

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS

BY CHARLES D. LOCKWOOD, M.D.

ONE of the most interesting developments of modern medicine is the surgical treatment of pulmonary tuberculosis. This disease has heretofore been considered the peculiar domain of the internist and surgical treatment was considered unjustifiable. It has always been thought that patients suffering from tuberculosis, owing to their depletion, were very poor surgical risks and even emergency operations for diseases of other organs in the tuberculosis were undertaken with great trepidation.

The chief obstacle to surgery in these was the anesthetic. All anesthetics are more or less irritating to a lung, and ether, which has been in common use until recently, is particularly irritating to the bronchial mucous membrane. The newer anesthetics, nitrous oxide and ethylene which are now in common use in this country, are much safer and less irritating than ether and their introduction has contributed much to the progress of chest surgery. Improvements in local anesthesia have also rendered operations on the lungs much safer.

Little progress was made in the treatment of tuberculosis until the principle of rest was applied. At first bodily rest, such as is carried out extensively in tuberculosis sanatoria, was resorted to and this proved a great advance in the treatment of early cases. The great difficulty encountered in the control of tuberculosis is due to neglect of early recognition of the disease, as the great majority of patients infected with tubercle bacilli do not seek expert medical advice until the disease is far advanced. Only a small percentage of advanced cases are curable by the ordinary régime of sanitarium care.

To check the progress of tuberculosis in these advanced cases, the principle of rest must be applied directly to the diseased lung. A number of surgical procedures have been evolved which produce this result. The simplest of these and the one which has been longest in use is "pneumothorax" or the introduction of air into the pleural cavity through a needle. The lung, under normal conditions, is in a state of negative pressure and as soon as air is introduced into the chest cavity a condition of positive pressure is established and the lung is squeezed up into a small compact mass against the spinal column. Respiratory movements in the compressed lung almost cease and it is put completely at rest. Under these conditions there is no spread of the tubercle bacilli and healing takes place. This method of treatment by pneumothorax is one of choice in all cases where surgical treatment is indicated and where the conditions for it are favorable. It has many disadvantages, however, such as the necessity

for prolonged treatment with many refillings of air; the fact that many patients will not persist in the treatment; and most important of all, the difficulty often encountered in entering the pleural cavity. A large percentage of advanced cases, otherwise suitable for pneumothorax, have dense adhesions between the two layers of pleura, precluding the employment of this simple surgical procedure. It is in this latter group of cases that the new surgical operation of thoracoplasty finds its place.

Thoracoplasty consists in the removal of portions of eleven ribs, from the eleventh to the first. From two to five inches of the various ribs are removed, thus allowing the chest wall to gradually sink in, compressing the lung in the same manner as is accomplished by air in the pleural cavity. The segments of rib are removed from the ends nearest the spinal column and the chest wall swings inward as on hinges. The operation is done in two or more stages, depending upon the condition of the patient. The first stage usually consists of resection of seven ribs, beginning below at the eleventh rib and proceeding upward to the fourth. The second stage completes the resection of the ribs from the fourth to the first, inclusive. It should be performed within four or five weeks following the first stage to obtain maximum benefit from the first operation. If the second stage is deferred too long, the ribs previously resected become united by bridges of cartilage and the second stage does not then accomplish complete collapse of the lung. Patients often improve so much after the resection of seven lower ribs that they refuse the second operation. In a good percentage of cases recurrence will take place if the resection of all eleven ribs is not accomplished.

This operation has been employed thus far chiefly in advanced cases with pulmonary abscesses which have been considered hopeless. From sixty to seventy per cent of these cases are now practically cured by complete and well done operations. The immediate mortality from the operation is about ten per cent. Twenty-five to thirty per cent will die within one or two years, notwithstanding the immediate benefits obtained from the operation, but it must be remembered that these are the most advanced and hopeless cases.

The indications for thoracoplasty are: (1) A relatively sound lung on one side. (2) Patients in whom pneumothorax has proven unsuccessful. (3) Patients of sufficient vitality to withstand a major operation. (4) Patients who from the inception of the disease are subject to hemorrhages. (5) Patients in whom the tuberculous infection is of the pneumonic type.

In selecting the cases, careful X-rays should be taken of the chest and close coöperation maintained between the medical specialist and the

surgeon. Following the operation, the ordinary régime in the medical treatment of tuberculosis should be followed for a period of six months.

The surgical treatment of tuberculosis is so revolutionary and radical that medical men are slow to accept it, but those who have observed a large number of these cases under surgical management believe that within a comparatively short time every case of tuberculosis will be given the benefit of surgical consultation. Both internists and surgeons will learn to recognize early in the disease cases which will inevitably go on to lung destruction and abscess formation and the percentage of cures will be greatly increased by this prompt recognition of the cases that ultimately will demand surgery.

Postoperatively, patients undergoing thoracoplasty suffer mostly from pain on deep inspiration, difficulty in raising the sputum and in changing their position. Good nursing contributes much to their comfort and speedy recovery.

Morphine must be given sparingly as it checks the coughing mechanism. Hot drinks, inhalations of tincture of benzoin and creosote help the cough. The position must be changed frequently to prevent congestion of the lungs and pneumonia. A nurse may become very deft in turning these patients from side to side without undue pain. They are usually more comfortable in a semi-sitting posture and once a day, after the first twenty-four hours, a special effort must be made by the nurse to encourage emptying the abscess cavity by posture. Most patients have learned how best to clean out their lungs but are often reluctant to do so because of the pain. Skill and determination on the part of the nurse can do much to encourage them to expectorate. The usual precautions must be taken to prevent infection of others by the tubercle bacilli.

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