

TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD MAY 7, 1934

The President, DR. WALTER E. LEE, in the Chair

CALVIN M. SMYTH, JR., M.D., Recorder

MALIGNANCY OF THE THYROID

DR. THOMAS A. SHALLOW, DR. WILLIAM T. LEMMON, and, by invitation, DR. ELI SALEEBY read a paper with the above title for which see page 1190.

DR. CHARLES H. FRAZIER recalled that about 25 years ago Howard J. Kelly gave us the first demonstration of the effect of radium on malignant tumors. One of his patients had an enormous sarcoma of the neck and he demonstrated the effects of radium treatment 10 and 14 days afterwards. The tumor had disappeared, and more than once the speaker has been reminded of that illustration of the effect of radium on malignant thyroid tumors. In some cases which seemed utterly hopeless the tumors disappeared under the influence of the roentgen ray. Recently a woman in her seventieth year with marked cyanosis and respiratory distress, due to a thyroid cancer that had all the earmarks of an inoperable tumor, was subjected to radiotherapy and in the course of two weeks there was not a vestige of tumor which could be felt.

END-RESULTS OF THYROID SURGERY

DR. CHARLES H. FRAZIER and, by invitation, DR. JULIAN JOHNSON read a paper with the above title for which see page 1195.

DR. CHARLES H. FRAZIER supplemented his paper by saying that the end-results are not always dependent upon or related to the manner of execution of a particular operation. If one operates too late, no matter how well the operation be performed exophthalmos will persist. In two consecutive cases, though leaving the same amount of thyroid tissue, one may show signs of hypothyroidism and one may not. One-half grain or one grain of thyroid extract may be necessary to restore the patient's thyroid balance. We should not tax ourselves for the results of visceral damage in those patients who before the operation had damage of the heart, liver or kidneys.

Two figures in the statistical table presented are of practical interest. One supplies the answer to the questions one always must be prepared for: Will the goiter return? Will a second operation be necessary? For the five years preceding 1929 his records showed that there were relapses in three per cent of cases. In the last five years the records were better; according to Doctor Johnson's survey secondary operations were recommended in only 1.7 per cent. The second question which one must be prepared to answer definitely

and unequivocally is: What is the risk of operation? At one time he told his patients that his mortality rate was 1.5 per cent. The mortality has been reduced to 0.6 per cent. This is not because of improvement in technic, although many refinements have been made. Rather is it because of a better understanding of the preparation of the patients and certainly a more intelligent program for the postoperative care. The speaker wished to emphasize all Doctor Johnson had said as to the importance of carbohydrate metabolism in relation to hyperthyroidism. One can never be master of the hyperthyroid problem until he understands this relationship. Continued clinical observations supplemented by the important researches of Dr. W. D. Frazier have demonstrated this. In the speaker's opinion it has been the judicious use of glucose in the postoperative management of very toxic cases that has reduced the mortality to its present very low rate. He confessed that he is receiving cases today much sooner than he did five and ten years ago; he does not see so many gravely ill patients as he used to. Only ten patients were declined for operation in the past five years.

TUMORS OF THE PARATHYROID AND ASSOCIATED BONE PATHOLOGY

DR. THOMAS A. SHALLOW presented six cases in substantiation of an hypothesis that the assumption that hyperparathyroidism plays the principal rôle in the production of cystic disease of the bone is not to be made without due consideration of the other theories advanced as to its etiology.

CASE PRESENTATIONS

CASE I.—A child with osteomalacia and osteitis fibrosa cystica, normal blood calcium and no operation.

CASE II.—Normal parathyroid removed at operation in the presence of hypercalcemia in an individual with giant cell tumor and osteitis fibrosa cystica.

CASE III.—A simple adenoma of the parathyroid gland showing no bone pathology.

CASE IV.—A toxic adenoma of the parathyroid showing multiple cysts and multiple fractures.

CASE V.—Toxic adenoma of the parathyroid, showing multiple giant cell tumors, multiple cysts and Paget's disease.

