

NEW THOUGHTS ON THE PRESENT SCOPE OF SEPTAL SURGERY

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Not too long ago, in a short review in the "Journal of International Rhinology", the present scope of septal surgery was discussed, beginning with a brief historical note and the enlarged field of surgery which was brought on by newer concepts and techniques which have been developed by Dr. Cottle, et al. These surgical methods using as a base the then present-day techniques, were then modified to be in harmony with the basic studies of anatomy, including embryology and anthropology, as well as sociology and pathology. Out of this came in 1946, a paper entitled "Corrective surgery on the external nasal pyramid and on the nasal septum, for reconstruction of normal physiology", by Cottle and Loring. This marked a period of evolution which was followed by contributions by Hinderer, Riggs, et al., and in 1954, Cottle again spoke on the importance of the nasal septum in a monograph entitled "Nasal roof repair and hump removal", and in 1959, the new concepts of nasal physiology as related to corrective nasal surgery was presented at the American Medical Association annual meeting by Dr. Cottle. The need for adequate examination of the patient and his problem, and the valid objective evaluations were stressed at this time. The culminating article in this series was published in 1957, and was given at the annual meeting of the American Rhinological Society, by Doctors Cottle, Loring, Fischer, and Gaynon, on the subject "maxilla, premaxilla, approach to extensive nasal septum surgery". This paper more than any other, widened the concept of the septum as the key to nasal work, and opened up the field to many surgical advances in septal work. This maxillary, premaxillary approach allowed:

1. Preservation of the mucous membrane attachments and blood supply.
2. Allowed correction of the deformities of the caudal end of the septum.
3. Permitted correction of the nasal spine and pyriform apertures.
4. Permitted median osteotomies with preservation of mucosa.
5. Permitted work on the posterior part of the septum alone, also doing work on atresia of the posterior choana.
6. It also permitted intraseptal correction of some upper lateral pathology.
7. It allowed narrowing of the base of the nose and spine repair.
8. It allowed correction of deformity of the premaxillary wings.
9. It permitted gridding, thinning, or imbrication and thickening of the septum when indicated.
10. It allowed for implants for atrophic rhinitis.
11. It allowed rebuilding of the septum, either totally or subtotally.
12. It allowed the septal repair, and septal surgery in children was made

possible and was often advisable. It was through these efforts that it became apparent that it was no longer necessary to make a child wait until some magic age of sixteen or seventeen to have corrective surgery done, and thus needlessly wait for several years with his health impaired by improper breathing. After all, if one can correct an acutely injured child's nose as extensively as the damage may require, why not correct existing problems once a sound diagnosis and measurement of function has been made?

These new concepts as expressed in the papers of Cottle, et al., has opened a veritable Pandora's box. The septum can no longer be considered as an isolated piece of anatomy to be treated destructively. It has through the implication of these writings mentioned, been rejoined with its neighbors and relatives. The lobule and the turbinates belong to the former, and the upper lateral cartilage and bony pyramid belong to the latter. These parts make up the nose. How it works or doesn't work is of prime importance to many body functions, most notably, the cardiorespiratory system. Anyone who has attended seriously any of the introductory courses of septal and nasal surgery can never go back to the old submucous resection. He will at least do a septal reconstruction. The putting back of a few flattened pieces of bone or cartilage in the septal envelope is no great feat. But, to know why, and when, and how much, is to advance. There will be an urge to study a patient's nose thoroughly, evaluate by as objective means as he can command—even to make his own manometer, if necessary. Thus, his surgery will no longer be a procedure needing only his signature to a previously dictated form to call it an operative record, but will become a mass of notes, recording pathology not seen before operation, the various steps needed to correct the pathology encountered, and to achieve a sought for end. His colleagues may not comprehend his new language, but the man will have something to review as the patient is followed along, and should he meet another fellow traveller along the road to rhinology, there will be something understandable in common. Such a person, who has had his horizon widened has not learned an operation, but has acquired principles and practices of Rhinology, and has acquired a surgery of flexibility and selectivity.

