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Milo C. Schroeder

*College of Medical Evangelists*

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# FRACTURES OF THE NASAL AND THE MAXILLARY BONES\*

MILO C. SCHROEDER, M.D.

In this age of rapid transit, with its unprecedented high accident rate, a structure occupying such an exposed position as the nose would seem to demand of the physician knowledge of both first aid and subsequent care.

If a fractured nose and maxilla are not properly cared for, the consequences to the patient's future personality may be serious and lifelong. Both functionally and esthetically, then, proper reduction of these bones is of major importance.

The structure of the nose is like that of a double-span bridge in which the displacement of any member distorts the position of the whole and alters the function of the unit.

Since the maxillary bones form the foundation upon which the nasal bones are attached, any depression or displacement there will generally distort the nasal bridge so that it cannot be functionally correct. This situation will occur when a heavy blow is received on the cheek and the nose. The maxilla is fractured through the infraorbital notch and down across the anterior face of the bone coming out at the pyriform process to the nares or perhaps between the first and second bicuspids. In the first case, besides the impingement upon the infraorbital nerve, we have a narrowing of the external nares. In the second, there is also the introduction of a dental problem, in which the bite is poor because the upper teeth no longer match the lower. The body of the maxilla may be comminuted and crushed

into the maxillary sinus, with hemorrhage. The fragmented edges are impacted into each other, or overriding. In most cases there is a fracture of the zygoma.

Since, in fractures of the face, healing takes place rapidly, because of the good blood supply and impaction, it becomes increasingly difficult to separate the fragments; therefore, it is highly important to reposition the nasal and maxillary bones as soon as shock resulting from the accident is controlled. It is usually possible, and advisable, to do this during the first week. One should not wait until the swelling has subsided, because the edema definitely hides the deformity, and the face looks worse as the swelling goes down. Palpation of the bones of the nose around the rim of the orbit and proceeding to the zygoma, together with a stereoscopic X-ray, can be relied upon to tell whether there is fracture of the maxillae, the foundation bones of the face.

## METHOD OF REPOSITIONING

Since the approach of choice to the maxilla is through the inferior meatus of the nasal cavity, the nasal bridge should first be mobilized and reduced. Local anesthesia of cocaine and adrenalin will control bleeding and engorgement. Packs are placed so as to block the nasociliary nerve at the junction of the frontal and nasal bones; also, at the floor of the nose near Little's area, and at the sphenothmoid recess posteriorly. An injection of the subcutaneous portion at the point midway between the nasion and the inner canthus, at the in-

\* From the Department of Otolaryngology, College of Medical Evangelists.

ferior border of the nasal bone and at the lateral cartilaginous ala will control all pain. This injection should be of procaine 2 per cent with a trace of epinephrin (about 5 minims to 10 cc. of procaine solution). The needle should be inserted from the vestibule lateral to the ridge formed by the superior alar cartilage. A small injection of the columella is also advisable. Now, with anesthesia well in hand, and bleeding controlled by the adrenalin, one may grasp the nose with the thumbs on one side and fingers on the other and mobilize and reshape the bridge. By means of a rubber-covered clamp the septum is repositioned as necessary. Then, if it is desirable to elevate the maxilla, general anesthesia may be induced by pentothal intravenously, and an opening made in the lateral nasal wall under the inferior turbinate on the side of the depressed maxilla. This can be done with an antrum rasp, and when sufficiently enlarged, a urethral sound is inserted into the maxillary sinus and the depressed bone elevated. This will take considerable force, because of the impaction, and care should be exercised not to injure the septum or the floor of the nose by using it as a fulcrum.

In several cases coming under our observation it was impossible to reposition the maxilla through the intranasal route, so a Caldwell-Luc approach was used. An incision was made in the gingivolabial fold opposite the first and second molars and the bicuspids. The soft tissues and the periosteum were then elevated, exposing the canine fossa, and an opening made into the antrum. This makes an easier lift possible, as the normal maxilla at the prominence of the cheek is like an arch, and the point to which pressure is applied by lifting is closer to the fulcrum than it is by the intranasal route; but it also introduces the danger of depressing the teeth if the fracture has extended through the gingival ridge.

After reducing the depressed bone to good

position, it is best to pack the maxillary sinus with vaseline gauze, bringing the end out through the nose so it can be removed via this route in about four or five days. The incision is sutured with silk.

The nasal bones are now splinted with dental wax stents internally, and an aluminum splint externally. This should be padded with about one-eighth inch thickness of felt to avoid damage to the skin.

Application of ice to the operated area reduces the postoperative discoloration and swelling. The wax splints are removed from the inside of the nose in 24 to 48 hours, and the external splint may be left in place for about one week.

If the canine fossa approach is used, there is a risk of infection of the face through the mouth. Consideration of this eventuality would dictate use of penicillin postoperatively.

