

CONSERVATIVE TURBINECTOMY.*

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Every surgical operation is in a certain sense and to a certain extent an evil, and the only justification for its performance is that it should be the lesser of two evils between which we are compelled to choose. Especially is this true of operations which involve the sacrifice of organs or parts of organs that subserve special and important functions, as for instance the turbinate bodies of the nose. Since the respiratory function of the turbinates, namely the warming, moistening and filtering of the inspired air, is a function essential, not merely to health, but to continued existence, and since it can be performed vicariously by the mucous membrane of the throat and bronchial tubes only very imperfectly and with imminent danger to the integrity of those structures and of the whole respiratory system, it is evident that we have considerations quite sufficient to "sickly o'er the native hue" of our present rather enthusiastic resolution "with the pale cast of thought." There are nevertheless insistent indications for the performance of this operation. They may be epitomized as follows:

When the respiratory function of the nose, that is, its ability to warm, moisten, and filter the inspired air, is impaired to such an extent as to cause the patient serious discomfort or be a menace to his health; when further, it cannot be sufficiently improved in any other way, and when, lastly, it is evident that the contemplated operation will actually improve or at least conserve it, and not merely increase the absolute breathing space at the expense, perhaps, of further impairment of the function by destruction of a large extent of functioning tissue, we have a combination of circumstances that renders turbinectomy the lesser of the two necessary evils. This discussion excludes turbinectomy performed for the purpose of gaining access to the sinuses, or for malignant disease. It also excludes operations on the middle turbinate, though it is often necessary to remove this organ or a portion of it for the purpose of improving the nasal respiration.

Having observed this proper conservatism in the mental processes whereby we arrive at a determination to perform the operation, we must now carry our conservatism into the actual per-

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formance of it. It must be our endeavor to remove enough if possible to provide sufficient breathing space, but to leave enough to insure against serious interference with the respiratory function of the nose. Since we are obliged to steer between this Scylla and Charybdis, we must on the one hand graze the rock, if necessary to do so in order to save ourselves from the depths of the whirlpool, but on the other hand we must elect to feel the suction power of the latter if we can in no other way escape being dashed upon the rock.

Apart altogether, however, from the question of the absolute amount of tissue to be removed, there are at least two other factors which must enter into our consideration of the subject, factors which have an important bearing on the one hand upon the actual breathing space to be obtained, and on the other upon the conservation of turbinate function. They are first, the site of the tissue to be removed, and second, the direction and character of the section. As far as the first is concerned, it should always of course be our object to remove only that portion of the turbinate which by reason of its situation and enlargement is the actual cause of the obstruction or at least of the greater part of the obstruction. Nevertheless it is not always possible to confine our section entirely to the hypertrophied portion, nor, as will be shown, is it always absolutely desirable even when possible. The free edge of the turbinate at least must always be included in the section whether it be hypertrophied and obstructive or not. But furthermore, the section should often be extended antero-posteriorly to include a certain amount of normal turbinate tissue in order that the section itself may preserve a desirable character and direction. On the other hand it is not always by any means necessary to remove all of the hypertrophied portion, since the subsequent contraction of the scar may be depended upon to reduce the hypertrophy to some extent, and since the above mentioned incidental removal of some of the normal tissue aids in the establishment of a proper breathing space. Bearing in mind the fact that even hypertrophied turbinate tissue doubtless always possesses more or less functioning power, it may be stated that the amount of hypertrophied tissue removed should bear as far as possible a certain inverse proportion to the amount of normal tissue which it is found necessary to remove. The more of the latter which must be removed in order to make a desirable section, the less of the former, that is of the hypertrophied tissue,

should be removed, and vice versa. These various considerations bear an interdependent relationship which only experience and careful judgment will enable us to appreciate and utilize.

