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PRESIDENT DR. ROSS HALL SKILLERN IN THE CHAIR.

Submucous Resection of the Nasal Septum. By W. L. BALLENGER, M. D., of Chicago; (by invitation.)

In the submucous resection of the nasal septum we must first have a reason for operating. We do not operate simply because the septum is deflected. Many deflected septums do not produce pathological results in the nose. Operations should only be necessary when those deviations obstruct the respiratory portion, especially the upper respiratory portion of the nose. The deviations which do the most harm to the patient are those not in the lower nasal chamber, but those formed by the bridge of the septum, and those above the vomer, which are in the region of the middle turbinate body. The respiratory tract of the nose is not in the lower portion, but in the upper portion of the nose. The vomer may be deviated so as to touch the inferior turbinate, or may extend forward into the vestibule far enough to partially obstruct the inspiratory current of air, and thereby produce rarefaction of the air posterior to the obstruction. This obstruction should be removed. The same is true of anterior angular deflections of the cartilaginous septum. If the deviation is higher up, in the region of the middle turbinate, it interferes with ventilation and drainage of the accessory sinuses; namely the frontal, anterior ethmoidal and the maxillary sinuses. The lower deviations cause what is known as turgescent rhinitis. The sinuses need to be drained and ventilated, and if there is any obstruction preventing this drainage and ventilation it should be removed.

Technic. Local anesthesia. This operation should not be a long procedure, in fact I take 20 minutes for the submucous resection. Some operators take two to three hours. This is hard on the patient and hard on the operator. There are certain little tricks to make the operation short, and I will try to explain these to you.

Cocain anesthesia is preferable, though a general anesthesia may be administered. The method of applying the cocain is important. Powdered cocain is used instead of solution. A delicate silver cotton wound probe is moistened in adrenalin solution, the excess squeezed from it, and then I dip it into the powdered cocain. The loose granules are then gently knocked off, and the probe is introduced into the nose, and the entire nasal septum gone over, every portion can be reached with this flexible probe. The first application is not pleasant in some cases, but as the subsequent applications are made it will not be so uncomfortable for the patient. After the first application I wait about five minutes, introduce the probe again, wait another five minutes and make another application. Three applications in all. This usually completes anesthesia. The advantages of this method of applying cocain over the use of solution are

the speed with which anesthesia is induced and the comparative infrequency of cocain toxemia. By this method little or no cocain is swallowed, whereas when the solution is used the patient tastes the cocain and this produces toxic symptoms.

The Incision. The choice of the location of the incision should depend upon the character of the location of the deviation. We use the Killian or Hajek incision. I recommend the incision being made on the left side, as most operators are more dextrous with their right hand than with the left. The tip of the index finger of the left hand should be introduced into the nasal chamber to exert counter-pressure when the incision is being made. The incision should only extend through the mucous membrane and perichondrium. This step of the operation is most important, and if the elevation is properly done over the entire area of the deviation on both sides of the septum the subsequent steps are comparatively easy. In cases where the cartilage, perpendicular plate of the ethmoid, and the vomer are involved, the membrane should be elevated over almost the entire area of both sides of the septum. If the cartilage of the septum is only affected, the elevation should be extended about one-half inch beyond the junction of the cartilage and the perpendicular plate, and down to the floor of the nose. Always elevate at least one-half inch beyond the area of the tissue to be removed, as otherwise the membrane may be injured in the process of removing the deviated portion of the septum. The technics of elevating the muco-perichondrium may be accomplished in various ways. Some operators use the small, thin elevators. Curved elevators are also used to work around the curved portions of the septum. I, myself, use a heavy, broad, dull elevator. The chief reasons for using the blunt, heavy elevators is the greater speed and the lessened liability of tearing the membrane in the process of elevation.

To start the elevation a sharp or semi-sharp elevator should be used, care being exercised to get beneath the perichondrium. If the elevator penetrates between the mucous membrane and the perichondrium, the surface of the cartilage will present a velvet-red appearance, as the perichondrium is still covering it. If, however, the elevator penetrates beneath the perichondrium the exposed cartilage presents a glistening white surface. If this is properly done the remaining elevation is comparatively easy. Having started the elevating, insert the blunt elevator into the small pocket already made. Direct the elevator parallel with the ridge of the nose, as this is the direction of least resistance. Having introduced the elevator almost to the cribriform plate the elevation should be continued backward and downward with the whole length of the shank of the elevator within the pocket of the membrane. By using the tip of the elevator perforation is more liable to occur.