CASE VI.—Giant cell tumor with no parathyroid tumor but hypercalcemia and low phosphorus.

While trauma has been suggested as a theory in the production of this disorder, definite traumatism has not been constantly demonstrated. However, since these cysts begin near the epiphysial area, where the ligaments and tendons are attached, then an individual could have a twist and produce sufficient truma to cause an hemorrhage in that area. This is not a new theory at all, but it is an accepted one in causing a traumatism which produces osteomyelitis. A second theory advanced by Geschicter and Copeland is that there is an hyperplasia of the osteoblasts. There is no doubt from the extensive work done by these authorities that this pathology does exist. Is it not, however, a reparative process in decalcification and not a distinct entity?

Concerning the theory of inflammation and infection, while it has not

been entirely discredited, it has not been demonstrated that it holds a very substantial place in the production of this disorder. Lastly, the metabolic theory of the origin must be approached on a broad basis. If we accept the common belief that bone cysts, osteitis fibrosa cystica, osteomalacia, osteoporosis and giant cell tumors belong in the same pathologic classification, then the problem narrows itself down to an endocrine basis as to the etiology of these disorders.

While it is true that the alteration in blood calcium and blood phosphorus is not a constant manifestation, yet we know that where there exists hypercalcemia and low phosphorus, these pathologic bone changes are constantly found. It is our belief that the parathyroid gland undergoes periods of cyclic activity in much the same manner as is observed in thyroid gland activity. That is, hyperplasia to normal or tumor formation, or even to hypoplasia, depending upon the period of activity whether we find a normal calcium and phosphorus or an abnormal blood chemistry.

There is a sufficient number of reported cases to show that cystic disease of the bone is present in the presence of normal parathyroid glands; likewise, there is a sufficient number of cases on record in which hyperplasia of the parathyroid gland has been observed. While no one questions the diagnosis in the presence of a tumor of the parathyroid gland, yet one of our patients and a patient reported before the New York Surgical Society (McConnell) showed the presence of a parathyroid tumor with no bone pathology or abnormal blood findings. These tumors should be considered as simple adenoma because of their pathologic picture which differs from the toxic adenoma. In the toxic adenoma, there is a difference in pathology and in the blood findings. If we are to believe that the parathyroid gland plays the principal rôle in the production of this disorder and that the parathyroid gland can undergo various pathologic manifestations, even to hypoplasia, then it is conceivable that we may observe the various bone manifestations due to parathyroid hyperactivity in the active stage and when the storm has passed, the individual could have tetany.

Do we give sufficient consideration as to why Nature has separated the parathyroid glands, as she has? Is it not conceivable that Nature realizing the instability of this structure has separated the units so that during pathologic manifestations one or two parathyroid glands might be affected and the remaining parathyroids carry on normal activity? Could this not also explain the absence of etiologic finding in the parathyroid glands in the presence of active bone disorder? Is it not remarkable that with the removal of the toxic parathyroid adenoma, the individual makes a rapid recovery from the disease as exemplified in Case IV of this series, the remaining parathyroids taking on the work?

TOTAL THYROIDECTOMY FOR CARDIAC FAILURE

DR. CHARLES C. WOLFERTH, by invitation, in considering the medical aspects of the thyroid cardiac felt that the whole subject of total ablation of

the thyroid gland for congestive heart failure was in an experimental stage at present. One of the most important points is care in the selection of cases. It must be the function of the medical man to give the surgeon the right cases to operate upon. What are the right kinds of cases? As time goes on, and experience accumulates, our thoughts in this direction may be modified. At present the speaker feels that it is not worthwhile to do this operation in patients who have severe heart failure which will not respond to medical treatment. If a patient is continually getting worse under medical treatment, accumulates more and more fluid, so that one despairs of the result, it is natural to turn to surgery as a possible avenue of escape. This was done in the early stages of the work and while they were fortunate enough to escape operative mortality they did not accomplish anything worthwhile. The ideal patient for operation is one who is in a stationary or slowly progressive condition. On activity he may develop congestive heart failure, but on adequate rest, digitalization and other orthodox procedures, will get better or recover from the failure entirely. It is a great mistake to operate on patients whose condition is rapidly progressive. This would, of course, exclude from operation practically all patients with syphilitic heart disease. Only the very exceptional arrested case of syphilis should be considered for this operation. Patients should not be operated upon who have a reasonable chance of recovering under medical treatment. This operation changes the appearance of the patient. The skin becomes thick and young women who were attractive look many years older. There is a change in mental keenness and possibly subtle changes in emotional makeup, concerning which we know little at this time.

