

## TECHNIQUE OF EARLY OPERATION FOR THE REMOVAL OF TUBERCULAR CERVICAL LYMPH NODES.\*

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IN the removal of tubercular cervical lymph nodes thoroughness is surely very important. All infected nodes should be removed, when practicable, for, although the encapsulation of a limited infection is possible, its spread to other tissues is much more probable. The effort to procure thoroughness in this operation has frequently led to an utter disregard of the scars which are produced, and patients are frequently deterred from operation through fear of the resulting disfigurement. In certain cases of advanced and general cervical tuberculosis this disregard of resulting scars is to be advocated. It is better to save life and leave scars than to sacrifice the patient.

In other instances, however, a scar-saving operation is compatible with thoroughness. The infection in about 85 per cent. of the cases as they appear in New York first involves the subparotid group of lymph nodes; the nodes which form the first barrier to the spread of infection from the pharynx and tonsillar region. There is a characteristic appearance to the patients during the early part of this infection. The accompanying photograph (Fig. 1) indicates this appearance. The nodes just below and behind the angle of the jaw and under the upper part of the sterno-cleido-mastoid muscle are enlarged, slightly movable, rather tense, and usually free from evidence of acute inflammation. They frequently remain in this condition for several months, sometimes increasing and again

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diminishing in size; and during this period they may usually be thoroughly removed through a transverse incision, which is about two and a half inches in length, which lies in, or parallel to, the folds of the neck and which, after healing, is hardly to be seen.

The arrangement of the infected nodes in these early cases is almost uniform, and the technique of their removal is as definite as that of the average surgical procedure. The writer ventures to give diagrams showing the stages in an operation which he has found very useful in many cases, hoping in this way to promote early operations for these patients. These diagrams are photographs taken during the operation on the child shown in Fig. 1, or drawings from such photographs.

The skin incision is indicated in Fig. 2. It is made at least a finger's breadth below the border of the jaw, and should be straight and parallel to a neck crease. After reaching the platysma, the skin should be drawn downward and the incision to or through the deep fascia may be made at a little lower level than the skin incision. The collo-mandibular ramus of the facial nerve lies between the platysma and the deep fascia, and by suitable retraction it can be carried upward with the muscle, and its injury thus avoided.

The exposure which exists after this step is shown in Fig. 3. The margin of the sterno-mastoid muscle may then be retracted backward, freeing it from its attachments considerably above and below the site of the incision. The tonsillar node is then usually clearly brought into view and, by blunt dissection, may be detached from its anterior attachments, but should not be separated from the adherent nodes behind it. The mass of nodes which is grouped here is usually much larger than would be indicated by the external appearance of the neck. Their capsules may be grasped by toothed clamps and their attachments divided so as to give about the appearance indicated in Fig. 4.

As the deeper portion of this mass is being separated from the surrounding tissue there is danger of dividing the spinal accessory nerve above its entrance into the sterno-

mastoid muscle. The nerve is often completely surrounded by the node mass and may easily be mistaken for a portion of its capsule. In searching for it the portion of the node mass which is shown in Fig. 4 is often separated from the nodes which lie still higher and further back under the sterno-mastoid muscle.

Fig. 5 indicates its appearance after such separation, the deeply lying node on which it rests being drawn forward and the anterior border of the sterno-mastoid muscle being turned backward. The nodes may then be removed from beneath the upper part of the sterno-mastoid muscle as far back as its posterior border. This should leave a clean dissection of the area between the skull and line of the incision.

The nodes below this incision and beside the internal jugular vein may then be grasped by clamps and drawn upward while the lower margin of the wound is drawn downward, giving the appearance indicated in Fig. 6. By careful dissection and suitable retraction the node-containing area may then be explored almost down to the clavicle, and backward into the posterior chain behind the lower posterior margin of the sterno-mastoid: avoiding of course the lower part of the spinal accessory nerve in this region. The lower extent of the area here exposed is shown in Fig. 7. If there is difficulty in the dissection of this lower area, a second transverse cut may be made just above the clavicle.

Fig. 8 indicates the appearance of the wound area at the close of the dissection, but does not show the entire extent of this area, since the skin can be moved both upward and downward by retraction.

The method of wound treatment is important. Drainage should be provided, since there are wide spaces for the collection of serum, and possibly lymph and blood; and since there are defective lymphatics to provide for their absorption. A limited drainage, however, is usually sufficient. The method shown in Fig. 9 has proved satisfactory; a counter-opening is made below the incision and several strands of silk or silk-worm gut are passed through this and through the wound.

