Remarks

ON

THE MEDICAL ASPECTS OF
THORACIC SURGERY.*

BY

R. A. YOUNG, C.B.E., M.D., F.R.C.P.,

SENIOR PHYSICIAN TO THE MIDDLESEX HOSPITAL; PHYSICIAN TO THE
BROMPTON HOSPITAL, LONDON.

THORACIC surgery at the present time is a medical subject of absorbing interest. Although drainage of empyema is perhaps one of the earliest of surgical procedures, and although a few pioneer efforts, both experimental in animals and clinical in man, served to point the way, the real advances in thoracic surgery have occurred in the period of a generation—in fact, within this century. They have not, however, been slow in developing. Thoracic surgery has emerged from the tentative, experimental, and groping stage into one of well-established technique and of great achievement. Surgeons, physicians, radiologists, and anaesthetists may well be proud of the advances which their co-operation has achieved. It needs no great gifts of prophecy to forecast even greater triumphs in the future.

APPLICATION OF SURGERY TO THORACIC DISEASE.

The physician appeals to the surgeon for assistance when his own efforts have failed, or when he is almost helpless, often owing to the difficulties of access to the affected structure or organ. Medical failures are too often tragedies, leaving the patient maimed, suffering, and uneconomic. In no special department is this more true than in thoracic disease. The intrathoracic organs are literally of such vital importance that their disease or damage often results in severe and even dangerous consequences. Fortunately, as Meltzer pointed out, nature is generally lavish in providing "spares" or at any rate compensatory mechanisms.

It is perhaps not yet recognized as widely as it should be by practitioners or by patients, at least in Great Britain, how much help surgery can give in some of these grave intrathoracic conditions where medicine is impotent or confined to palliation. Thoracic surgery is now capable of yielding, and is indeed daily giving, results, without prohibitive risks, comparable in their usefulness with those of abdominal surgery.

Consider a case of chronic pulmonary abscess failing to drain effectively into a bronchus, accompanied by copious offensive sputum, and slowly progressing to incurable bronchiectasis, making the patient a misery to himself and a continual source of distress to his relatives. He who has seen such a patient restored to sound, robust health, and full working capacity, will surely approve, admire, and recommend this beneficent application of surgery.

A successful thoracoplasty in a case of pulmonary tuberculosis is another medico-surgical triumph which cannot fail to impress. To restore a patient suffering from chronic and progressive ill-health, and faced with the prospect of diminishing comfort and ever-increasing limitation to active and even full economic life, is a gratifying achievement which is daily becoming more common.

Such instances can be multiplied many times. They serve to emphasize the importance of a discussion of this kind, for the benefits of surgery should not now be withheld from suitable cases on the grounds that the procedures are experimental or associated with undue risk. They are now well established, and have universal or international sanction and approval, and a statistical warranty calculated to give confidence.

The medical aspects of this important development of the surgical art are very wide, and are difficult to define and to delimit. They involve:

1. The diagnosis of the condition requiring operation.
2. The assessment of the patient's suitability for operation, notably his capacity to bear successfully all that it may involve.

3. The choice of surgeon.

4. The discussion of the operative measures proposed and their adaptation to the condition present—for example, the question of operation in stages.

5. The preparation for operation and the after-care of the patient, both immediate and remote.

6. The decision as to the time for surgery.

DIAGNOSIS OF CONDITION.

The diagnosis of intrathoracic disease, especially of morbid conditions at the bases of the lungs or of the mediastinum, may be a matter of great difficulty. Fortunately these conditions rarely involve emergency operation. There is usually time for full investigation, and the experienced thoracic surgeon naturally demands that this should be done. Careful consideration of the history, symptoms, physical signs, and course of the patient's condition may suggest a diagnosis, but, where practicable, every investigation likely to help in establishing its accuracy should be undertaken.

