

# Closed Reduction of Nasal Bone Fracture-A Case Series

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## ABSTRACT

The most common type of facial bone fracture is a nasal bone fracture, which accounts for 40% to 50% of all instances. Nasal bone fractures can occur as a result of falls, physical assaults, car accidents, and blunt face injuries. They can occur on their own or in combination with other soft tissue and bone injuries to the face. Because of the protrusion of the nasal bones and its central location on the face, the nose is sensitive to harm. Nasal fractures are more common in males than in females. While nasal fractures are the most prevalent type of facial fracture, zygomatic-orbital complex fractures and skull base fractures are also possible.

**Key words:** Facial bone, Nasal bone, Haemostasis

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## INTRODUCTION

Nasal bone fractures are linked to facial deformity and can cause airway obstruction. Deformity can be minimised and functional impairment can be avoided with early intervention. For easy, non-comminute fractures, a closed approach may be the best option. External digital pressure is applied over the fracture site with an instrument inserted into the nasal cavity. The bone is moved between the digit and the elevator until it is in the correct position. An Asch's and Walsham's forceps are used to realign the displaced nasal septum. To protect the nasal bone, an external splint is applied [1,2].

## CASE PRESENTATION

A total of 25 cases of nasal bone fractures were treated by closed reduction. Patients presented with history of trauma to the nose mostly due to road traffic accidents, assault or direct blow to the face. Most patients came with complaints of nose bleed at the time of trauma and swelling at the site of fracture.

Physical examination showed an external deformity and depression on the nose with a deviated nasal septum to the right. X-Ray of the nasal bone was done which showed fracture of the nasal bone.

Under general anaesthesia, the patients had a closed reduction of the nasal fracture. Asch and Walsham forceps were used to decrease the nasal bone fracture. The nasal

bone, which had been depressed, had been raised. The patient's haemostasis was obtained, and an external splint was applied. In the post-operative period, there were no significant issues.



**Figure 1: PRE OP**



Figure 2: POST OP

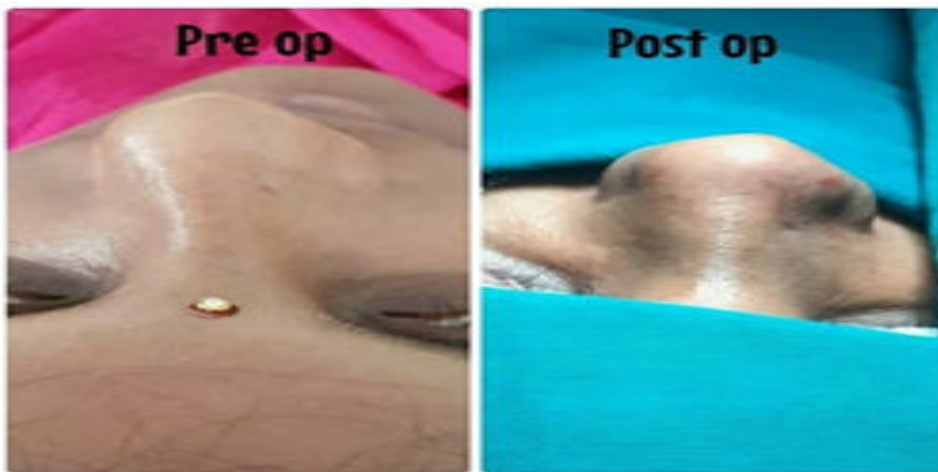


Figure 3: PRE OP and POST OP

## RESULTS AND DISCUSSION

A bony and cartilaginous structure supports the nose. The bony structure is made up of bilaterally paired nasal bones and the frontal process of the maxilla. The upper and lower lateral cartilages, as well as the septum, are cartilaginous structures. Both of these structures are prone to breaking [3,4].

Nasal bleeds are often linked to nasal bone fractures. The ophthalmic artery (a branch of the internal carotid artery) supplies the nose, splitting into anterior and posterior ethmoidal arteries. The external carotid artery also supplies it, as do the facial and internal maxillary arteries. Any trauma to the nose may cause bleeding from Kiesselbach's plexus. The Kiesselbach plexus is created by the anastomosis of the following arteries on the anteroinferior nasal septum [5].

A branch of the ophthalmic artery, the anterior ethmoidal artery, a branch of the maxillary artery, the sphenopalatine artery, a branch of the maxillary artery, the larger palatine artery. The superior labial artery which is a facial artery branch [6].

### Classification of nasal bone fractures

Nasal bone fractures are graded on a scale that depicts the severity of the injury. Low-velocity trauma is the most common cause of an isolated nasal fracture.

**Classification:** Nasal bone fractures were classified into six types:

**Type I:** Simple without displacement

**Type II:** Simple with displacement/without telescoping

**IIA:** Unilateral

**IIAs:** Unilateral with septal fracture

**IIB:** Bilateral

**IIBs:** Bilateral with septal fracture

**Type III:** Comminuted with telescoping or depression

The history of the injury should include the mechanism of injury, direction and history of previous surgeries. Any loss of consciousness should be noted and vital should be checked prior to further management [7,8].

### Physical examination and imaging

A general examination is always performed to rule out severe, life-threatening conditions.

Imaging for isolated nasal fractures is rarely needed. CT scans are performed for suspected head injuries, basal skull fractures or complex facial injuries.

## CONCLUSION

Closed reduction is the best option for simple, non-comminuted fractures, with a success rate of 60% to 90%. To reduce depressed nasal bone segments, digital pressure and an elevator can be employed. Asch's and Walsham's forceps can be placed into the nasal cavity and rotated laterally to outfracture the bones. The laterally displaced parts of the bony pyramid will be digitally manipulated by force acting in the opposite direction. The nasal septum should be thoroughly checked, and if necessary, the septal base should be adjusted. Patients should be aware that a subsequent septorhinoplasty may be required, as reoperation rates range from 9% to 17%. Patients should wear a nasal splint for seven days after surgery. It not only helps to keep bones in place, but it also serves as a reminder to the patient and people around them to be cautious because the bones can easily displace again. Internal splints are not necessary in most closed reductions, but they have been employed in comminuted fractures, septal dislocations, and inwardly collapsing nasal bones.

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