itself. One case is interesting in this respect. A second lobe had been partially excised by clean cutting and without crushing, a large raw surface being left. Gauze drainage had been used. Instead of draining, the gauze had blocked the exit. When I next dressed the case I found the neck distended with secretion. I moved the gauze and the retained secretion poured out. It had been under pressure, but the patient had not been distressed. I believe that avoidance of crushing and free drainage are of the greatest importance.

Crushing is not necessary to stop haemorrhage. A lobe may be cut across with impunity. I do it constantly. When operating on a second lobe I cut from the front of the upper pole downwards and backwards to the back of the lower pole. That removes from half to two-thirds of the lobe, while it leaves the blood supply from the superior thyroid artery intact. Also it preserves the parathyroid glandules of that side from injury, though I cannot believe they possess the importance assigned to them by American surgeons.

The haemorrhage looks alarming at first, but the larger vessels are in the capsule, and are easily picked up. Any big point on the gland surface is underrun with catgut, and sponge pressure soon stops the oozing. Twice in the series I have, when removing a gauze drain on the second day after operation, separated a ligature from a vessel. The haemorrhage was sudden and great; the wound had to be opened at once to secure the vessel. Since then I have always used a tube, never gauze. Latterly, with increased rapidity in operating, I have been removing one lobe, the isthmus, and half the second lobe at one operation, when I have judged that wise. The time taken, and the amount of handling necessary for this, are less than was required for the removal of one lobe in my earlier operations.

What I have written may appear to imply that the operation is easy and safe, but its severity should not be minimized. All handling must be of the gentlest nature, and must be rapid. The vessels are increased in number and size, and they are very brittle. If one gets off the track, the haemorrhage may be appalling and uncontrollable. If the operation is prolonged, the bleeding is bound to be excessive. It is not necessary, however, for any of these accidents to occur.

Finally, I would plead for early operation, as soon as it is seen that medical treatment is not effecting a cure, for with local anaesthesia, rapid operating, no crushing, and free drainage, the operation may be regarded as absolutely safe.

Analysis of Cases.

The following is a short analysis of my cases:

Total number of partial thyroidectomy operations under local anaesthesia, 113. Of these:

Malignant goitre	...	...	2 cases.
Exophthalmic goitre	...	...	88 cases, 1 death.
Parenchymatous or adenomatous	...	...	23 cases, no death.

The parenchymatous cases may be dismissed without comment. Of the exophthalmic cases, 52 were typical cases with classical symptoms; 15 of these 52 had part of the second lobe subsequently removed. Of this class I can say that in every case where the removal of the larger lobe has not effected a cure, the removal of part of the second lobe has done so (always excepting the one case which died). In many of the latter cases one and a half lobes were removed at one operation.

Eight cases with irregular heart beats and pronounced oedema. Of these, 4 had part of the second lobe subsequently removed; 1 had a third operation because the upper pole left after the second operation was unsightly. The original goitre had been of immense size. Every one of these stood the operation well. All are still alive but one. She had made a splendid recovery, and three months later went to her country home, engaged in a round of festivities for a week in a climate with the temperature of over 100° in the shade most of the time, and died very suddenly at the end of it. This case, before operation, had oedema of the legs, body, and arms. There were striae around the elbows like those on the abdomen of a multiparous woman, and the evening before operation fluid was drawn off from both pleural cavities. After the operation she passed immense quantities of urine each day. Every trace of oedema disappeared until the week in which she died. All the others are very much improved.

Two cases, irregular, had intense tachycardia, but no glands enlarged and no exophthalmos. Of these, in 1 case I subsequently removed a small piece of the lower pole of the left lobe. She represents the only failure of the series.

Five cases of secondary exophthalmic goitre. In this class cure is rapid and complete.

Seven of the exophthalmic cases have been in males.

REFERENCE.

Dunhill, *Intercolonial Medical Journal*, June 20th 1908.

A CONTRIBUTION TO THE SURGERY OF LINGUAL THYROIDS.

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THE persistence and development of thyroid remains in the posterior third of the tongue are the least usual of the aberrations to which the thyroid gland is liable, but its occurrence is sufficiently common, and these remains are sufficiently difficult to eradicate successfully and completely to warrant close attention to any improvement in the accepted methods of treatment.

The development of the thyroid gland explains their occurrence. As early as the fourth week, during the appearance of the buccal and pharyngeal portions of the tongue on the floor of the primitive pharynx, the hypoblast between these two parts proliferates and gives rise to a solid protrusion, and the part thus formed pushes downwards and backwards to the hyoid bone, and becomes the isthmus and part of the lateral lobes of the thyroid. The stem of this bud represents the thyro-glossal duct, and the buccal opening of the duct the foramen caecum. It is in the track of this duct that the remnants of thyroid tissue lie. These developmental remains may occur in any part of this canal, and constitute, when arising in the portion of it extending from the foramen caecum to the hyoid bone, lingual thyroids.