The improvements in radiological technique have contributed in very large measure to the advances in the diagnosis and surgical treatment of intrathoracic disease. Complete radioscopy and radiographic investigations, including lateral and oblique views, are now essential in almost every case. The lateral and oblique radiograms, especially the former, may give crucial information. Investigation of the bronchial tree by means of lipiodol in suitable cases may determine the diagnosis and give extremely valuable information in regard to the suitability for operation. Bacteriological, haematological, and other clinical laboratory methods may contribute to the solution of the problem of diagnosis. Even exploratory procedures, varying from the puncture to artificial pneumothorax and exploratory thoracotomy, may be necessary. As a physician, I should like to deprecate exploratory puncture at random, where intrapulmonary suppuration is suspected. It may be the cause of disaster, if the pleura in the region of the puncture is not adherent. In case of any exploratory puncture or thoracotomy the surgeon should, if possible, have permission to proceed to full operative treatment and be prepared to do so. Bronchoscopy comes into the same category, since it may not only establish the diagnosis, but may be the means of operative cure.

ASSESSMENT OF THE PATIENT'S SUITABILITY AND
CAPACITY.

This is a much more difficult matter, and depends upon less ponderable factors. Urologists have set physicians an excellent example and a high standard of attainment in their methods of investigation of renal function before operation. I think that there is scope for research in the measurement of respiratory efficiency. The estimation of "vital capacity" may be helpful. The normal is enormously greater than is necessary for the bare maintenance of life, the minimum being in effect the "tidal air" which is obviously enough to provide adequate respiratory exchange at rest, provided that there is sufficient lung area undamaged for aeration purposes. A very low vital capacity may be a bar to operation. At present we have to rely more upon a careful clinical review of the patient's general condition, taking into consideration factors like age, physique, temperament, blood pressure, and the general nutrition. The sedimentation rate of the erythrocytes may prove to be of some value in this connexion, but at present its significance is debatable. The ultimate decision rests rather upon "clinical instinct"—that is, an almost intuitive assessment of the patient's condition and capabilities. Personally, I now find myself advising surgical intervention in cases where a short time ago I should have hesitated. None the less some more explicit criteria are desirable.

CHOICE OF SURGEON.

A great responsibility rests upon the physician or the practitioner in choosing a surgeon. The more difficult operations in this field of surgery should be entrusted, in my opinion, to those with special experience. Time in operations involving extensive rib removal may be of vital importance. A few minutes may make the difference between success and failure. Moreover, there is more than

* Made to a joint meeting of the Sections of Surgery and Tuberculosis at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

operative technique to be considered. There is the necessity for great judgement in deciding what should be done and how much should be attempted. Thoracic conditions often require several operations or several stages in one operative scheme. Fortunately, there are now teaching centres in almost, if not all, English-speaking countries where thoracic surgery of the best type can be studied and where experience can be gained.

The physician recommending surgery is well advised to observe the surgeon at work in order to learn what the procedure he advises may entail. It is also desirable—indeed necessary—that the surgeon should have a good and practical knowledge of the medical aspects of thoracic disease, including the significance of physical signs. I am bound to say that every thoracic surgeon I have known has amply fulfilled this condition. It is always stimulating and instructive to discuss cases with them, since they have the experience of what has been so aptly called “the pathology of the living.”

This question raises an interesting speculation whether this branch of medical work is likely to develop a type of specialist worker who will deal with thoracic disease from all aspects—that is, both diagnostic and therapeutic—by regimen, medicine, or operation. Some of the pioneers in this field have conformed to these conditions, like Brauer, Saugman, Gravesen, and Morriston Davies, and their names stand high in the roll of achievement. It is probable that the developments will vary in different countries. In England, at any rate at the present time, properly organized and co-ordinated team work seems likely to give the best results.

DISCUSSION OF MEASURES PROPOSED.

The physician discusses with the surgeon the morbid conditions and the measures most likely to yield good and permanent results. Although the surgeon from his experience is the best judge of what he is likely to achieve, yet the physician knows what he desires to attain, and free and friendly discussion and criticism have in my experience been very helpful. The physician has to bear the responsibility of advising operation, and he should take his share in deciding what is to be done. At the same time it is obvious that the ultimate decisions may be influenced by what is found at the operation, and the surgeon should have a free hand to proceed as may seem best.

PREPARATION FOR OPERATION AND AFTER-CARE.

It is important to recognize that in thoracic surgery the patient should be in the optimum condition. Some days occupied in preparation may be time well spent, and practitioners should recognize this and warn patients and their friends when advising recourse to surgery. Similarly, skilled after-care and nursing are of the utmost importance, and may contribute not only to the comfort of the patient but also to the success of the result, particularly in conditions like thoracoplasty, abscess, and empyema. These are matters of which the physician and the practitioner should have knowledge, though the responsibility is the surgeon's. Strict attention to details may be of the utmost importance to the patient.