The wound itself is closed with subcuticular stitches, excepting at the drain opening, a small piece of moist gauze is there applied, covered by rubber tissue and kept moist by the application of a few drops of saline solution applied under the rubber tissue every few hours.

In many cases this drainage, of course, is not needed, but where there are broken down nodes it is often very important, and it is a safe and easy method for all and if properly cared for is almost an absolute safeguard against deep-lying infection.

The patients are usually allowed out of bed on the second or third day after the operation and can leave the hospital within ten days, or two weeks.

The patient from whom these pictures were taken has remained free from recurrence; it is now two and a quarter years since his operation. Fig. 10 shows his appearance one year after operation. The scar is hardly to be seen, and he is very sturdy and strong.

The *possibility of vein injury* may be considered in a separate paragraph. There is of course extensive vein exposure in this dissection and the possibility of vein injury. Probably the vein most frequently injured is the posterior facial (see diagram, Fig. 11). It is occasionally adherent to the upper part of one of the enlarged nodes, and in the retraction it looks like a part of the node capsule and if nicked it may give a bothersome hemorrhage in an unexpected place, and since one naturally looks to the internal jugular as the probable source of such a hemorrhage, the real source may not be discovered at once. Small veins which run from the nodes into the large veins are also frequent sources of hemorrhage. When flattened out on the node they are not to be distinguished from the node capsule, and since they are close to the internal jugular or common facial veins their section may easily cause troublesome hemorrhage. Fig. 12 shows such a vein and Fig. 13 shows other inconstant veins which have been noted during operation.

An injury of one of these veins near its distal end is

FIG. 1.



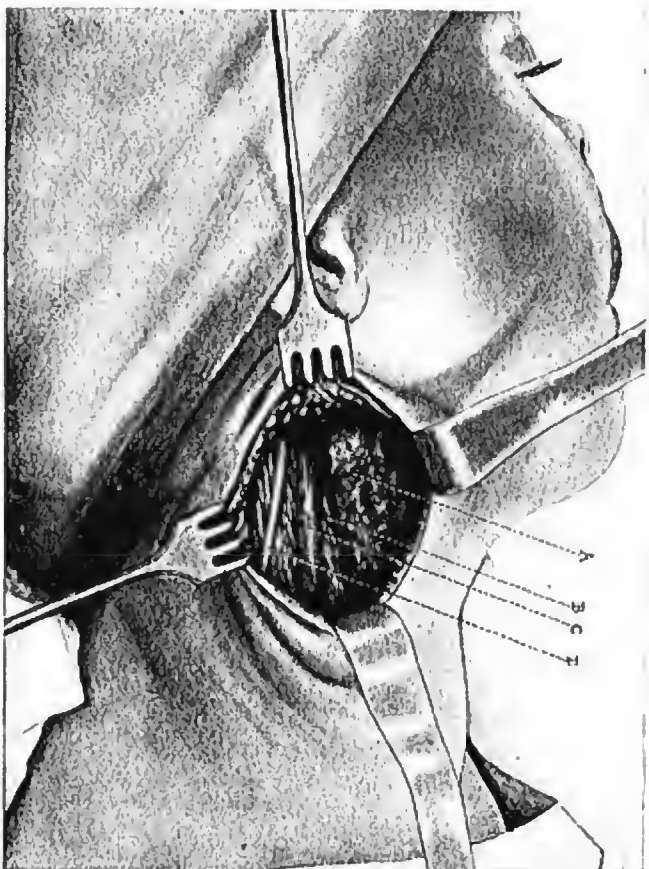
Early case of tuberculous of the cervical lymph nodes. The swelling had first appeared about ten months previously: in the meantime the nodes had increased, diminished and again increased in size. The subparotid nodes which are here shown, are apparently the first ones enlarged in about 85% of the cases as they appear in New York.

FIG. 2.