There may be one or a number of detached thyroid masses; and when one such mass is removed the others may take on compensatory action and grow, giving rise to a recrudescence of the tumour after operation. This is the reason for the imperativeness of radical measures in operating on these structures in the tongue.

The case narrated in this paper well illustrates the obstacles encountered in the removal of this fetal manifestation, and proves that the procedure most usually adopted may be futile, and therefore not always the best to employ.

A question that must ever be before the mind of the operator and carefully taken into account before deciding upon operation on the lingual thyroid is whether the thyroid gland in the neck is sufficiently developed to carry on the thyroid function in the bodily economy, or is the lingual tumour the only thyroid representative present? It is on record that excision of the lingual thyroid has been followed by myxoedema. The neck should, therefore, always be carefully palpated, and the outline, size, and development of the thyroid estimated. Should the gland be apparently absent, or be but small, one should certainly hesitate before deciding to operate. It would only be when the lingual tumour was of considerable size, and causing such marked disturbance as to impair the health, or jeopardize life, that a radical operation should be entertained.

In such circumstances it would be preferable to resect the thyroid tumour in the tongue, thus reducing its bulk, and so, in all probability, the distressing symptoms, and at the same time leaving sufficient gland to carry on the indispensable thyroid functions. This course should be chosen even at the risk of a recurrence of the lingual enlargement.

In searching the literature of this subject I have been unable to find any record of the method here adopted having been used for the eradication of these tumours—namely, by splitting the tongue from tip to base. The methods usually chosen have been either that of the galvano-cautery, or subhyoid pharyngotomy, or a combination of partial excision and the galvano-cautery.

The particular procedure selected is dependent upon the size of the growth. If the tumour be large, operation through the mouth is not likely to be successful, as access would be insufficient, unless the method here advocated were adopted. In these circumstances the operation of subhyoid pharyngotomy is that most favoured by surgeons, but this is by no means an ideal procedure.

It is excellently suited for the removal of growths at the entrance to the larynx, that is, involving the epiglottis, aryepiglottic folds, arytenoid cartilages, and in the region of the sinus pyriformis. But for tumours in the locality of the base of the tongue it has the great disadvantage of

opening a communication between the septic cavity of the mouth and the large neck wound. There is much risk of the wound failing to unite by first intention, and of a fistula resulting, or a disfiguring puckered cicatrix occurring, and in the case of a female patient this would be a serious consideration. The patient has to be most careful to maintain a fixed position of the head for some days, and the recovery is therefore slower and more hazardous, necessitating studious nursing and a longer stay in hospital.

Another disadvantage in subhyoid pharyngotomy that must not be lost sight of is that the extent of the opening is restricted by the imminent risk of dividing the superior laryngeal nerve if the transverse incision be carried any distance beyond the hyoid bone, as this nerve enters the larynx by piercing the lateral part of the thyro-hyoid membrane. Should the nerve be cut, the larynx is rendered insensitive, allowing of the entrance of food and mucus, and the wound discharges into the larynx. There is great likelihood of aspiration pneumonia, as these foreign substances cannot be reflexly coughed up, since the sensitiveness of the larynx to their presence has been destroyed, and one cannot trust, therefore, to the cough reflex to prevent secretions from flowing further down.

The tumours formed by lingual thyroids vary in size from that of a cherry to that of a hen's egg or small Tangerine orange. If the growth is small, incision of the covering mucous membrane and curetting, with the subsequent application of the galvanic or thermocautery, will sometimes suffice to get rid of it and prevent recurrence, but this treatment is less likely to be efficient than excision of the capsule, which consists of the dilated remains of the thyro-lingual duct.

Should the tumour be large, then excision becomes necessary, and the chief difficulty is to gain sufficient access so as to leave none of the gland substance behind. This obstacle is most readily overcome by the method of section of the tongue in the middle line.

The case in which this operation was carried out was that of a female, aged 32 years, a teacher by profession, who came to the clinic at the Central London Throat, Nose, and Ear Hospital complaining of something growing at the base of the tongue, of thickness of the voice, and of constant and uncontrollable desire to swallow. On looking into the mouth a large firm swelling was found occupying the region of the lingual tonsil and projecting above the surface quite visibly. She gave a history of a similar condition having existed eleven years before, when an operation was performed at St. Bartholomew's Hospital, and stated that she was again operated upon at the same hospital nine months ago owing to a recurrence. Both of these attempts at excision had taken place through the mouth, but laryngotomy had not been done on either occasion.

The operation here advocated was performed as follows: Under chloroform anaesthesia laryngotomy was performed, and the pharynx being firmly plugged with a captive sponge, the anaesthetic was administered through the tube.

