TRANSACTIONS
OF THE
PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting, held May 8, 1916

The President, DR. CHARLES H. FRAZIER, in the Chair

EXOPHTHALMIC GOITRE

DR. ALBERT J. OCHSNER, of Chicago, read by invitation a paper with the above title, for which see page 385.

THE SURGICAL TREATMENT OF GOITRE

DR. MILES F. PORTER, of Fort Wayne, Ind., read by invitation a paper with the above title, for which see page 395.

DR. GRANVILLE T. MATLACK, of Wilkes-Barre, said that in relation to the treatment of exophthalmic goitre it should be kept in mind that this disease is one in which distinct remissions may be expected, irrespective of treatment. This remission in some cases is very marked and lasts many times for several weeks. The patient may express herself as being well, put on weight, and gain in strength, and then the symptoms recur. If any form of treatment was being used at this time, it would naturally get the credit for the improvement.

The mortality records following operations for exophthalmic goitre have improved not because the operation has become any easier to perform, but because more consideration is given to what the patient can have done with reasonable safety; when to do it, how much to do, and the proper care before and after operation.

Preliminary ligation, either one or more poles, is regularly done in the acute, severe exophthalmic goitres with chronic and secondary symptoms, cardiac dilatation and loss in weight. The ones that are bad mentally, and those whose sleep is more or less disturbed, are certainly cases for ligation. Marked improvement is shown by this operation, and a safe thyroidectomy can be done in from two to four months, depending on the condition of the patient. These cases, however, will invariably relapse to their former condition if a thyroidectomy is not done. It is well to impress upon the patient and the patient's caretaker the importance of the thyroidectomy after ligation, as the

patient may consider herself well afterward, and you may not hear from her until she has developed a state that is decidedly worse than when the ligation was performed.

Regarding the operative cures, cases are seen which come late for operation with secondary effects in the heart and kidneys. In these cases, of course, one would not expect to get a permanent cure, because the damage was done before the gland was removed. In some cases in which there has been resection of both lobes, in a few months or a year or two the gland will seem to replace itself, and these patients will have a return of symptoms and a second operation is necessary. Many times, clinically, in the non-hyperplastic thyroids, there will occur an almost exact exophthalmic goitre syndrome. The surgeon will think he is dealing with a regular type of exophthalmic goitre, and the difference between these two types of goitre, clinically, is sometimes very hard to tell. A late case is a dangerous case of goitre, and one not improved by ligation of the superior poles. These patients are improved simply by rest in bed and some medical treatment, such as digitalis. This prepares them for a thyroidectomy. They will not bear ether very well and it is better to operate under local anæsthesia. In his own work he gives ether in nearly all exophthalmic goitre cases with one-tenth per cent. novocaine, with ten minims of adrenalin to the ounce. In five years, from 1907 to 1911 inclusive, he had done 119 thyroidectomies for exophthalmic goitre, with two deaths. Eighty-two of these patients have made a permanent recovery. Twenty of these 119 cases received preliminary ligation; one died following operation; two of the cases have recovered simply by ligation.

Dr. John B. Deaver stated that he believed that the majority of exophthalmic goitres originate in a simple goitre. Therefore, the simple goitres are not medical cases, should not see the medical man, but should be referred at once to the surgeon. This has been his teaching for the last few years, also that an exophthalmic goitre seen early should be operated upon immediately. He appreciated the statement that a certain percentage of these cases will get well or be greatly improved, but he believed a much larger percentage will come to operation or will die of toxæmia consequent upon that goitre. Therefore, the question goes back to the original proposition that it is a great deal better to subject the patient to operation in the incipiency of the disease. He had never lost a case of exophthalmic goitre when the conditions were at all favorable for operation. He had, like other men, lost cases in which there was a degenerated heart, whether it was due to myocarditis, advanced nephritis, or what not. A certain percentage will

die. If these cases could be seen early they probably would get well. From his experience in following up cases, he said that after early operation many get well and stay well. In the late cases or cases pretty well advanced, although about 50 per cent. do not come to secondary operation, they are not greatly benefited by the original operation.

