

Nasal fractures in adults -a brief discussion of principles

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SUMMARY

A discussion of the management of acute nasal fractures in adults is presented. Repair of the nasal injury should be postponed so the patient can be stabilized and totally evaluated while the surgeon plans and prepares to do the optimum nose operation. Two weeks or more may be allowed for this with a few stated exceptions. Acute nasal fractures are the misguided mobilization phase of a nasal reconstruction. This must be rectified and completed and the nose modified and repaired in accordance with the principles of functional rhinologic surgery. Some remarks on the fallibility of X-ray diagnosis are included.

It is most appropriate that one of the lectures in a rhinologic surgery course concerns the repair of nasal fractures in adults. The very minimal depressed fracture involving only the distal tip of a nasal bone may perhaps be adequately managed by so called closed reduction — i.e.: elevation of the depressed fragment with a lever inside the nose and a tight packing under the dorsum in the attic. In this simple situation no intranasal incisions are required unless there is dorsal or septal hematoma to be relieved — a possibility to be more anticipated in children's noses.

Proper surgical management of an adult nasal fracture is more frequently the full conservative septum-pyramid operation, as taught and demonstrated in a week long course on nasal reconstruction. For beginners, acute nasal fractures may well provide the first opportunity to utilize what you learn in such a course. To properly repair a total nasal fracture, one should be prepared to do a full septal exposure from the anterior nasal spine to the posterior border, from the floor of the nose to the roof, identifying all structures and approaching critical areas with least possible trauma in anatomical planes from whatever direction is most advantageous in the specific situation — i.e.: from below—upward, behind—forward, or the reverse. This is the MP approach as described by Cottle and associates.

One must be capable of mobilizing the pyramid with medial and lateral osteotomies when and where they are indicated, as many or few as needed, by chisel or saw cuts. One should know the basic requirements of SMUL (submucous

upper lateral cartilage surgery), and be able to do lobule work, especially at the dome, if it is indicated to correct the nose. One must learn to do all of this with safety, minimal trauma, and with restoration of nasal function as the primary objective.

After the nose is dissected, exposed, and mobilized you must be able and prepared to repair the damage done by the traumatic agent which caused the fracture and the damage done by yourself — the surgeon. It has been said that the worst injury that can be inflicted upon a nose is nasal surgery. Not only must the immediate effect of this injury be rectified but delayed effects from scar tissue contracture and poor support must also be prevented.

Any nose operation consists of three phases: exposure, mobilization, and repair. A nasal fracture is the incomplete misguided performance of the first two. These two must be completed in proper fashion followed by thorough accomplishment of the repair phase to the best of our ability. A nasal fracture presents you with an incomplete poorly done rhinoplasty and you must take over and complete the job properly. It may be the first opportunity you will have to demonstrate your new skill as a nasal surgeon to your medical colleagues and your community. There may be some who are disappointed that I have not proceeded to present a routine formula for repair of a fractured adult nose. I've attended and taught many courses on nose surgery and must confess that I, too once expected this of the lecture on nasal fractures. After twenty-five years of work and experience it's well apparent to me that no such formula exists. Most of the operations that we do to correct deformities are actually the repair of nasal fractures and their sequelae, old or new. Noses suffer injury from the day we're born (or even before if we consider genetic factors and pre-natal trauma) until the end of our lives — and we as rhinologic surgeons are called upon to correct and arrest an infinite variety of the resulting deformities. We must strive to master the basic fundamentals and concepts of nasal reconstruction and learn by experience to combine them into the optimum operation needed to solve the problem. The above is the proper procedure to repair a fractured nose.

Now to the more obviously implied subject of my lecture, management of the acute nasal fracture. There is wide diversity of opinion, but it is my feeling that a nasal fracture is not an acute emergency except for control of infection, pain, and hemorrhage, and suturing of skin lacerations. A severe nasal fracture is often associated with other injury and a period of observation, stabilization, and treatment for more urgent problems such as cerebral concussion, and chest, neck, pelvic, or long bone fracture is initially advisable if not mandatory. A patient with suspected cribiform plate fracture should certainly not be subjected to extensive surgery. Cerebro-spinal fluid rhinorrhea may not be apparent until a few days after nasal injury and when it appears there's no need to let it be blamed on the trauma of nasal fracture repair.