The tongue, being well protruded from the mouth by means of two deeply-inserted stout silk cords, was split from tip to base, and in this way the tumour, which was the size of a small Tangerine orange, was effectively exposed. The growth proved to be solid, and was enveloped in a firm, thick capsule; it occupied nearly all the region of the base of the tongue, the structures being so stretched and attenuated over it that there was considerable danger of the whole tongue coming away during the extrusion of the mass. Part of the capsule, very deeply situated near the hyoid bone in the vicinity of the thyro-lingual duct, had to be resected, but this was first thoroughly curetted and the surface well rubbed with a solution of chloride of zinc, gr. 60 to 3j. The tongue was then stitched up from tip to base with interrupted sutures of chromicized catgut, except the last half-inch above and below which were left open for drainage.

Rectal feeding was employed for two days, and a spray of peroxide of hydrogen used for the mouth. She made an uninterrupted recovery, and left the hospital on the sixth day.

The tumour proved to be of thyroid-adenomatous nature.

THE annual meeting of the Medical Defence Union will be held at University College, Bristol, on Thursday next, at 4.30 p.m., when the annual report of the Council and statement of accounts will be presented.

PREPARATIONS are being made for a Health Congress in Leeds from July 17th to 24th, under the joint auspices of the Corporation and University of Leeds, the Royal Sanitary Institute, and the Royal Institute of Public Health. A meeting was held in the Town Hall on May 18th, presided over by the Lord Mayor (Alderman F. J. Kitson), at which committees were appointed to arrange for the reception, entertainment, and general comfort of those who will be attending the congress.

NOTE ON THE REMOVAL OF PORTIONS OF DOUBTFUL TUMOURS FOR DIAGNOSTIC PURPOSES.

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DURING a discussion on mammary carcinoma at the annual meeting of the British Medical Association in 1908, Sir W. Watson Cheyne and other surgeons condemned the practice of removing portions of suspicious tumours of the breast for diagnostic purposes. It was contended that by cutting into cancerous tissue the tumour cells were carried into healthy surroundings and that there was grave risk of transferring them into opened lymphatic vessels from which, apparently by a process of embolism, they might be disseminated; and, at any rate, the condition was considerably aggravated by such a proceeding.

Two assumptions are the basis of this contention, first that the artificial transference of the cells from the malignant tissue to hitherto normal tissue increases their malignancy, and, second, that the deposition of these cells at the open mouths of severed lymphatics places them in a position for more rapid dissemination. There is no experimental evidence in favour of the former, and with regard to the latter there is no *a priori* reason why dissemination along opened lymphatic channels should differ from the same process occurring naturally along closed channels. It may, however, be said that by the procedure under discussion a wider area of lymphatic paths is presented to the growing cancer; and if sufficient time is allowed to elapse between the exploratory operation and the extended operation in the case of the tumour proving malignant, this would constitute a danger. Section of a doubtful tumour *in situ* can often determine the diagnosis, and in the case of cancer the immediate and extensive removal that would be practised would eliminate any such danger. Where such section does not render the condition certain, recourse should be had to laboratory methods that allow of rapid diagnosis, the examination of frozen sections, a proceeding which need not delay the operation for more than a few minutes, and which would not increase the supposed danger. To obviate the risks consequent on removal of a portion of a doubtful tumour it was proposed to remove the whole tumour presumably as if it were a simple tumour. Any wider removal than this, supposing no malignancy was present, would not be good surgery; and in the event of the tumour proving malignant, in which case the removal would be admittedly incomplete, would these risks be eliminated or even decreased? The proposition is very questionable, for in circumsectioning a malignant tumour the surgeon would be cutting across lymphatic channels on all sides, some of which might be certain to contain cancer cells; the lymphatic and the implantation areas would be enormously increased. Whatever way be adopted, rapid histological methods of diagnosis are essential.

The method which I have found to give the best results is as follows:

Thin slices of the doubtful tissue, about 1 mm. in thickness, are removed, and placed immediately in acetone and taken to the laboratory.

The slices are transferred to hot water for a few seconds, dipped in gum solution, and placed on the stage of a freezing microtome. The current of carbon dioxide is turned on, and the whole tissue is well frozen in less than one minute. The microtome used is a very handy little apparatus made by Leitz, the knife carrier of which is sufficiently heavy to give a good momentum to the razor.

The sections, as they fly off tangentially, are caught in a basin of water held by an assistant. They are floated on to a glass slide, the excess of water is dried off, and a drop of acetone solution of "krystallviolet" is placed on the section. This fixes it to the slide and stains it rapidly. The excess stain is removed with water and acetone and the section is cleared with xylol and is then in a condition to be examined under the microscope.

Good histological preparations can thus be obtained and may be kept permanently. Allowing two minutes for conveyance of the tissue from the operating theatre to the laboratory, during which time the specimen lies in acetone, I have found that on an average the whole time occupied, from the removal of the tissue till the diagnosis is given to the surgeon, is seven minutes. I have also tried to freeze the tissue as it was obtained and to cut sections without