X.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM IN THE SEMIRECUMBENT POSITION.

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To secure reasonably uniform success in all types of septal deflections by submucous resection, the following are essentials:

First—A knowledge of the anatomy of the septum—particularly that gained from studying it in relation to its embryologic development. (See a previous paper.)*

Second—An operating position and anesthesia which secure comfort to the patient and at the same time ease of manipulation to the operator; and in operating under cocain anesthesia, endeavoring to eliminate the personal equation of the patient as far as possible.

Third—Detailed methods of technic to overcome the mechanical difficulties.

The semirecumbent position, in my opinion, is ideal for nasal and oral operations done under local anesthetics. The position comprehends the patient lying on a table with the back raised at an angle of 45 degrees, and with the headpiece of the table made adjustable to a position comfortable alike to the patient and the operator. An electric bulb on an adjustable bracket or placed in a proper position on the wall, and an ordinary head mirror as a source of light, have proven most satisfactory, though a Freeman or Kirstein light have some advantages.

The toxic systemic effects of cocain and adrenalin with the patient in this position are incomparably less than those produced by these drugs on a patient in a sitting position. Since using this position, and the method of

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anesthesia to be described, during the year past, the operation has not been interrupted by the patient in any case and there has been practically no complaint of pain or discomfort. The patient's head rests in a steady position against the table; he is at rest and comfortable and there is no necessity for hurry. The patient does not complain of stiff neck or grow weary, as he does from the strained positions made necessary in doing the operation in the sitting position. The headpiece of the table is raised to a position in which the operator, while standing, can work comfortably without stooping. If an assistant is employed, he can work at the opposite side of the table without interfering with the operator. The patient's head is kept rather to the side of the table from which the operator works. I now have an Allison table which permits this position for use in the office, and with the arrangements shown in the illustration the operation can be done without assistance. Two days' stay in the hospital, however, is much preferable when feasible.

The following method of local anesthesia has been highly satisfactory: First, both entire nasal fossæ are wiped over roughly once or twice with cotton wound applicators dipped in ten per cent cocain to produce general superficial insensibility throughout to further manipulation. In a few minutes, cotton tipped applicators dipped in full strength adrenalin are dipped, after the excessive moisture has been removed, in powdered cocain. This so-called "cocain-adrenalin mud" of Freer is massaged thoroughly into the entire septum on both sides. Two or three applicatorsful suffice. Then one per cent cocain in 1-10,000 adrenalin (which is made up roughly as desired by adding three drops of adrenalin to thirty drops of one per cent cocain solution) is injected hypodermically along the line where the incision is to be made and along the nasal floor. This last hypodermic injection secures anesthesia along the base of the ridge, which is usually a painful spot, and also in the skin margins, which are not easily reached by cocain which is rubbed in.

These three procedures usually secure entire anesthesia and blanching of the entire septum, so that no further applications are needed. However, after the first incision is made, if there is bleeding, full strength adrenalin solution is rubbed in the cut; but I believe that the success of the operation depends

considerably upon securing satisfactory anesthesia and ischemia at the outset before making the primary incision. This requires about fifteen minutes.

Since hearing of the death of a patient instantly following the hypodermic injection of ten minims of 1-1000 adrenalin into the nasal septum, reported by Dr. Freudenthal, I have never used adrenalin solution full strength hypodermically. I have myself observed severe symptoms of shock following the hypodermic administration of full strength adrenalin into the septum—despite the fact that this drug is recommended for combating shock.

The following details of technic are those which I have adopted from various sources: I make the incision described by Yankauer—usually on the side of the septum, which is convex anteriorly. An incision in the patient's left nostril has the advantage that the right hand is more easily used for the operating instrument, while a finger of the left hand can be inserted in the opposite nostril or used in holding the speculum, etc. If the deflection is very much to the right, however, the incision is made on that side, and in this case by bringing the left hand over the patient's face (while standing on the patient's right) the right hand is still free to do the actual dissecting, and a finger of the left hand may be inserted in the patient's left nostril.

The incision begins at the highest part of the septum in front of the deflection, and is carried down to the floor of the nose and partly across the nasal floor, practically into the skin of the vestibule. This incision also seems to me ideal. If each nasal fossa be represented as a right angled triangle, with the septum as the upright limb, then by this incision we lift the mucoperiosteal flap away from the vertical and horizontal limbs, allowing the loose flap to be pushed against the outer nasal wall (which represents the hypotenuse of the triangle). This gives a complete exposure of the septum and room for instruments without any stretching of the flap, as is necessary in a simple buttonhole incision. After the operation there is no retraction of this kind of a flap. The cut of the primary incision must be deep enough to go through the periosteum and perichondrium, but not necessarily at one stroke—the line of the incision may be gone over a second or third time, to make sure that it is down to the cartilage

