RECENT ADVANCES IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

F. R. G. HEAF, M.D.

Medical Superintendent of Colindale Hospital, Hendon and St. George's Home, Chelsea.

(An Address given to the League of Fever Nurses on June 9th, 1934.)

The honour you have conferred upon me by asking me to speak on Tuberculosis at your first Annual Meeting is greatly appreciated, and in dealing with the recent advances in the treatment of Pulmonary Tuberculosis I realise quite definitely my responsibility, for there are very few diseases, probably no other disease, in which treatment has made such rapid progress as in Tuberculosis of the lungs.

Twenty years ago our patients were all treated by absolute rest and graduated exercises as laid down by Dr. Marcus Paterson. Excellent as this treatment was, it still left much to be desired, for although the majority of patients made immediate improvement it was found that relapses were very frequent and over 80 per cent. of patients were dead in five years. I do not wish you to think that this treatment is useless and should be abandoned. Although we favour graduated rest, nowadays, rather than graduated exercises, laying more stress upon the length and strictness of the period in bed with subsequent slow return to exercise, there is no doubt that it still forms the background upon which we must superimpose our designs for special or supplementary forms of treatment.

Before giving you details of these newer methods of treatment, I must tell you of the tremendous influence and assistance which radiography has been to us in the treatment of chest conditions. Previous to the use of X-rays the improvement of a patient was judged by the temperature range, pulse rate, weight, disappearance of the bacillus from the sputum, and improvement in the patient's general condition. We now know that all these evidences, although of value, can be misleading and that a patient can show improvement in all these signs and still be suffering from considerable activity which will eventually lead to a disastrous result.

Radiography has enabled us to see exactly what is happening in the lungs, and by serial photographs to tell accurately if the disease is progressing or healing. In addition to X-rays we are now able to derive information of paramount importance from frequent examination of the blood. This work is still in its early stages, but there is no doubt that blood counts, and sedimentation rates, combined with radiograms, enable us to predict much more accurately the future of any case, and also to determine the type of treatment which is most suitable for the individual case.

Since we have studied the progress of patients by radiography we have learnt that nearly all cases which relapse show persistent ring shadows in the radiograms. These ring shadows are cavities in the affected lung, and so long as they are open and discharge tubercle bacilli so long will the patient be in danger of a relapse. Modern treatment has therefore been designed to try, in every possible way, to compress or collapse these cavities so that they may eventually heal and be completely obliterated by scar tissue. Occasionally we find that a cavity will close completely on routine treatment by graduated rest and exercises, but that is a rare occurrence, and although I can show you some X-ray photographs in which this has occurred it is unusual, and generally we have to interfere with some form of collapse therapy.

The simplest form of this treatment is that of Artificial Pneumothorax, which is the introduction of air *between* the two layers of the pleura, thus separating the visceral from the parietal pleura by air pressure. This treatment when successful not only collapses the lung and compresses any cavitation which may be present, but also acts as a splint and rests the diseased area. As rest is a fundamental condition in the treatment of tuberculosis of any part of the body this action of an artificial pneumothorax is of great value. Sometimes we introduce the air into the pleural cavity to prevent the lung moving in cases of hæmoptysis, and sometimes, when both lungs are mildly infected, we induce a pneumothorax on both sides to restrict the movements of both lungs, particularly over the affected areas. By careful technique we can control, to some extent, the site of the greatest compression. When this is done we call it a selective collapse because it has compressed a selected diseased area of the lung.

Now this sounds all very simple and straightforward, but unfortunately we constantly encounter many difficulties. Pleurisy, which frequently occurs in the early stages of the infection, causes the two layers of the pleura to become stuck together either over a very large area so that no air can be introduced, or in small patches so that the lung is fixed to the parietal pleura in certain places, so when air is introduced we find only parts of the lung are compressed and it looks like a curtain attached at irregular intervals to the inner surface of the thorax. If these strands, which are called adhesions, are isolated and not too thick they can be cut by electric cautery, or diathermy, using an instrument, the thoracoscope, which is very similar to a cystoscope. Two cannulæ are introduced through the chest wall into the air space of the pneumothorax. Through one is passed the thoracoscope for viewing the adhesion, and through the other is passed the cautery or diathermy knife to cut it.

Where the adhesions cover a very large area, no air can be introduced, so that an artificial pneumothorax cannot be induced, and so, of course, the adhesions cannot be cut. In these cases we must rely on other methods to try and collapse the lung. Sometimes we take advantage of the fact that the nerve supply to the diaphragm is through the phrenic nerve. If this is interfered with the diaphragm stops working and is fixed in its highest position, that is in extreme expiration, so considerably reducing the size of one side of the thorax as well as resting the lung by the diaphragm becoming immobile.

Small cavities situated at the apex of the lung are sometimes contracted by this operation of phrenic evulsion, but large ones are not usually affected by it. For these we have to employ more drastic means. One of these methods is to insert a mass of wax between the chest wall and the *parietal* pleura. Parts of two ribs are usually removed and a space made outside both layers of pleura. This space is filled with wax from a specially constructed water jacketed syringe. The

previous page next page