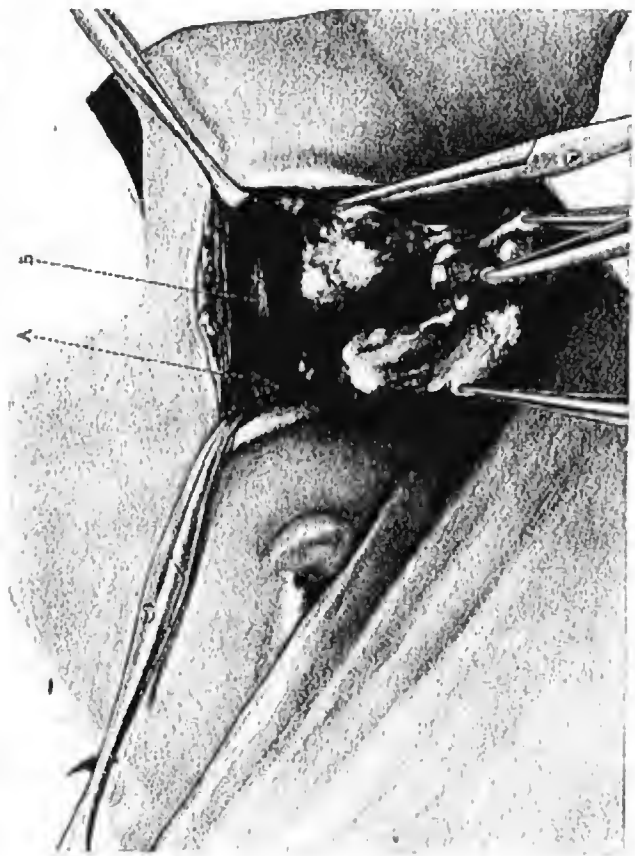
Incision : made at least a finger's breadth below the border of the jaw and in, or parallel to, a neck crease.

FIG. 3.



Exposure after retraction of platysma and deep fascia. A, Lymph nodes. B, Sternomastoid muscle. C, External jugular vein. D, Great auricular nerve.

FIG. 4.

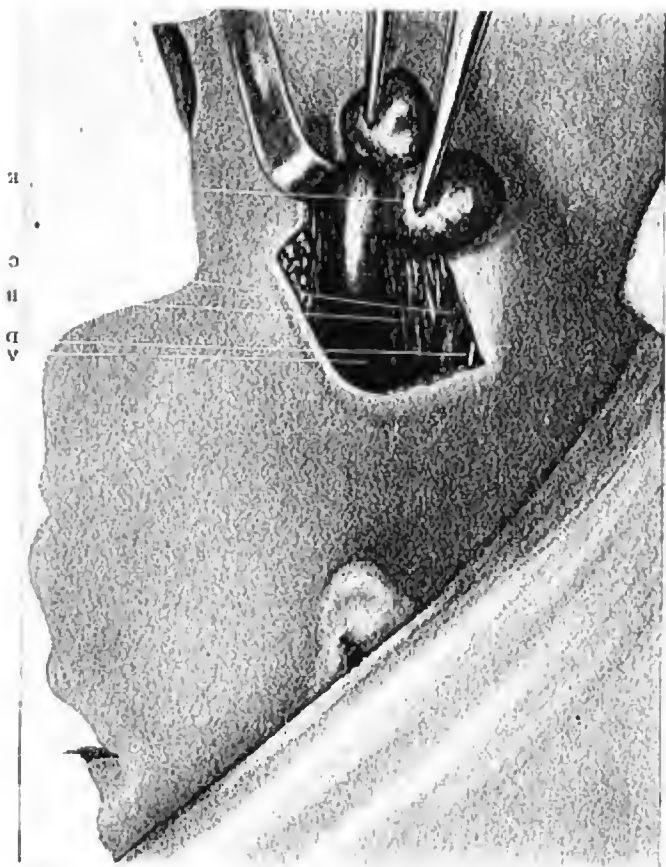


Main mass of lymph nodes drawn out and reflected backward. A, Posterior belly of digastric muscle. B, Internal jugular vein.



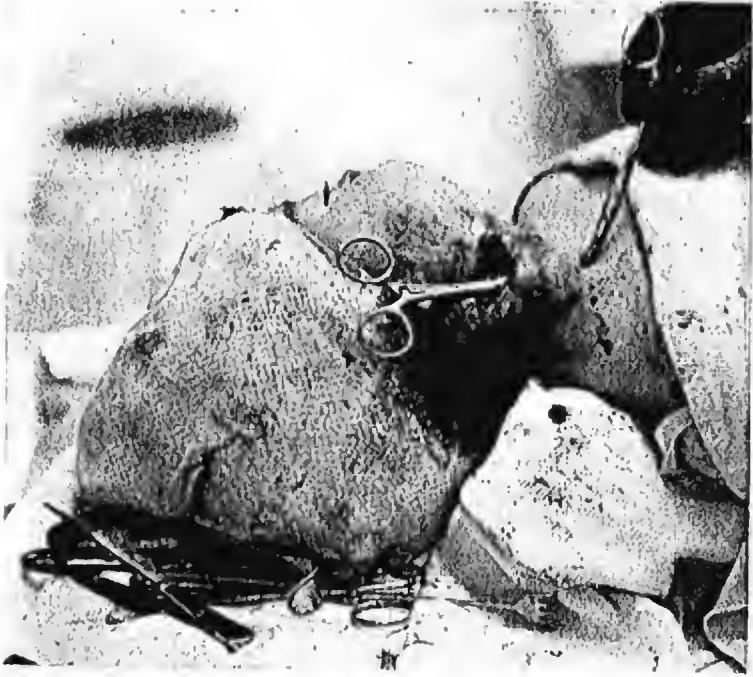
Exposure of spinal accessory nerve. A, Posterior belly of digastric muscle. B, Spinal accessory nerve. C, Deeply lying lymph node, drawn forward. D, Sternomastoid muscle drawn backward. E, Internal jugular vein.

