

INDICATIONS FOR NASAL SURGERY IN CHILDREN

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Operation on a child's nose should be performed when it is necessary, regardless of age. Experienced rhinologists know that the nose is a growing structure and that timely surgical correction, when indicated, can help prevent later development of many anomalies and other deformities. Also, restoration of the nasal anatomic structures to normal or nearly normal helps restore the physiologic functions of the nose and its associated reflexes. In certain congenital malformations corrective surgical procedures can help obviate early psychological impressions.

In this paper the nasal abnormalities seen in my practice will be classified and the surgical indications for each group will be discussed. Disease of the sinuses will not be considered in this discussion. Nasal conditions in children requiring surgical correction may be classified into: 1) acute injuries; 2) acute infections; 3) healed injuries; 4) congenital malformations (external nose, septum, choanal atresia, and external cysts or tumors); and 5) intranasal tumors (including polyps).

Acute Nasal Injuries

Although severe injuries frequently involve the entire nose, for purposes of discussion it seems prudent to consider each part separately. Acute nasal injuries may involve the skin, subcutaneous tissues, bony vault, cartilaginous vault, lobule, septum, or a combination of any of these. Obviously, lacerations of the skin and subcutaneous tissues should be promptly sutured.

Injuries to the bony vault may be overlooked in early life, since the nasal bones are membranous and under-developed. In children older than 5 years of age, any bony displacement can almost always be discovered by thorough clinical and roentgenographic examinations. It is unwise to depend entirely on roentgenography, as in many cases only the cartilaginous part may be involved. It is important to remember that the bony vault consists of the frontal process, the two nasal bones, and the nasal processes of the maxilla. Whether the bony vault is operated on depends on the pathologic findings. There may be a simple depressed fracture of one nasal bone, infraction of one bony lamina and outfracture on the opposite side, comminuted fractures of one or both sides, and compound fractures with or without loss of bone. Any of these conditions should be surgically corrected as soon as the general condition of the patient permits.

A common injury to the cartilaginous vault requiring attention is hematoma over one or both upper lateral cartilages. This should be carefully evaluated, as such a lesion is potentially dangerous because of pressure necrosis or infection. When in doubt, the clot and old blood should be evacuated, preferably through an intercartilaginous incision. Another common injury is tearing of one or both upper lateral cartilages from beneath the nasal bones. This may cause a sagging or saddling of the cartilaginous vault.

Acute injuries to the lobule requiring surgical correction include lacerations of the alae, columella, or both. The cartilage may also be torn and a hematoma may be present.

Nasal septal injuries are probably the most overlooked and least correctly diagnosed of any of the foregoing. Findings include lacerations of the mucosa, hematomas, and fractures of the cartilage, bone, or both (frequently comminuted and often overlapping). The cartilaginous septum may or may not be displaced from the premaxilla or vomer. Septal injuries are frequently associated with sagging or saddling of the cartilaginous vault, or the cartilaginous vault may be twisted. If there is any doubt concerning injury within the septal space, it should be opened and inspected. If no free blood, hematoma, or displaced fragments can be found, no harm has been done. However, if displaced fractures are encountered, the septum should be repaired, and if sagging or any other abnormality is present, these should be corrected in order to prevent sequelae. Not only should the recent injuries be repaired but also pre-existing anomalies if feasible.

Acute Infections

Septal abscess is seen less frequently since the advent of antibiotic drugs, but when diagnosed, early incision and drainage is imperative. Other acute infections requiring operation include abscess over the cartilaginous dorsum and postoperative infection about the external nasal pyramid or within the nose.

Healed Injuries

In young children an injury may accelerate or retard the growth of all or any part of the nose either in size or differentiation. In other words, the same injury may result in acceleration of growth in one part of the nose and retardation in another. An injured nose may later grow to full size but have the characteristics of a baby's nose. Healed injuries may be associated with a variety of pathologic anomalies. These may be found in the cartilaginous or bony parts of the external nasal pyramid, or in the septum.

These abnormalities should be surgically corrected if adequate non-surgical treatment has proved unsuccessful. Operation should be performed before too many anomalies of growth start developing. Often just a "little bit" will be of great help.