#### REPORT OF A CASE

G. S., a young adult male, received a fracture of the nose and right maxilla in an automobile accident on June 27. Severe shock being present, he was treated appropriately in a local hospital, but no reduction of the facial bones was attempted.

He left the hospital with a facial deformity as in Figure 1, and presented himself at my office on July 31.

His teeth were maloccluded, the right face depressed, and the nose deflected to the left. The aeration of the nasal cavities was poor on the right. He had a paresthesia of the entire right maxillary area.

He was operated on August 5 by the technic previously described. Healing of the bones was especially firm where the impaction had taken place in the anterior surface of the maxilla. Under general anesthesia the maxilla was lifted through the Caldwell-Luc approach. A firm vaseline gauze packing was placed to support the maxilla from within. The nose was

kept in position by an internal support of dental wax and an external molded metal splint held in position with adhesive tape.

The maxillary packing was partially with-

CONCLUSIONS

1. Fractures of the nose and maxilla should be reduced as soon as traumatic shock will permit.

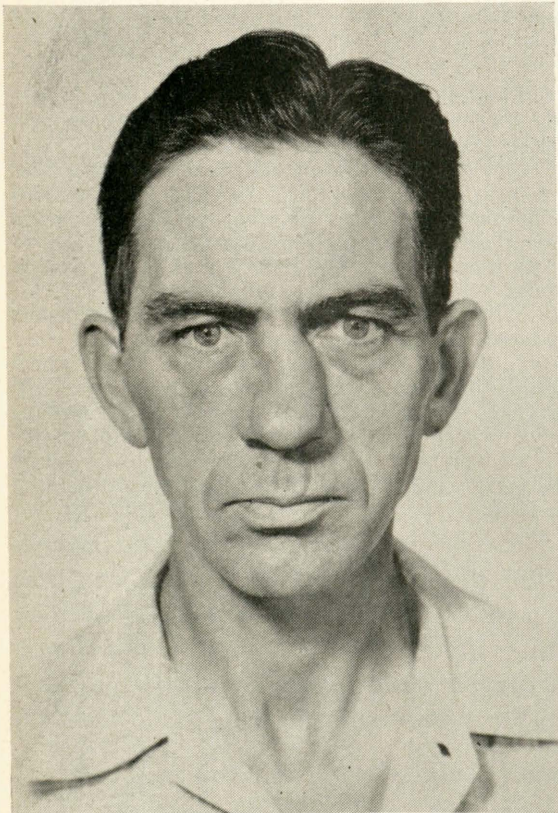


Figure 1.—Before surgery.

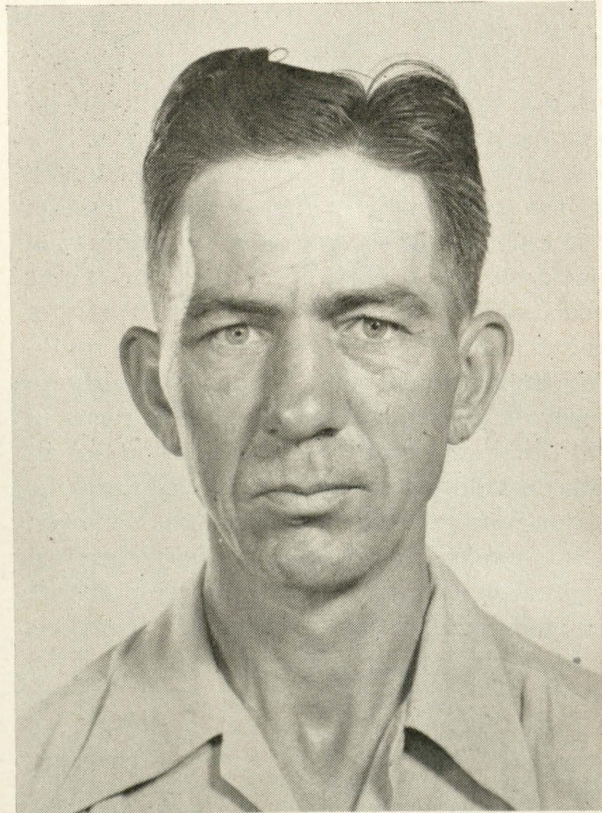


Figure 2.—As patient now appears.

drawn on the fifth postoperative day and completely removed two days later. The dental wax was taken out on the second day; the molded metal splint was kept in place for two weeks.

Penicillin therapy was given for the first three postoperative days. The patient made an uneventful recovery and now appears as in Figure 2.

2. Adequate support of structures from within must be provided.

3. Delayed reduction results in healing of the bones in poor position, with the impacted bone being the most securely joined, and with consequent resistance to mobilization.

4. Nasal blockage may produce symptoms of paresthesia and sinusitis, which may become chronic.