If the surgeon has not been successful in taking out the gland completely the basal metabolic rate will not fall as far as desired. A patient totally deprived of thyroid tends to have a basal metabolism of around minus 40. The operation should not be done on patients with a low basal metabolic rate. If one starts with a patient whose basal rate is minus 20, not much can be expected from operation. The rate cannot be permitted to fall below minus 30 because of the mental and physical retardation. Thus there is only a small margin to work on.

In the management of these patients all possible precautions should be observed. They are obviously not good risks and a certain mortality is inevitable. The essentials of a successful operation include removal of every vestige of thyroid tissue, preservation of the parathyroids and avoidance of bilateral paralysis of the vocal cords.

Doctor Wolfert emphasized the desirability of these patients remaining in bed until the basal rate is minus 20, or until it has been demonstrated that the rate is not going to fall that far due to incomplete removal. They feel better after operation as has been emphasized by Doctor Blumgart and his colleagues, and are optimistic. Some have died because they have not properly controlled their activities and not increased them gradually and cautiously.

Certainly this operation has a definite place in the treatment of congestive

heart failure but how large a place, the speaker was not prepared to say. The operation is hazardous but there is a group of patients to whom we have nothing else to offer as a constructive method of treatment. If operation is done carefully, adequate safeguards taken, and the proper type of case selected, our experience on the whole will not be unsatisfactory.

DR. I. S. RAVDIN in discussing the immediate results of complete thyroid ablation for congestive heart failure, said that nine patients had been operated on by Doctor Frazier and himself, with no operative deaths. As experience with this procedure had increased they felt that the operation should give a variable measure of relief in those patients with congestive failure who develop compensation on rest in bed. Patients who even after prolonged rest fail to develop compensation are poor subjects for operation, not only from the standpoint of the risk involved but from the end-result which may be expected. The relief from pain, especially that of an anginal character, is encouraging and it is likely that angina rather than congestive failure may prove to be the major indication for the operation.

In the operation the speaker believes that dissection from the lateral toward the medial portion of the gland is the method of choice. It permits of better visualization of the parathyroids and the recurrent laryngeal nerve. Local anesthesia is preferable to general anesthesia.

DR. CHARLES H. FRAZIER said that two of the patients had evidence of hyperthyroidism and had been treated by roentgen ray before the operation. This complicated the situation to a considerable degree and made the operation more difficult. The recurrent laryngeal nerve leaves the groove between the trachea and the esophagus, passes outward and then under the inferior border of the inferior constrictor of the pharynx. There it divides into its two major branches. It is in this area that one finds the lobe most difficult to remove and if one is not careful the recurrent laryngeal nerve may readily be damaged. The majority of surgeons do not realize that it is in this zone that the recurrent laryngeal nerve is most frequently injured. As for the end-results of total ablation, sufficient time has not elapsed. We must recite our experiences as they occur from time to time and be extremely careful in the selection of cases. In any case where the signs of decompensation do not disappear entirely after a reasonable period of rest total ablation is contra-indicated.

DR. HUBLEY R. OWEN remarked that Doctor Lahey stated the operation could be performed in the presence of auricular fibrillation. He wished to ask Doctor Wolfert's opinion regarding the advisability of operating under those circumstances.

DOCTOR WOLFERTH replied that fibrillation is not regarded as a contra-indication by most surgeons. The emphasis seems to be on the ability of the heart to come back, rather than the fibrillation.