In the question of boiled water treatment he had had but one experience. The patient was treated at the German Hospital; one of his assistants carried out the treatment and in fifteen minutes the patient was dead.

DR. JOHN D. MCLEAN said that in his experience in Philadelphia very few goitres are seen by the medical man. He related, however, a case which he had been watching for seventeen years. The first intimation he had that the patient had exophthalmic goitre was when she developed an extensive and obstinate lupus erythematosus of both eyelids, extending from the temples and back to the ears. The patient had received almost every form of treatment without benefit. The condition was left alone for about two months when it disappeared entirely. Shortly after that the eyeballs began to get a little prominent and the thyroid to enlarge. During the course of this disease the patient developed an abscess of the right kidney which was operated upon with recovery. The greatest improvement in her condition was due to morphine, which was used because she could not sleep. The pulse was so rapid it could not be counted. About two years ago she was sent away from the city to an institution where she was kept at absolute rest of both mind and body for three months, and since then the improvement has been permanent. The gland is almost normal in size, the exophthalmos just the same as at the beginning of the disease. She is in excellent health with the exception that at the slightest exertion her heart becomes very rapid. Concerning treatment he was of the opinion that nothing will do more good than absolute rest of mind and body.

DR. CHARLES H. FRAZIER said that the incidence of goitre on the Atlantic seaboard is insignificant compared with that in the goitre zone farther west. However that may be with regard to simple goitre, there is no doubt that toxic goitre is much more prevalent in the East than it used to be, so that in the eastern clinics we are being confronted with an increasingly large number of such cases. Emphasis should be placed upon the pathology of toxic goitre, because a clear understanding of the pathology is absolutely fundamental to the intelligent management of the disease. In his own clinics he had adopted the classification of Plummer: (1) The non-toxic non-hyperplastic; (2) the toxic

non-hyperplastic, and (3) the toxic hyperplastic or typical exophthalmic goitre.

Attention has been drawn recently to the clinical syndrome of toxic goitre with gastric disturbance. Diarrhœa is frequently observed as a symptom of toxic goitre, but his attention had never been called, until recently, to gastric disorders, and he was rather surprised to learn from the writings of Ewart that he regarded gastric dilatation with gastric disturbance as more or less fundamental to the clinical syndrome of toxic goitre. He said it was the rule rather than the exception.

Another point with which he had been impressed in his rather limited experience was the relationship of tonsillitis to the etiology of toxic goitre. More emphasis should be placed upon this definite relationship in the pathogenesis of the disease. He had been struck by the frequency with which the tonsils have been diseased in his toxic goitre cases. He had seen many cases in which the signs of toxicity followed closely upon attacks of acute tonsillitis, and what is still more convincing, he had seen marked improvement follow the removal of tonsils in such cases. So that now he advocates, where the tonsils are diseased, a tonsillectomy preliminary to ligation or lobectomy. Although his own experience does not include any cases in which either the X-ray or the operation revealed enlargement of the thymus gland, quite a large number of cases are on record now, where there is an associated enlargement of the thymus gland. The exacerbation of the disease in these cases has been attributed to the thymus involvement and the removal of the thymus was followed by very striking relief. Von Haberer gives the records of two or three cases, in which operation upon the thyroid gland itself had failed, and the partial removal of an enlarged thymus gland was followed by striking and immediate relief. It has been recommended that routinely the thymus gland, if found enlarged at the time of operation, be removed. He doubted very much the advisability of this, as it would undoubtedly increase the mortality, and the part which the thymus gland plays in the pathogenesis of the disease is not sufficiently constant.

One of the most important factors is the selection of the time and the character of operation. He was entirely in accord with what the previous speakers had said regarding the avoidance of operating during the acute exacerbation of the disease. He never, at the first visit, gave an opinion as to whether operation was required, of what character it should be, or when it should be performed. This opinion is always reserved, no matter how insistent the attending physician may be that operation be done without delay, or how much better he thinks he

understands the patient's peculiarities, until the patient has been under observation at least one, and sometimes two, weeks, usually in the hospital, and always in bed. When in doubt always err on the side of conservatism; boiling water injection is safer than a single ligation, a single than a double ligation, a double ligation than a lobectomy. Upon the theory that in ligation of the superior pole the nerve supply is included, superior pole ligation should be given preference to ligation of the inferior pole. There is no doubt that the functional activity of the gland responds very positively to nerve stimulus, and, if we ligate the entire substance of the superior pole, including the nerves as well as the vessels, we accomplish more than by ligation of the vessels alone. The secondary operation of lobectomy is very much easier to perform if the superior poles are exposed through independent incisions one-half inch below the upper margin of the thyroid cartilage.