To prevent pressure necrosis of cartilage, tension hematomas in the septum and over the upper laterals should be drained promptly and a pack and stent applied to prevent recurrence, (if this does not interfere with the management of more urgent problems) but the full nasal reconstruction should wait. There may be

opposition from all involved parties, patient, consultants, family, and friends; a well informed rhinologist with calm and courteous rationale should be able to justify his opinion and protect it if medico-legal controversy occurs.

One contingency which demands quick attention is a severely lacerated septum that threatens to perforate if allowed to heal without repair. This should be managed by septoplasty and meticulous suturing of the torn mucosa within 36-48 hours. The external nasal pyramid fracture can be repaired at the same time or this can be postponed for four to six weeks if there is a valid reason. School work, job, or even social demands, can be indications for safe delay if the patient will report for regular observation.

As we all know, the facial bones heal slowly by fibrous union and old fractures can easily be remobilized. Very new scar is highly vascular but it retracts slowly, dissects with little adherence, and bleeding is not a major problem. Cartilage, once torn, never reunites. In my experience, a severe nasal fracture two weeks old is easier to repair than one of a few hours or a few days old. Soft tissue swelling and inflammation has subsided and anatomical planes are better delineated. Better visual and tactile guidance in diagnosis are possible and the operation can be planned with all facilities available. This has been my policy for the last five years and operative results seem better. Cosmetic rhinoplasty can be included in the fracture repair at this time if essential structures are not violated, and functional restoration of the nose is not jeopardized.

In conclusion, a few remarks on X-ray diagnosis. Public and legal reliance on X-rays as infallible diagnostic evidence can be a problem in nasal fractures. Some of the most severe nasal fractures with obvious pyramid deformity show little or nothing on X-ray study though impacted and displaced bony lamina can be clearly palpated and the septum is obviously deformed. Cartilage is difficult to demonstrate by X-ray and a caudal septal fracture presenting into the vestibule may be observed when the nasal X-rays are reported normal. A fractured anterior nasal spine often accompanies this septal injury and shows clearly on the lateral view but many radiologists fail to report it. Palpation of the spine area and observation of buccal ecchymosis beneath the upper lip will make the diagnosis. Conversely, a shattered external bony pyramid with comminuted fractures may not be clinically apparent if the nose is severely contused with extensive soft tissue swelling. X-ray will reveal this problem. It's best to have X-ray studies made in nasal fractures but be aware of their limited diagnostic value and examine the film personally. They are highly respected medico-legal evidence, so insist that your interpretation be included in the X-ray report.

RESUMÉ

Une discussion de la direction sur les fractures nasales aiguës chez les adultes est présentée. La réparation d'une blessure nasale devrait être remise pour que le malade soit stabilisé et totalement évalué pendant que le chirurgien arrange et prépare à faire la meilleure opération du nez. Deux semaines ou plus peuvent être accordées pour cela avec quelques exceptions. Les fractures nasales aiguës

sont la phase égarée de la mobilisation d'une reconstruction nasale. Ceci doit être rectifié et complété et le nez modifié et réparé en accord avec les principes de chirurgie rhinologie fonctionnelle. Quelques remarques de la faillibilité du diagnostic des rayons-X sont compris.

REFERENCES

1. Cottle, M. H., Loring, R. M., Fischer, G. C. and Gaynon, I. E., 1958: The maxilla-premaxilla approach to extensive nasal septum surgery. *Arch. Otolaryng.* 69, 303-313.
2. Cottle, M. H. 1960: Concepts of nasal physiology as related to corrective nasal surgery. *Arch. Otolaryng.* 72, 11-20.
3. Hinderen, K. H., 1971: Fundamentals of anatomy and surgery of the nose. Birmingham, Ala., Aesculapius Publishing Company.
4. Hurst, A. 1960: The importance of nasal fractures. *Laryngoscope*, 70, 68-77.
5. Jordan, L. W., 1953: The rhinoplastic management of recent nasal fractures. *Ann. Otol. Rhinol. and Laryngol.* 62, 692-698.
6. Joseph, G. F. 1963: External traumatic malformations of the nose. *Internat. Rhinology* 1, 101-105.
7. Kazanjian, V. H., and Converse, J. M. 1949: The surgical treatment of facial injuries. Baltimore, Md., The Williams and Wilkins Company.

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