These children suffer primarily from difficulty in breathing through the nose, as evidenced by breathing through the mouth. Other clinical manifestations include frequent colds, nasal and postnasal drainage, sinus infections, middle ear infections, thumb or finger sucking, nervousness, irritability, insomnia, apparent failure of mental development (by doing poorly in school) and in some cases, greatly decreased stamina.

A variety of abnormalities may be found on examination of the pathologic nose. For example, the caudal end of the septum may be in either the right or left vestibule. One nasal cavity may be occluded by the cartilaginous or bony septum, or both, and the opposite side may be too wide. The cartilage, bone or both, including scar, along or below the inferior turbinate on one side or the other may be impacted. Occasionally, the septum may be so thick that

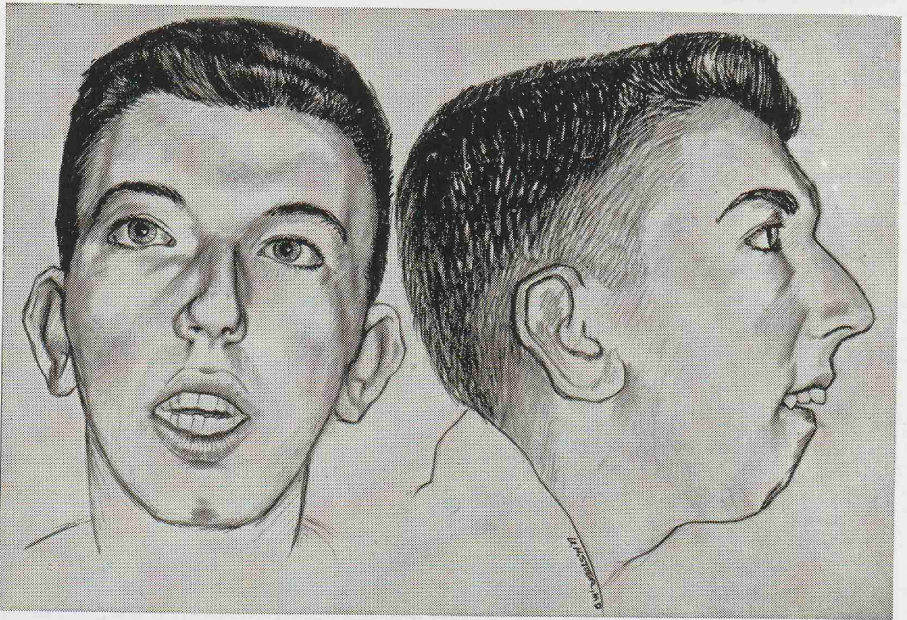
it obstructs both sides. Frequently, the upper lateral cartilages are too far from the septum, so that normal valve action is prevented. This is known as "ballooning". In other cases the septum may be perfectly straight but the upper lateral cartilages are too close to the septum. Obviously, infections, tumors, foreign bodies, allergy, and hypertrophied adenoids must be considered in the differential diagnosis.

Other possibilities include malalignment of the external nose, "C" shaped or other deformities, "saddling", and underdevelopment of one part and overdevelopment of another. In the growing child, the teeth and palatal arch should be examined and the facial features should be observed for malalignment. Casual examination of the chest may disclose considerable underdevelopment due possibly to nasal dysfunction.

Most children needing nasal operations may have only a few symptoms. However, some have many clinical manifestations. The following is such a case.

Report of Case

A boy, aged 16 years, sustained a nasal injury when he was 5 years of age, for which he received no treatment. He consulted me because of great difficulty in breathing through his nose (mouth-breather), shortness of breath (could not run and play), frequent infections of the upper respiratory tract, coughing and vomiting every day, and recurrent infection of the middle ear.



Examination showed malalignment of the face and teeth, overbite, high palatal arch, mouth open, deviation of the nose to the left, and complete septal obstruction of the right nasal cavity upward from the os internum. The

caudal end of the septum was in the left vestibule. The thorax was flat and underdeveloped. Expansion on respiration was greatly diminished.

Surgical correction included reconstruction of the nasal septum, realignment of the external nasal pyramid, and operative measures on the upper lateral cartilages and lobule. Postoperatively, the patient was able to breathe through his nose, he no longer coughed or vomited, and one month after operation he was able to run and play without tiring. A report six years after operation indicated continued improvement in general health. This case is an example of the possible harm that can result from delaying operation when definite indications for surgical treatment are present.

Congenital Malformations

Corrective surgical treatment is indicated in cases of bifid lobule, absence of an external nasal pyramid, or a poorly developed one. It is probably better to wait until the patient is 4 to 5 years of age before operation. Usually, the child has not had time to form bad psychologic impressions as a result of his deformity and his nasal structures are easier to operate on than younger children.

Failure of the paraseptal cartilages to absorb will cause nasal obstruction. Surgical removal of the paraseptal cartilages, leaving the middle cartilage alone, will reestablish the nasal air passage, provided no other anomaly is present.

Bilateral choanal atresia requires emergency surgical treatment. However, some have advocated using appliances in the mouth and postponing operation until a later date. Unilateral atresia is usually an elective procedure.

External cysts or tumors may be in the midline or laterally. The cyst most frequently encountered is the dermoid cyst. Gliomas, meningiomas, and hemangiomas have also been reported. The presence of these lesions is indication for removal. This is practically always an elective procedure.

Intranasal Tumors

Nasal polyps are occasionally seen in children. Before operation it is advisable to determine the cause, and if possible, correct this rather than perform repeated polypectomies. I have seen one case of cystic fibrosis in which numerous polyps were present extending into the vestibule bilaterally. Among other intranasal tumors requiring operation are gliomas, encephaloceles, papillomas, and granulomas.

SUMMARY

Nasal abnormalities in children which may require surgical correction may be classified into acute injuries, acute infections, healed injuries, congenital malformations, and intranasal tumors. Operation on a child's nose should be performed when it is considered necessary regardless of the child's age. Timely surgical correction can prevent later development of many anomalies. Moreover, surgical correction of certain congenital malformations can erase early psychologic impressions.

LES INDICATIONS CHIRURGICALES DANS LES CAS DE PATHOLOGIE NASALE CHEZ L'ENFANT

Les états pathologiques du nez de l'enfant exigeant un traitement chirurgical peuvent être classés selon le schéma suivant: 1) les lésions aiguës; 2) les infections aiguës; 3) les lésions guéries; 4) les malformations congénitales et 5) les tumeurs (inclus les polypes) intra-nasales.

Du fait qu'une lésion au nez d'un jeune enfant peut accélérer ou retarder la croissance du nez ou d'une partie du nez, il est très important que les lésions aiguës soient vues, diagnostiquées et corrigées chirurgicalement, si nécessaire, le plus tôt possible. Les lésions aiguës de la cloison peuvent être mal diagnostiquées chez l'enfant, si un examen approfondi n'est pas fait. Il peut y avoir des cas où la muqueuse de la cloison doit être incisée.

Les infections aiguës, principalement aux environs du cartilage, doivent être reconnues de bonne heure et traitées judicieusement.

Les manifestations cliniques des lésions guéries qui exigent une intervention chirurgicale peuvent varier. Le symptôme ou l'indice le plus important est la difficulté de la respiration nasale. L'atteinte la plus fréquente se trouve à hauteur de la cloison nasale; celle-ci peut provoquer à son tour des anomalies du cartilage haut-latéral et de la pointe du nez, et un mauvais alignement de la pyramide nasale externe. Toutes ces anomalies devraient être corrigées chirurgicalement, si les traitements non-chirurgicaux n'ont pas donné satisfaction. Le rétablissement des structures anatomiques dans leur position normale ou presque normale, aide à restaurer les fonctions physiologiques du nez et ses réflexes associés. Un cas illustrant ceci est présenté.

Les malformations congénitales du nez externe tel que la pointe bifide et l'absence de la pyramide externe, exigent la correction pour des raisons psychologiques.

Les malformations intra-nasales comprennent la présence de cartilages paraseptaux et l'atrésie des choanes. Le Kyste dermoïde est le plus fréquemment trouvé dans la région de la pyramide nasale. On rencontre également des gliomes, des méningiomes et des hémangiomes. Ceux-ci demandent généralement une extirpation chirurgicale.

Pour autant que possible la cause des polypes nasaux devrait être déterminée. Un traitement efficace aidera à empêcher la réapparition des polypes. Quelques cas de fibrose Kystique souffrent d'une forte polypose, qui est généralement bilatérale. Entre autres neoplasmes exigeant l'extirpation chirurgicale, nous citons les gliomes, l'encéphalocèle, les papillomes et les granulomes.

Les maladies du sinus ne sont pas comprises dans cette communication.

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