Thus we come to considering the septum in relation to its neighbors and relatives, and like members of the human family, relatives are often more sensitive. The upper lateral cartilage, being part of the septal cartilage and yet apart from it at the valve area is the epitome of this state. If the lower border which forms the valve is weak, there is collapse, and insufficiency, and increased respiratory resistance. The opposite, when the cartilage is at a wide angle to the septum, produces a ballooning, and there is an excess space here. Then the airstream may hit the turbinates, overstimulate this area, cause irritation and reflex disturbances including pain, discomfort, excessive secretion, etc., or if the turbinates are insufficient (atrophic), the normal supply of mucous is diminished and partially dehydrated producing a secretion difficult to remove, or even in the more severe stages crusting. The prime cause of ballooning of the upper lateral cartilage is most often the septum. Its downward displacement either from force and dislocation of the cartilage as its premaxillary footplate, or scar tissue in the mucoperi-

condrium pulling it down. Saddling may be noted externally as the manifestations of this, but a wide valve area within is of greater significance. The latter can be measured manometrically. For with the nasal membranes shrunken, the resistance will not change with a change in the head position, whereas the opposite is only too true with weak, collapsing upper lateral cartilages. The shift from the erect to the sleeping position will cause such an increase in resistance, that the patient can no longer breathe through his nose.

The relation of the upper lateral cartilage and the turbinates has too often been neglected. It was recognized only when the septum came too close to the turbinates and not when the middle turbinate was excessive through long standing deviation of the septum, and came to the mid-line, or even to the opposite side of the mid-line, so that the airstream which would normally pass on the medial surface of this turbinate will pass up the middle meatus and disturb the sinus ostia, producing many symptoms suggesting sinusitis as well as overt pathology, which Dr. Cottle now calls Maxillary Ostium Region Insufficiency.

A few other nasal disturbances need to be mentioned, not to be encyclopaedic, but to be considered in evaluating nasal problems which are expanded concepts should now embrace tension, impaction and synechia. Tension here signifies tissue tension. Mucosa like clothing on the stretch doesn't wear well and causes trouble. The mucosal dryness caused by less mucous activity and diminished ciliary activity can lead to trouble. Tension can also be produced by cartilage growing faster than its mucoperichondrial envelope. Also, tension will also produce a downward push of the membranous septum and columella and an upward thrust and stretch of the upper lateral cartilages and lobular cartilages. Tension can also be produced by scar tissue, either localized or wide spread. It will often show up in manometric tracing by irregularity or flattening of the pressure tracings.

Impaction means the continuous contact of the septum with the lateral wall of the nose. It may be an adequate spur with adequate space above and below it, but reflex phenomenon can occur, including reflex cephalgia. This is something like developing a callous on one's heel after wearing a shoe with a protruding nail for a long time. The discomfort may not always be acute, but the trouble is there twenty-four hours daily. The opposite of an impaction needs to be mentioned, synechia. Adhesions producing tissue traction or tension in reverse, but capable of producing symptoms just the same. Some will disturb the breathing pattern, and in general need to be relieved whether the pattern is normal or not, so that the normal excursions of the turbinates are untrammelled.

Finally, much of what has been said refers to the septum and its adjacent areas. It also needs to be considered by itself. Its thickness or thinness, and if the vault is lowered will it become a thick, and excessive, and will an infracture cause a diminution of the available space, that no matter how the other parts of the surgery go the results will be poor. Here the preoperative study of the clinical nasal index can save one from trouble. Thus we can see that the development of nasal and septal surgery through a long life of teachers, culminating in M. H. Cottle, who has by his own work, in developing surgical approaches and stimulating others to do likewise, has brought

us from the era of S.M.R., to the field of Rhinology. Surgery is not the endpoint, but it is one of the means of bringing to the patient an improvement of his nasally-caused problems. Naturally, before surgery it is necessary to make an assessment of the problem, to reassess at the time of operation, and to again reassess as the patient is followed postoperatively. Dr. Cottle has emphasized this over and over again, and has shown by example the need to follow a patient for years. He who considers a "case closed" will have a closed mind. Thus we have now arrived at an era where much can be done to improve a patient's health that is limited by his nasal disturbance. There are many ways of measuring and recording objectively some of these disturbances and a battery of procedures to enable correction, and finally, with adequate follow-ups and repeated objective study to evaluate the results. The horizons in this field are almost limited, and as a popular song goes. "On a clear day, you can see forever".

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