It is a curious fact that there is no consensus of opinion upon the selection of an anæsthetic. Looking the world over we see in three large clinics Kocher using local anæsthesia, Ochsner using ether, and Crile, nitrous oxide. As each anæsthetic is advocated in equally strong terms the choice must be left to one's own judgment and experience. A strong argument can be made for general narcosis as against local anæsthesia, in all forms of toxic goitre, and an equally strong argument for nitrous oxide as against ether. He believed absolutely in the application of the general principles of anoci-association.

Except in one or two cases he had not employed boiling water injections, so that he could not speak of this procedure from personal experience. In very severe cases the mortality may be as high perhaps as in ligation. Statistics from the Mayo Clinic give two deaths from ligation and two from the boiling water injection. This is not offered as a criticism against the latter treatment, but merely to show that no matter which method is used in the very severe cases, there are bound to be fatalities.

The expectation of life in the natural history of goitre is an important question as applied to the indication for surgical therapy. In the untreated cases the tendency in the gland to undergo a process of retrograde metamorphosis, and for the condition to be transformed from one of hyperthyroidism into one of hypothyroidism, is not to be lost sight of. The possible sequence of events is one of the strongest arguments in favor of early operation, since in the terminal stages the prognosis is invariably grave and surgical intervention futile.

DR. OCHSNER, in closing, remarked that as to tonsillar infection in goitre of adolescence, he believed that at least 75 per cent. of the

cases that he had seen became permanently well by removal of the infected tonsils, by drinking boiled water and following a sensible diet and hygiene, and by getting 8 to 10 hours of sleep with open windows. In certain places in Michigan and Illinois there were goitre wells. Farmers whose children were free from goitre when living in a certain section found that they began to develop goitres upon moving to another farm. In these cases no further goitres develop if all drinking water is boiled. He referred to experience quoted by Dr. Bircher. Seventy per cent. of the entire population of Rapperswyl in Switzerland had goitres so long as they used the water from alluvial soil on one side of the valley, but when the water was used from the granite rocks from the other side of the valley, the goitres disappeared from the children in the village. The same conditions were noted in two young ladies' seminaries situated a mile and a half apart.

Hyperthyroidism seems to affect certain muscle groups. A patient coming into one's office may suddenly, when she sits down, drop her weight into the chair. Perhaps a woman brings her daughter, and says she constantly drops the dishes or anything she attempts to carry; that when she goes upstairs her heart beats rapidly, and her legs refuse to carry her. He had seen cases sent to the hospital for operation for dilatation of the stomach in which the stomach muscles were affected and the stomach relaxed because of hyperthyroidism and in which tremor and tachycardia were present, in which no attention had been paid to the thyroid gland.

He had not been able to make out the enlarged thymus gland as an accompaniment of hyperthyroidism. He had not been able to outline a thymus gland in his thyroid cases, although the X-ray plates have shown frequently that the hyperthyroidism is accompanied with enlargement of the thymus gland.

X-ray treatment seems to increase the general hyperæmia and he had had a lot of cases upon which he had operated who had previously received X-ray treatment for a while. Several years ago C. H. Mayo wrote a paper on "X-ray in Hyperthyroidism," and he used the treatment in a series of cases at that time. He thought at first that it might improve the condition of these patients, but he could see no permanent benefit. It is so very easy to imagine that this or that form of treatment helps a case of hyperthyroidism. In this connection he had a very peculiar experience. A friend of his whom he had known for many years and who had practised in Colorado, found that goats that were infected with a certain parasite had goitres, and that if they were dipped the goitres disappeared. Also if some form of mercury was