and bone. A very helpful procedure in ascertaining whether the perichondrium has been cut through is to take the side of the point of the knife and scrape it along the line of incision until the cut edge of the perichondrium is seen. Then the cartilage is separated from the mucoperichondrium as far down as the vomer ridge, beyond which dull dissection cannot be carried, because the periosteum of the vomer here crosses from one side of the septum to the other. Freer's round knife and a sharp pointed spoon curette are useful in carrying the primary incision completely down to the bone along the lower part of the septum and into the nasal vestibule. Beginning now again in the primary incision near the nasal floor beneath the ridge, taking advantage of the fact that the periosteum is easily separated here, the thin dull Freer dissector is inserted under the periosteum here at the floor and worked up towards the top of the vomer ridge.

Now we have the entire flap lifted up from the convex side of the septum except at the single line along the vomer ridge, where it can be seen as a longitudinal band passing over the crest of the ridge. This is easily cut by a sharp dissector from below, often also assisted by scraping with a sharp spoon curette from above, with the cutting edge turned in toward the bone.

In getting through to the other side of the septum a little furrow is first scraped with the curette or point of the knife used sideways, a little deeper in the nose than the incision through the mucous membrane. Into this furrow the semi-convex end of a small (Potts') dissector is inserted with the convex side turned toward the opposite nostril, using a finger in the opposite nostril as a guide. With this technic of incising the cartilage a perforation is seldom made at this point. The cartilage is freed on the opposite side down to the vomer ridge, and the necessary cartilage is removed by swivel knife and flat forceps. The adherent point on this side along the crest of the ridge is freed by cutting with the sharp dissector from above and scraping with a sharp spoon curette turned in toward the bone, as described for the other side, and the periosteum is separated down to the nasal floor. Both flaps are now entirely free, and the cartilaginous septum removed. The bony ridge is cut along the floor with the Hurd forceps (which avoids rough fracturing) and the bone bitten out with

small forceps—the extreme anterior part being bitten out by holding the forceps perpendicular to the nasal floor; and sometimes by hooking the beaked end of the mastoid spoon curette around it and fracturing it forward.

The necessary portion of the perpendicular plate of the ethmoid is removed by fracturing it off with small strong double curette beaked forceps, an attempt being made to have the lines of fracture such that they will not be carried up into the cribriform plate. A bone cutting forceps is probably safer for removing the perpendicular plate, but those forceps on the market are too large and clumsy. That it is possible to open into the cribriform plate by the ordinary septum forceps used carelessly, I have demonstrated to myself on the cadaver. The suggestion has been made that opening the cribriform plate, though undesirable, is probably little more dangerous than exposing the dura in a mastoid operation, which is seldom followed by serious consequences.

I have used both cotton splints and gauze packing, and have had hematomata of the septum following both. These I believe were due to the fact that the packing was too tightly placed over the lower and anterior parts of the septum and over the mucous membrane incision, preventing escape of what blood might exude between the flaps after the operation. The ultimate results of these hematomata when opened and drained were practically as good in a couple of weeks as though none had occurred. However, in the first two cases of this kind encountered, these blood clots were not cleaned out, and when the patients passed from observation the hematomata had apparently organized and the nasal fossæ were more obstructed than before operated on.

At present I use the cotton splints, packing both sides and placing them rather high, not bringing them farther anterior in the nose than the line of the primary incision in the mucous membrane. The packing is removed in from eighteen to twenty-four hours.

In two cases in young persons, where a general anesthetic was thought necessary, they were etherized lightly, then the septum was prepared as for local anesthesia, only sufficient ether being given to keep the patient asleep, depending upon the local anesthesia to abolish sensation. If it were safe to use adrenalin hypodermically in unlimited quantity, the

operation would be much easier under general anesthetics. In one of these two cases under ether the bleeding was well controlled and the operation easily done—in the other there was considerable bleeding, and the work had to be done largely by the sense of touch, which resulted in the loss of considerable mucous membrane on one side, but the septal deformity was satisfactorily corrected, and there was no perforation. In this case the pharyngeal tonsil was also removed before putting in the nasal packing. In another case, after the submucous resection was done under cocain anesthesia, ether anesthesia was used to remove the adenoid mass.

In operating under general anesthesia, the semirecumbent position has the disadvantage that mucus and blood, and also the tongue, tend to fall backward and obstruct the breathing. These tendencies can be overcome by inserting a postnasal tampon and keeping the tongue held forward with tongue forceps.

In conclusion, I express indebtedness to Dr. Wood, Dr. Babbitt and Dr. Butler for hospital opportunities for doing part of this work.

Office Arrangement for Septum Operation.

Hospital Arrangement for Septum Operation.