After introducing the heavy blunt elevator as high as the cribriform plate, exert pressure downward and backward with a twisting motion, and as a rule the membrane will strip down to the crest of the vomer in two or three seconds. If the cartilaginous portion of the septum or perpendicular plate is convex the operator should remember that these portions of the septum are thin and flexible; being so they may be forced

with the elevator to the median line and thus temporarily rendered straight. While held in this straightened position the shank of the instrument is passed downward and backward elevating the membrane as it proceeds. The tip of the nose is flexible, and the instrument should be held parallel with the anterior portion of the cartilage until it reaches the crest of the perpendicular deviation. The instrument should then be shifted until it is parallel with the cartilage posterior to the crest. The flexibility of the tip of the nose makes this possible, or the crest may be forced to the concave side, thus rendering it straight and the elevation continued.

The periosteum is not reflected uniformly over the bony portion of the septum. It is only where bone unites with bone, and where the perpendicular plate of the ethmoid unites with the vomer, that the periosteum is continuous, and where the vomer unites with the cartilage of the septum; the periosteum is not so continuous with the perichondrium of the cartilage. In the latter region the periosteum arises from the floor of the nose and passes upward over the lateral surface of the vomer to its crest, over which it is reflected, and then passes downward over the opposite lateral wall of the vomer to the floor of the nose.

Removal of the cartilage. I use the swivel knife to remove the cartilage. I presume you are all familiar with this method, as it is an old one. Always leave enough along the bridge of the nose for support. It is quite essential not to remove too much.

Removal of the perpendicular plate of the ethmoid. This is accomplished by the Jansen Struycken forcep, introduced through the perichondrium pouch, the perpendicular plate is seized and gently rocked until it is disconnected from its attachments.

Removal of the vomer. The muco-perichondrium is elevated from the concave side and if possible from the convex. A dove-tail Hajek chisel is introduced close to the floor and with a few blows of the mallet the vomer is separated from its attachments to the superior maxillary and removed with a pair of strong forceps.

Dressing. As a dressing I use Simpson's sponge tents. The muco-perichondrium is first clamped together with a speculum, and then two of the sponge tents are inserted into the nostril of the convex side, and one into the nostril of the concave side, and a few drops of peroxid of hydrogen instilled into the ends of the tents, the tents swell and consequently cause the two mucous surfaces to adhere together. I only allow this dressing to remain in the nose twenty-four hours.

DISCUSSION.

DR. WM. A. HITSCHLER (opening the discussion): Submucous resection never appealed to me until I saw Dr. Ballenger perform it. I recall a case two years ago in which there was considerable difficulty for me. The cartilaginous portion of the septum was removed, but the perpendicular plate of the ethmoid was exceedingly deviated, being pressed firmly against the lateral wall of the nose. I find that in using the blunt elevator saves time and difficulty. Occasionally there are deviations of the cartilage beginning at the crest of the vomer.

Dr. E. B. GLEASON explained in detail his operation for the correction of deflected septums by the U-shaped flap.

Dr. O'REILLY called attention to the incision known as the Freer incision, which consists of making a cut through the cartilage, either anteriorly or posteriorly to your original incision through the muco-perichondrium, as this obviates the danger of perforation, should the operator's knife go through the muco-perichondrium of the opposite side, as the incision will then not be opposite one another. Therefore, a permanent perforation will not result.

Dr. MACKENZIE spoke of the difficulty of denuding the muco-perichondrium on the concave side of the vomer, and of the advisability of making a slight incision along the crest of the vomer, then denudation can be accomplished with ease. An incision can also be made on the convex side, not opposite, but anteriorly or posteriorly to the incision of the concave side, in order to facilitate the escape of blood. He also spoke of the advantage of using Schleich's method not only for its anesthesia, but by causing pressure, which assists materially in the rapidity with which the muco-perichondrium is denuded from the septum.

Dr. BALLENGER was questioned in reference to sinking in of the bridge of the nose after submucous resection, and in reply he stated that he had only seen one case of sinking in, and that was a case following perichondritis. It is always best before operating to make a thorough examination, and when you find the nose flabby and soft, operative procedures should not be taken, as there is more or less danger of sinking in of the nose.

Dr. Ballenger was also asked about the correction of deviations of the septum in children, and in answering stated that he did not advocate submucous resection in children, as the cartilage in children is not fully developed, but that in correcting deflections in children he used the developed, but that in correcting deflections in children he used the Sluder operation, which consists of making three parallel incisions middle incision to extend the whole length of the quadrilateral plate.

Some Experiences with Radium. G. S. RYERSON. *Can. Med. Assn. Jour.*, Aug., 1912.

Summing up the result of an experience of three years, and after discussing the strength, duration of applications, amount of filtration, and age of patient, the writer finds that cases in which the mucous membrane of the mouth is the site of disease do not, as a rule, do well, that the tongue is doubtful, and the larynx uncertain. In two cases of lupus vulgaris of the nose, and in tuberculous glands of the neck in young persons, where no breaking-down has occurred, the results were good. The writer is convinced that radium is a therapeutic agent of permanent value. G. WISHART.