. The average duration of life in treated and untreated

cases is less than one year, and it is only in exceptional cases that life appears to be prolonged to any extent by radiotherapy. On the other hand, relief of urgent and distressing symptoms may be dramatic, and for this reason alone we are encouraged to persevere in the hope that gradual improvement in the technique of treatment may lead to definite prolongation of life in a much higher proportion of cases. Radium may also be applied to the growth either through the chest wall or through a bronchoscope, but the results of this procedure are so far discouraging. It is unlikely that radiotherapy will ever be the treatment of choice, for the majority of cases first present themselves for examination in a comparatively late stage of the disease, when metastasis has already occurred. For these cases, as for similar growths arising in any other organ, a more general method of attack, either chemotherapeutic or otherwise, must be sought if our efforts to obtain satisfactory results are ever to prove successful.

THE MIDWIFERY COUNCIL'S REPORT

RECOMMENDATIONS FOR A SALARIED MIDWIVES SERVICE

In January, 1934, the National Birthday Trust Fund called a Joint Council of Midwifery in order to consider the means by which the services rendered by midwives could be improved throughout the country. It hoped thereby to strike an effective blow at the heavy and increasing rate of maternal mortality and morbidity. The chairman of the council was the Earl of Athlone, and the vice-chairmen Lord Aberdare and Sir Francis Fremantle. It contained representatives from many bodies representing local authorities, hospitals, and medical, nursing, and obstetrical organizations. As regards its medical constitution, the British College of Obstetricians and Gynaecologists was represented by Dr. T. Watts Eden, Dr. J. S. Fairbairn, and Mr. L. C. Rivett; the Association of County Medical Officers of Health by Dr. R. D. Smedley; the British Medical Association by Dame Louise McIlroy, Mr. E. W. G. Masterman, and Dr. W. H. F. Oxley; the Queen's Institute of District Nursing by Sir William Hale-White, Mrs. Bruce Richmond, and Miss M. Wilmshurst; and the Society of Medical Officers of Health by Dr. J. J. Buchan. The council later appointed a Midwifery Services Committee, under the chairmanship of Dr. Eden and vice-chairmanship of Sir Francis Fremantle and Dr. Fairbairn; this committee prepared the report, the recommendations of which are of far-reaching importance. The committee's terms of reference were:

"That further consideration of the whole question of the remuneration of midwives, as bearing on the efficiency of the midwifery service, is urgently required, and that a detailed scheme should be prepared for the enlistment of midwives throughout the country in an organized service, suited to the needs of each district, and having due regard to the retention of the mother's freedom of choice of attendant."

In its report the committee first reviewed the figures for puerperal mortality and total maternal mortality, showing that they had risen alarmingly in the last ten years; the rate for neo-natal mortality had remained stationary, while there was a falling infant mortality rate. It pointed out that measures taken to reduce maternal mortality can be expected to bring about proportionate improvements in the neo-natal death rate and in maternal morbidity. It referred to a long list of recent reports, headed by the Memorandum of the British Medical Association issued in 1929, and deduced from their contents that of all the agencies concerned in rendering motherhood safer

none was more important than the work of the midwife, for she attends about 60 per cent. of all confinements and is in a position to exercise powerful influence upon her patient to take advantage of all the agencies designed for her benefit. A well-trained, well-informed, and intelligent service of midwives, working in co-operation with the medical profession, is therefore of the first importance.

The previous reports express agreement upon the following points: that domiciliary midwifery should continue to form the basis of the maternity service; that the nursing of every maternity case in which a medical practitioner is engaged should be conducted by a qualified midwife; that the status and remuneration of midwives should be substantially improved and their training lengthened, improved, and standardized; that compulsory post-certificate courses are essential; and that the general supervision of midwives should be carried out by senior members of their own profession. The committee agrees that normal confinements can be satisfactorily conducted at home, and that the maternal mortality will not be reduced merely by increasing the hospital provision for normal cases. It considers that every maternity case should be nursed by a qualified midwife, and recommends that unqualified persons should be forbidden by law to attend women in childbirth for gain. The Memorandum of the B.M.A. concurs with this view, although—as the committee remarks with approval—it advocates the provision by the State of medical attention for the purposes of ante-natal and post-natal examination.

INADEQUATE REMUNERATION OF MIDWIVES

The remuneration of individual midwives, declares the report, is entirely inadequate, and compares most unfavourably even with that of nurses, who, as a class, are admittedly underpaid. The average salaries of village nurse-midwives, Queen's nurse-midwives, hospital nurses, and health visitors all considerably exceed the £80 which the committee has ascertained to represent the average yearly earnings of a midwife dependent upon her profession. In certain areas this figure may sink as low as £50, and out of this meagre sum the midwife is expected to provide equipment, necessary drugs, and disinfectants, and even in some cases dressings, for her patients. There is evidence that the low standard of comfort and cleanliness in the houses or lodgings occupied by midwives in certain areas militates against the maintenance of a high standard of professional work, particularly where ante-natal examinations have to be undertaken in unsuitable rooms normally utilized for other purposes, or where the sanitary arrangements are inadequate for the midwife's requirements. In the East End of London the fee is as low as 16s. for multiparae, and the great majority of patients pay no more than 30s.

The main causes of the low remuneration of midwives are, says the report: