

EXTERNAL TRAUMATIC MALFORMATIONS OF THE NOSE

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It is important to recognize immediately that external malformations of the nose may be the result of trauma other than accidental injury. Nose surgery which does not include measures to restore support and prevent the adverse consequences of atrophy can lead to external deformities very similar to those caused by injury involuntarily received. These deformities are latent and their delayed appearance may obscure the relationship to surgical trauma. Knowledge and utilization of principles and technics to prevent such undesirable post-operative sequelae are essential to the rhinology of today. Repair of accidental nasal injuries and repair of surgical incisions, osteotomies, and septal resections, are identical in their need for measures to maintain the nasal integrity which the operation seeks to restore. A nose operation which omits the repair phase is like an untreated nasal fracture. A nasal fracture reduction must likewise be identical to the repair phase of an elective nasal reconstruction. They shall therefore be considered as one.

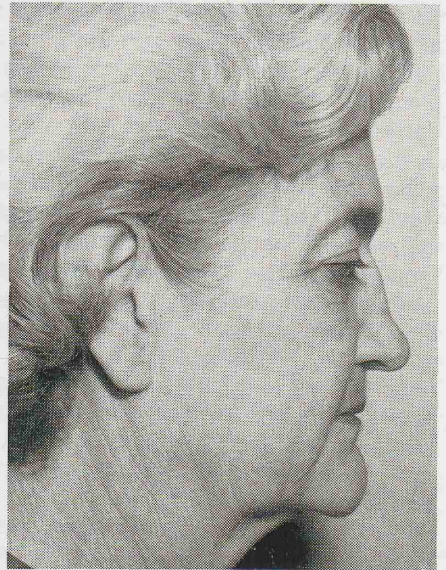
Almost self evident and undeniable is the necessity to prevent nasal deformity from infection. Strict aseptic technic in nose surgery, emergency or otherwise, is a most important requirement which has unfortunately been neglected in the past. Excessive scar formation and inflammation necrosis of soft or rigid tissues can totally destroy the most skillful nasal reconstruction. Every effort must be made to prevent and combat infection. Nose surgery must be performed in a well equipped operating room with all facilities and regulations required by the current concept of surgical sepsis. Extemporaneous nose operations in a clinic cubicle or so called minor surgery room has no place in modern rhinology lest infection replace physical trauma as the deforming agent.

The septum demands primary consideration in the reparative phase of a nose operation whether it be elective rhinoplasty or reduction of a recent fracture. Resection of septal elements without subsequent restoration plus utilization of measures to prevent cicatricial contracture in the septum will lead to structural abnormality and functional disability of the entire cartilage vault. The post-operative or post-traumatic saddle nose displays all of these deformities in varying degrees and combinations. True saddling of the lower dorsum is a middle third concavity in the cartilaginous roof involving the upper lateral and lobular cartilages as well as the septum. The terms sagging or slumping are used to refer to a uniform progressive loss of height in the lower dorsum from the nasal bone to the lobule. This too involves the lateral cartilages and creates deformities which may not be recognized as basically septal pathology.

Frontal views and cross section examination reveal that sagging or saddling of the septum include a widening of the nose with ballooning of the upper laterals and flattening of the lobule. The ballooned upper laterals arch outward with their caudal border presenting a tense concavity to the septum instead of the soft straight edge essential for optimal valve function. A flat lobule implies round or horizontal nostrils with a shortened columella in basal views.

This indicates that the lobular cartilages are drawn out, increasing the angle between the medial and lateral crura at the vestibular dome and widening the base of the nose. The shortened columella is also drawn cephalically in profile, toward a caudal septum whose membranous portion is shortened and unduly rigid from scar formation. Underlying mucosa is stretched and consequently atrophic and the entire deformed cartilaginous vault is relatively fixed in a state of tension and comparative immobility by cicatricial contracture.

The poor cosmetic appearance is sufficient in itself to justify every effort to prevent and rectify such nasal deformity but this is actually of secondary importance to the marked physical discomfort and disability created by such a nose. Soft tissue tension and atrophy initiate many diverse and somewhat vague symptoms and the fixed abnormally shaped rigid structures are entirely unable to perform their role in nasal physiology. Obstruction to breathing, repeated respiratory disease in the upper or lower tract, and pain in or about the head and neck, are some of the more frequently recognized sequelae of nasal deformity with deficient function. Closer study has further indicated that many other more generalized problems can be traced to abnormal physiology. Irritability, asthenia, and undue fatigue, may impair social acceptance, intellectual capacity, and physical efficiency as the result of a deformed nose. The basic etiology may not be appreciated until the cause has been corrected for some localized indication which may, in retrospect, have been a minor problem. The experiences of knowledgeable rhinologists are adding evidence to support this concept daily.



Deformity of the nose from surgical trauma. Note close similarity to healed untreated injury.

Malformation du nez causée par un traumatisme chirurgical. Notez la ressemblance avec le traumatisme guéri et non traité.

Traumatic external deformities of the bony pyramid, post surgical or otherwise, are also important to recognize as both cosmetic and functional disabilities. The crooked, depressed, and humped bony dorsums are obvious post traumatic malformations which create physiological impairment from atrophy, tension of soft tissue, and deflection of normal air and mucous flow patterns. These are more frequently the result of accidental injury, are easily recognized, and require briefer discussion than the less appreciated deformities that can be the result of surgical trauma. The open roof, base line problems from lateral osteotomy, and the linea nasalis from injury to the area where upper lateral cartilage joins with bone, are post surgical external deformities of grave importance which justify more lengthy consideration.

The open roof develops when the nasal bones are not positioned and maintained in contact medially or graft material is not provided to close the bony dorsum at surgery. When this situation exists the only roof in the medial bony pyramid is skin, fibrous tissue, and the underlying nasal mucosa. There is no support in the area and no cover for the adjacent internal nose. In addition to the undesirable appearance of a flat wide dorsal line there are the more distressing disturbances from irritation to the sensitive unprotected mucous membrane underneath. Localized and referred pain may be quite severe and other symptoms may ensue which are obscure to those not familiar with the problem. The open roof may be detected by observation, tactile examination, or the passage of a fine needle through the uncovered dorsal area. Even a very small opening may have adverse consequences and is worthy of recognition.

Along the lateral base lines of the bony pyramid where the mobilized dorsal lamina meet the edge of the nasal maxillary process a number of complications may occur which cause deformity and discomfort. If improperly placed, or inadequately maintained in position after surgery, the nasal bones can slip from beneath the maxillary process and create a wide bony pyramid. The skin overlying the base line is consequently stretched and atrophic and in addition to poor cosmetic effect there may be tenderness. If the mobilized nasal bones are improperly tucked deeply beneath the maxillary process there may be an unsightly lateral step deformity created with similar atrophic thin skin and tenderness. Should the periosteum of the area be excessively traumatized and its integrity destroyed, recurrent inflammatory swelling and tenderness along the base line may be the result. This also leads to abnormal hypertrophy with thickening in the area that makes the nose appear wide and relatively flattened.

Trauma in the K (Keystone) area, where the upper lateral cartilages are firmly attached beneath the nasal bones, destroys the basic support of the cartilaginous nose. The cartilage then falls away leaving a space which creates an external defect in the area known as a linea nasalis. It appears as a transverse gutter or groove across the middle of the nose externally and constitutes a site of deficient roof with unprotected mucosa inside. The undesirable consequences of this situation can be appreciated from the previous discussion of the open bony dorsum. In addition there is the disturbance in position and fixation of the upper lateral cartilages which interferes greatly with their functional efficiency. Destruction of the K area must be

carefully avoided in surgery and it is a most deplorable condition to discover after accidental trauma. Repair of injury to this fundamentally important structure is difficult and often unsatisfactory. The external deformity is but a headstone to the real tragedy that lies beneath.