But what are the characteristics of a desirable section? First of all, the line of section from its anterior to its posterior extremity should be a straight line. It should be free from kinks or curves or corners or angles, such as are likely to follow any but the most careful use of scissors or forceps or any instrument which necessarily does its work by a series of bites or cuts. Especially pernicious is the practice we have all sometimes seen of cutting backward horizontally in such a series of jerks, perhaps close to the attachment of the turbinate, and then, as it were, emphasizing our approval of this angular method by chopping off the section perpendicularly at its posterior extremity with the wire snare. Such corners and angles often retard healing seriously or even postpone it indefinitely, since they are very likely to fill up with masses of granulations which refuse to cicatrize, obstruct breathing, retain secretions, and encourage crust formation. The very object of our operation is thus often defeated, for the unhealed wound with its unhealthy secretions and decomposing crusts will often irritate and congest the remaining turbinal tissue to such an extent that the last condition of the patient is worse than the first. Far better would it have been indeed to have removed a little less of the actually hypertrophied tissue and if necessary a little more of the apparently healthy tissue in order to have insured to the patient the quickest possible healing of a clean-cut, healthy wound. It is always desirable, when it is possible, to remove a V-shaped section and approximate its edges so as to leave no uncovered raw surface. Yankauer's method of removing a V-shaped section and suturing its edges together with a view of obtaining primary union would be ideal were it not that it is both technical and difficult, requiring special and complicated instruments, a much greater degree of skill than the average, and more time than can be devoted to many of these operations by a busy rhinologist. I have lately devised an instrument which I have found to be of great service in the majority of cases where it is found necessary to remove an anterior or middle hypertrophy of the inferior turbinate. It consists of an outer tube presenting on its upper aspect a slot of three-sixteenths of an inch in width. The edges of the slot are sharp, and the distal extremity of the tube is scoop-shaped, which enables the operator to engage in it

more readily the anterior extremity of the turbinate. A knife, which is also in reality a section of a tube accurately fitted within the outer tube, revolves in this outer tube in such a way that its cutting edge, as it passes across the slot, shears off cleanly everything that projects into the tube, whether soft tissues or bone. The actuating mechanism consists of a collar encircling the backward extension of the outer tube, which collar slides forward in response to the closure of the convenient and forceps-like handles of the instrument. A trunion screw, surrounded at its extremity



by a roller to reduce the friction, passes through this collar, then through a longitudinal slot in the backward extension of the outer tube and through a spiral slot in the backward extension of the inner tube or revolving knife.

My method of using the instrument is as follows: In most cases, at least where it is intended to include in the section the very anterior extremity of the turbinate, it is advisable to separate this extremity from its most anterior attachment to the nasal wall by a short vertical incision at this point with forceps or scissors. This step may be omitted, where the turbinate is very dependent,

presenting, as we often see, a definite, free anterior edge. It is now possible to introduce a blunt instrument, such as the round cornered handle of a small scalpel or the extremities of the closed blades of a strong turbinate scissors, under the anterior part of the turbinate, and pry it away from the outer wall and towards the septum. One should in fact aim at bringing its anterior extremity opposite or nearly opposite the centre of the nasal vestibule, since such a position greatly facilitates the introduction of the instrument. It is nevertheless quite possible to introduce it in most cases without any preliminary section and prying over of the turbinate. Now, bearing in mind the conformation of the turbinate, and either with or without the aid of a speculum the turbinotome is introduced so as to engage in its distal extremity the presenting anterior portion of the turbinate. The instrument now usually slips backward without any necessity for the use of force, the edges of the slot cutting easily through the soft tissues down to the bone, if necessary, to allow of its adaptation to the irregularities of the organ. Once the anterior portion of the turbinate is engaged in the instrument, the speculum, if one has been used, should be dispensed with, as it is unnecessary and indeed impossible to any longer observe by its aid the interior of the nose, the vestibule being more or less completely filled by the turbinotome. To some extent, however, the instrument is its own speculum. One is at least able to see the anterior portion of the turbinate coming forward as it were through the bore of the instrument as the latter is passed backward. It is a mechanical impossibility to remove or injure with the revolving knife anything not included in the lumen of the turbinotome, and it is equally an impossibility to include anything but the lower portion of the inferior turbinate. The instrument should pass backward nearly parallel to the floor of the nose if it is desired to extend the section far posteriorly. The shorter the section is to be, however, the greater should be the angle at which the distal end of the instrument approaches the floor. If it is desired to remove a section of the greatest possible width, the instrument should be introduced so that the cutting slot is at its highest part, the whole instrument being at the same time crowded upwards so as to pack as much as possible of the soft tissue along the edge of the bone into its calibre. It is possible on the other hand to reduce the width of the section by rotating the instrument on its long axis in such a way as to bend the inferior edge of the turbinate more or less toward the septum and