administered the goitres disappeared. He thought that the same remedy would cure exophthalmic goitres in man and tried it upon all the cases he could get. There were at that time two patients in the hospital nearly dead with hyperthyroidism. In one of these Dr. Ochsner tried the remedy, while the other one was so seriously ill that he did not dare to risk the use of any remedy, and in three weeks both were so much improved that he was justified in removing the gland and they both got well. He had a patient who came from Michigan with bad hyperthyroidism whom he intended to treat in the same way, but as he was going out of the city for a time and had not the remedy at hand, he simply gave her a diet list and general directions for rest and hygiene, and in three weeks when he returned, the goitre was almost well. She had come from a goitre-well region. He had had any number of similar experiences. In one case a woman came from Mexico, Mo., who had consulted a physician in St. Louis, who advised her to use a certain kind of pad said to cure goitres. When she returned to learn how to apply the pad a few weeks later, the condition had improved remarkably and this improvement was at once credited to the action of the pad by the medical man, when in reality the pad had not been worn at all. Under almost any quieting treatment these cases will improve to a certain point where it is safe to operate. He had been so convinced of this that during 1915 he operated upon 106 cases and used this plan throughout, with but one death. The fatal case was a big strapping fellow from the South, who seemed in such good general condition that he felt he could operate at once, notwithstanding rather marked hyperthyroidism. The year before he had operated upon a daughter of this man who was in a fearful condition, keeping her quiet for ten days prior to operation. This man was one of the stubborn sort who would not keep still; he would jump up and exert himself unreasonably, and in one of his jumps he had an acute dilatation of the heart and died. Had he kept him still for a few days before the operation, he would probably have lived through the operation. Of 561 cases operated during six years previously, he had lost 16 cases, so that the death-rate was three times as high before he carried out this plan absolutely.

No doubt local anæsthesia is the best if one can treat his patients as Kocher does. When he talks to them they hold still, no matter what happens. If one can do that, it works. Recently he had one of these patients. When the patient was brought up the anæsthetist said, "I don't think we had better risk that case." The pulse was 160 and went to 170 and 180. Dr. Ochsner went out and spoke to her about local

anæsthesia and she said, "Anything you say is all right." He knew that in that frame of mind taking out the thyroid would not do her any harm. He used novocaine and she sat up the same afternoon and was out of bed the next day.

Regarding gastric lavage after thyroidectomy, it should not be forgotten that if the stomach is washed out with water at 100° F., the patient will be very much less likely to suffer from post-operative hyperthyroidism.

DR. PORTER, in closing, said that in the vast majority of the so-called simple goitre cases later hyperthyroidism develops and in the end myxœdema. All of the myxœdema cases at one time or other were cases of hyperthyroidism, so-called. If they live through they will become myxœdemic. That is the reason they become fat.

He would emphasize the point made by Dr. Deaver that the majority of cases of exophthalmic goitre were once simple goitres. It corresponds with what we know of the history of goitre checked up with the microscope. It is true that an occasional case of so-called exophthalmic goitre is met with without a palpable goitre. While this is possible, it is very rare.

He had never seen a malignant thyroid which was not engrafted upon a simple thyroid. If that be true, and it be true that exophthalmic and toxic goitres were once simple goitres, surgeons are abundantly warranted in saying that every simple goitre should come out.

Regarding the end results in thyroidectomy, he was not unmindful of the fact that the thyroid is a protective agent perhaps against all sorts of infection and intoxication; but, if by thyroidectomy one happens to make a little too extensive removal of the thyroid, one has not done anything more than Nature will do if the individual lives long enough. Ultimately the thyroid will undergo cytolysis; all the cells will be broken down and the individual will be in the position of the myxœdemic patient.

One word about the injection of boiling water. *Per se* the treatment is without risk. A certain per cent. of these patients will die in spite of any treatment. The mortality that follows the boiling water injections is the result of the disease rather than the treatment. That the boiling water treatment is a life-saving procedure in properly selected cases has been proven. It has been said that the way to cure hyperthyroidism is to take out the thyroid. This should be the treatment of choice when it can be done without risk.