A total external traumatic deformity that must be mentioned and avoided with every effort is the atrophic skeletonized nose that results from excessive removal of subcutaneous soft tissue and support. This occurs when an inadvisably vigorous attempt is made to reduce the proportions of a large nose to conform with fancied cosmetic standards. Sufficient subcutaneous material should always be allowed to remain or be implanted to provide adequate structural and trophic support to the overlying skin. The result of neglect or disregard in this matter creates a thinly covered atrophic nose that is both unsightly and uncomfortable in its ultimate form. Even though the immediate post operative result may be satisfying, subsequent atrophy will eventually destroy all that has been accomplished.

It is clearly apparent that this discussion has been limited to brief identification of the external nasal deformities that can result from trauma, touching lightly upon their origin and effect. Surgical and accidental trauma lead to very similar or even identical structural abnormalities depending upon the degree and site of injury and the extent to which efforts have been made in repair and prevention of deformity. The story of repair and prevention is far beyond our present objective. It is perhaps, in a broad sense, the whole story of successful rhinologic surgery. Ability to recognize post traumatic nasal deformities and appreciate their relationship to functional disturbances should stimulate our interest and effort in the lengthy task of learning to combat their development and persistence.

If we learn to rectify the damage we create and forestall its undesirable sequelae we can solve our problems in the nose and else where as well.

SUMMARY

Traumatic malformations of the nose are not always caused by accidental injury. They may also be the result of a nose operation which disrupts supportive and trophic tissues and omits measures to restore them. Postoperative deformities often do not appear immediately after surgery. It is therefore important to observe our patients for many years after nose operations and be alert for developing malformations. More important is acquisition of the knowledge and skill necessary to prevent their development. This is perhaps the very essence of successful nasal reconstruction for if we can prevent deformity we can likewise rectify it.

Avoidance of infection is a primary requisite in prevention of post-operative malformations of the nose. Inflammatory trauma can destroy all that has been accomplished in a nose operation. Strict surgical asepsis and sterile technic in post-operative care are mandatory in modern rhinology.

Nasal deformities from accidental injury and surgical trauma are very similar and require similar management. In the cartilaginous vault, they are basically septal in origin but also involve the upper lateral and lobular car-

tilages. In the bony pyramid the roof structures are the primary offenders. Some common deformities are identified, briefly described, and related to the functional pathology which they produce. Recognizing these traumatic malformations and their role in nasal disease should stimulate our efforts to prevent them.

MALFORMATIONS TRAUMATIQUES DU NEZ

Les malformations traumatiques du nez ne sont pas toujours causées par un accident. Elles peuvent également être la conséquence d'une intervention sur le nez, laquelle cause une dislocation du support et des tissus fragiles en ne permettant aucune mesure pour sa restauration. Les malformations causées chirurgicalement n'apparaissent pas immédiatement après l'intervention. Il est donc très important d'observer son patient durant de longues années après l'intervention et de rechercher l'éventuelle apparition d'une malformation. L'acquisition des connaissances et de l'habileté nécessaires afin d'empêcher ces malformations est de la plus haute importance. Ceci peut être considéré comme étant le facteur essentiel dans la reconstruction nasale, car, si l'on peut empêcher ces malformations, l'on peut également les rectifier.

Eviter l'infection est la première chose indispensable et nécessaire afin de prévenir une malformation post-opératoire du nez. L'inflammation peut détruire tout ce qui a été accompli par l'intervention. Une antisepsie chirurgicale rigoureuse et une technique stérile sont indispensables dans la rhinologie moderne. Les déformations du nez accidentelles ou chirurgicales sont identiques et demandent le même traitement. Dans la partie cartilagineuse, elles sont essentiellement de nature identique, elles intéressent aussi bien le cartilage supérieur latéral que le lobule cartilagineux. Dans la partie osseuse de la pyramide, le toit est le premier atteint. Certaines malformations courantes sont identifiées, brièvement décrites, ainsi que les syndromes pathologiques qu'elles provoquent. Reconnaître ces malformations traumatiques et leur rôle dans les maladies du nez doit stimuler nos efforts afin de les prévenir.

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