at the same time bringing the cutting slot to a relatively lower position. On closure of the handles all the included tissues are severed and usually brought away in the lumen of the instrument. Sometimes however the section is not quite completed posteriorly, owing to the lower edge of the distal extremity of the turbinotome impinging upon the floor of the nose before the cutting slot has carried the incision altogether through the edge of the turbinate. In this case the section may be completed with the snare, as all that remains of it is too insignificant to make any appreciable irregularity. The line of section is now found to be geometrically straight antero-posteriorly. But furthermore, while it is not exactly V-shaped, it is at least distinctly concave from side to side, the bone being cut about one-sixteenth of an inch higher than the soft tissues, a circumstance which greatly favors healing if the packing be so introduced as to gently compress the soft edges over the bone, but which on the other hand might greatly retard healing were the packing carelessly introduced so as to force the soft edges apart rather than together.

When the turbinate is very large, and especially when the hypertrophy extends far up above its free edge, it is a great advantage to first outline a V-shaped section along the hypertrophied portion with a small scalpel, and to separate the soft tissues from the bone for a short distance above the section. The bone with soft tissues attached along its edge is then removed with the turbinotome and the edges of the wound brought into apposition by properly introduced packing. The packing should first be placed under the turbinate and then above the turbinate and between the turbinate and the septum.

The actual removal of the turbinate, once the instrument is in place, is instantaneous and painless. The disagreeable grating sensation occasioned by the saw and the grinding, crushing sensation accompanying the use of the forceps and scissors are alike absent. If the mucous membrane of the septum be slightly anesthetized and the turbinate fairly anesthetized, there is only the somewhat uncomfortable feeling of having the nose filled by rather a large instrument.

This instrument cannot be introduced on the side of the convexity of a deflection of the septum or of a spur or ridge which extends far forward. A turbinectomy however is practically never indicated under such circumstances. One's attention should rather be directed towards the septum. In perhaps fifteen to twenty-five

per cent of adult cases, however, my experience being not yet large enough to enable me to estimate it more exactly, the pyriform opening is too small to allow of its successful use. Once it engages the turbinate there is very rarely any obstacle to its further introduction, since there is always plenty of room for one lateral half of the instrument between the turbinate and the septum, and for the other lateral half between the turbinate and the outer wall of the nose. In case adhesions between those structures should prove to be an obstacle they can be easily broken down, and it is in fact necessary to break them down whatever method is used.

Since having had this instrument manufactured I find that Pyncheon of Chicago has devised a small instrument for removal of the posterior tip of the turbinate along somewhat similar lines.

Note.—During a discussion following the reading of this paper at a meeting of Hennepin County Medical Society some of the speakers took exception to the writer's use of the term turbinectomy, taking the view that this term should be applied only to operations in which the whole turbinate body was removed, and that operations involving the removal of only a portion of the turbinate should be called turbinotomy. The writer, however, cannot agree with any such nomenclature.

Iridectomy means a cutting away of a very small portion of the iris. It is not necessary to remove the whole iris in order to perform an iridectomy. Iridotomy means merely some form of incision into or through the iris. The term tonsillectomy may properly be applied to the cutting away of any portion of the tonsil. A cutting into the tonsil should be described by the word tonsillectomy. Turbinectomy also properly means a cutting away of even a portion of the turbinate, turbinotomy merely an incision into the turbinate, as for instance the submucous section that is so often resorted to for the purpose of reducing congestion, and it is thus, if we would avoid confusion, that we must distinguish between cutting into any organ and the cutting away or the removal of even a portion of the same organ.

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