TIME FOR SURGICAL INTERVENTION.

Emergency operations are few, and are confined practically to:

- (a) Relief of positive pressure in valvular pneumothorax.
- (b) Immediate artificial pneumothorax in cases of severe or recurrent haemoptysis.
- (c) Partial aspiration of a large effusion causing oedema of the opposite lung or dangerous mediastinal displacement, impeding its respiratory activity.
- (d) Aspiration of empyema in a seriously ill patient, as a preliminary to effective drainage.
- (e) Tracheotomy in bilateral abductor paralysis from pressure on both recurrent laryngeal nerves.

On this occasion I can only refer briefly to the time when the surgeon should be invited to help in medical diseases of the thoracic organs. In regard to pulmonary

tuberculosis, artificial pneumothorax has established itself as a therapeutic method of the highest importance, and the indications are well recognized. Where this fails, or is impracticable, the question of the cause of failure has to be considered—local adhesion, large apical cavities, or general adhesion.

I have an open mind on the subject of cutting adhesions; I hope that the more recent methods may render this procedure of greater usefulness. Except in very small and localized adhesions I am somewhat chary of its employment. Apicolysis, in my experience, has been disappointing, but I still hope that some improved method may yet be evolved, since the principle seems to be attractive and admirably adapted to the purpose in view. Thoracoplasty in its modern forms has proved so valuable that it should always be considered in cases suitable for artificial pneumothorax when that form of treatment has proved impracticable. The contraindications, however, are more definite and more emphatic than those of artificial pneumothorax.

Phrenic evulsion is proving of great value, especially in preparation for, and in addition to, artificial pneumothorax in some cases where this procedure by itself is unsatisfactory. I find it useful in some patients with unilateral disease where the localization is predominantly basal, though it is less often completely successful than might be expected.

In abscess of the lung I wait till the abscess is definitely localized and then, if rupture does not occur, I call in the surgeon. If rupture occurs, I try medical treatment, but if in six weeks it is clear that complete healing is not likely to occur, or if there are recrudescences of fever or expectoration, I recommend surgery. A chronic abscess involves serious risks, notably those of secondary bronchiectasis, of cerebral abscess, and of progressive ill-health. The longer operation is postponed the greater the risks. I have been much impressed with phrenic evulsion as a means of effecting complete cure after thoracotomy and drainage, if residual cough and sputum are present.

I have little experience of washing out the cavity through a bronchoscope, and I favour thoracotomy where possible.

Bronchiectasis is a depressing and disappointing problem just now, both medically and surgically. I hope that more may be done in the future to prevent it, since at present I am not too sanguine as to surgical procedures in this condition when it is fully established. Phrenic evulsion in the early stage of unilateral cases certainly seems of value, and, if this fails, artificial pneumothorax or thoracoplasty is worth a trial. Lobectomy seems to offer the greatest promise, but its risks are still serious.

In malignant disease lobectomy is giving encouraging results in a small proportion of cases where the growth is localized in the lung parenchyma away from the hilum. This should stimulate us to earlier diagnosis in these cases. Improved means of applying radium may also shed more light on this dark corner of our work.

Of empyema I should hesitate to speak were it not that the work of the American Empyema Commission does not even yet seem to have received general recognition, either by surgeons or by physicians. Too early drainage of a streptococcal effusion leads usually to tragedy, which still too often occurs. It cannot be too strongly affirmed that such an effusion should not be drained until frank pus is obtained on aspiration. On the other hand, chronic empyema resulting from delayed or ineffective drainage is a serious reflection on medicine and surgery alike, and should be a rarity, which unfortunately it is not.

CONCLUSION.

In conclusion, I venture to hope that the present discussion will do much to stimulate a wider recognition of the achievements of thoracic surgery and of its benefits, but do nothing to stereotype surgical procedure or technique. There is always scope for advance. The surgeon is sometimes satisfied—the physician never. We look to the surgeons to give us more and more effective help, and, judged by the rapid progress of the last ten years, I feel sure that the future is very hopeful.