FIG. 6.



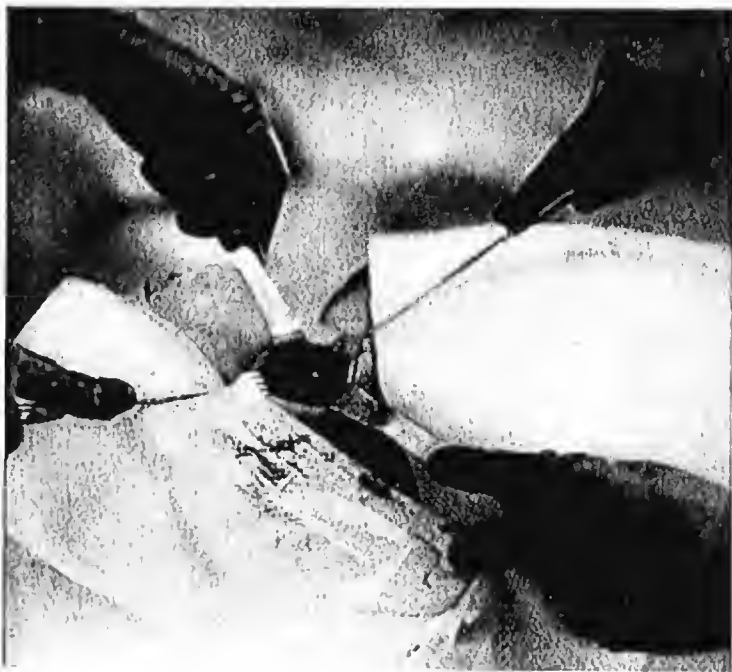
Removal of nodes from the lower part of the deep cervical chain. A, Internal jugular vein. B, Sternomastoid muscle. C, External jugular vein. D, Great cervical nerve. E, Nodes from the deep cervical chain drawn forward, upward and outward.

FIG. 7.



Showing lower extent of area from which nodes are removed. The internal clamp reaches to the spot indicated by the point of the external clamp.

FIG 8.



Photograph taken at the end of operation to show the extent of the exposure which is obtained through the transverse incision. The internal jugular vein passes prominently across the field.

FIG. 9.



Wound closed by subcuticular sutures. Drain of silk worm gut strands introduced under the sternomastoid muscle emerging through a posterior counter opening.

FIG. 10.



Photograph of patient one year after operation. Two and a quarter years after operation he was shown at the New York Surgical Society without recurrence and with a scar even less noticeable than this photograph indicates.

FIG. 11.

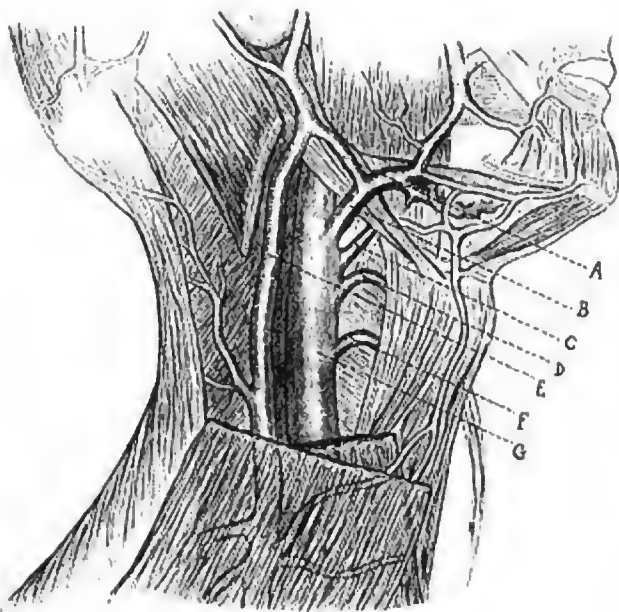
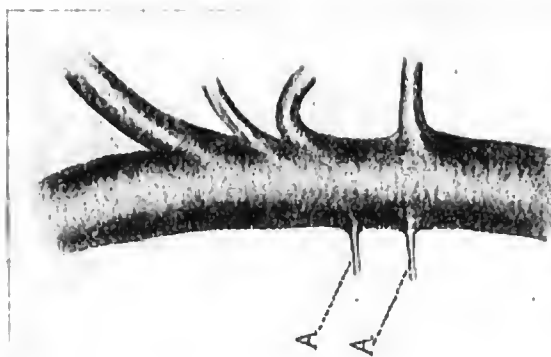


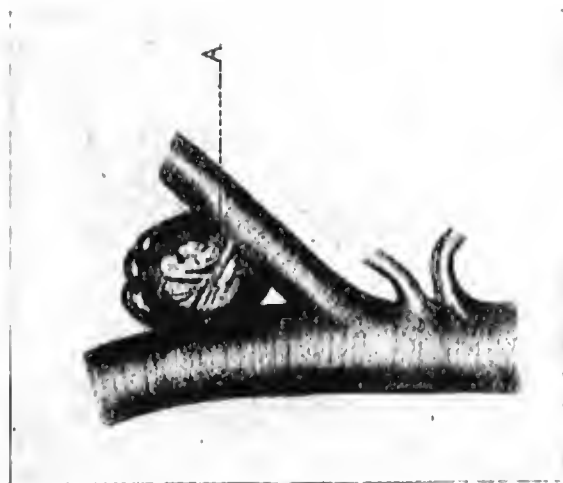
Diagram of veins of neck adapted from Gray's anatomy. Showing the location of the posterior facial vein (A) from which bothersome hemorrhage may easily occur. A, Posterior facial or anterior temporomaxillary vein. B, Common facial vein. C, Lingual vein. D, Laryngeal vein. E, External jugular vein. F, Superior thyroid vein. G, Internal jugular vein.

FIG. 12.



A, A, Inconstant branches, entering the internal jugular vein from behind where they may easily be injured.

FIG. 13.



Small vein (A) running from lymph node into common facial vein: where flattened by traction it resembles a node capsule. Its section near the main vein is practically a wound of that vessel.



practically an injury of the internal jugular. If it should occur or if the internal jugular itself should be incised, the opening should be secured by one or more artery clamps and then included in an over-and-over suture of small silk, thus preserving the lumen of the vein.

The writer can report on 66 cases which, in condition of lymph nodes and type of operation, may be classed with the one here figured. These patients all recovered from the operation within a reasonably short time. There was only one serious complication in their number—a secondary hemorrhage from the internal jugular vein, which occurred in an infected case on the ninth day after operation. It was controlled by pressure, but to avoid its recurrence the vein was ligated above and below, and prompt healing followed.

The later history of these cases has been followed with much care. One has been followed nearly five years from the time of operation; 12 have been followed into the fourth year; 9 into the third year; 18 into the second year; 15 into the first year; 12 have not been observed since leaving the hospital.

The appearance of these cases as they have been examined at various periods after operation has been almost uniform. There are usually a few small superficial nodes in the posterior chain which are just palpable, hardly larger than peas. The tonsillar node on the other side of the neck is usually about the size of a lima bean, otherwise no enlarged nodes can be felt. These enlargements are, I believe, hyperplastic and not tubercular, due probably to the increased demand which is made upon the nodes after the removal of so many others.

I have watched nodes of this kind year after year and have hardly ever seen them increase in size, and have frequently seen them subside. A few of them have been removed and almost without exception have been found to be hyperplastic.

Among these 66 cases there are three who have filbert-sized nodes which may be regarded as recurrences. In a

fourth one a discharging sinus appeared in the wound area; it closed spontaneously; he also had a node removed from the parotid gland by operation. No doubt there will be some other recurrences among these 66 patients, but the present report of only four known recurrences is surely very encouraging, and indicates that there is a large class of these early cases for whom an operation may be done which is safe and thorough, which hardly leaves a scar, and which is followed by a very large proportion of cures. These favorable cases are found more often among the well fed and well housed people, particularly children, than among those less fortunately situated.

The report of this type of early cases should be accompanied by a brief report of all the writer's cases, extensive and otherwise. There are 256 of them. There was only one operative death in the entire number; it occurred in a very unfavorable case, from secondary hemorrhage from the internal jugular. These cases have been followed for long periods, varying from 12 years down. The exact details are not now in available form and will be given in a later report, but they bear out the indications of the report made in 1905 of between 75 and 80 per cent. of apparent cures, and many other cases who will probably be cured after further operations.