

## Fracture of the anterior nasal spine\*

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### SUMMARY

*A case of sports-related fracture of the anterior nasal spine in a 18-year-old male is presented. This is actually the third case reported in the literature, and the first in which a combined fracture of the nasal septum is described.*

*A group of signs and symptoms was proposed as the main clinical features of this situation. Fracture of the anterior nasal spine should be considered in the differential diagnosis of injuries involving the midface.*

*Key words: anterior nasal spine, fracture, septoplasty*

### CASE REPORT

An 18-year-old previously healthy Caucasian male was injured in the middle third of the face while playing soccer. The sports accident resulted from an upward direct blow of an adversary's knee in his caudal external nose. He immediately developed bilateral nose bleeding, which spontaneously subsided after a few minutes, and felt a local sharp acute pain. Because of the persistence of the pain and tenderness in the nose, the patient was referred to the emergency department of our hospital, twenty hours later, for further evaluation.

At presentation, he reported extremely intense pain in the nasolabial angle region. He also complained of nasal obstruction, but denied other bony facial trauma symptoms. Examination revealed submucosal ecchymosis of upper lip and swelling of the base of the nose (Figure 1). Palpation was extremely painful in the base of columella, and did not reveal any depression, lateral displacement or tenderness of nasal bones. Nasal cavity examination after mucosal vasoconstriction and topical anaesthesia, showed left septal deviation with a spur along the nasal floor. The remainder of the otolaryngologic evaluation was unremarkable. Roentgen examination documented a fracture of the anterior nasal spine (ANS) with otherwise intact nasal bony skeleton (Figure 2). The patient was managed conservatively, with prophylactic antibiotic coverage and oral decongestants, and resolution of acute symptoms and no aesthetic deformities were achieved three weeks later. A septoplasty was then scheduled, two months later, to correct the deviated nasal septum. At the procedure, we observed normal healing and position of the ANS, and luxation of the intact septal cartilage from its attachment along the maxillary crest. The deformity was corrected by the removal of a small strip of cartilage along the inferior septum. Healing proceeded normally and functional result is good.



Figure 1. Intraoral view, showing a well defined area of submucosal ecchymosis extending from the attached gingiva to the vermilion border of upper lip.



Figure 2. Detail of the lateral skull film showing a definite fracture of the anterior nasal spine.

## DISCUSSION

Man is unique among mammals and the primates in developing an ANS (Mooney and Siegel, 1986). A unique case of chondroma (Tomich and Hutton, 1976), bone resorption associated with lepromatous leprosy (Möller-Christensen, 1974; Marks and Grossetete, 1988) and the absence of the anterior nasal spine which is one of the characteristic anomalies of the maxillonasal dysostosis or dysplasia (Binder syndrome), (Binder, 1962;

Delaire et al., 1980) are rare examples of pathologic alterations of the ANS that have been rarely reported in the literature.

Facial injuries and fractures of the facial bones are quite common. The nasal bone is the most frequently affected bone structure, (Wang et al., 1990; Carrol and O'Connor, 1996), but only two cases of anterior nasal spine fractures (ANSF) have been previously reported (Most et al., 1979, Nazif et al., 1980). Rarity of ANSF can best be explained on an anatomical basis. Its relatively small size and its centralised position among the more prominent and larger structures seem to protect it and make it less vulnerable than other facial structures (Most et al., 1979, Nazif et al., 1980). Nevertheless, ANSF may not be as rare as the literature indicates. Such fractures may be either ignored by the patients or may go undetected by the clinicians, who do not specifically look for it if other fractures of the facial skeleton have been ruled out (Most et al., 1979).

Some demographic and clinical data of the 3 actually reported cases of ANSF are presented (Table 1). Age distribution is consistent with previous facial trauma studies, supporting the notion that facial trauma is an injury of the young (Morgan et al., 1972). It has been observed that the aetiology of facial trauma has changed in recent years. Most prominent is an apparent trend away from motor vehicle accidents and towards interpersonal violence as the leading causes of facial fractures (Morgan et al., 1972). Sports-related maxillofacial fractures, such as our reported case, seem to be less severe than those related to other causes (Sane et al., 1988) and also seem to represent a less prevalent aetiology, accounting for 5.6% to 15.2% of the patients with facial bone fractures (Sane et al., 1988; Sastry et al., 1995). The 3 cases reported in the literature resulted from relatively minor accidents, with different mechanisms and aetiology, not allowing for a prediction of the existence of patterns of nasal or facial injury leading to ANSF. However, it seems possible to consider a group of signs and symptoms – including pain, swelling and tenderness in the base of the nose, and upper lip mucosal or skin ecchymosis – obviously indicating of this distinct situation which should be included in the differential diagnosis of injuries involving the midface.

Table 1. Demographic data, clinical and radiographic features and management of ANSF patients.

Study	Age (yr)/sex	Etiology	Mechanism	Clinical features	Intranasal examination	Radiograph view	Management of the fracture
Most et al. <sup>7</sup>	18/F	MVA	Frontal blow	Mouth bleeding, mucosal lip laceration	Not specified	Lateral	Conservative
Nazif et al. <sup>8</sup>	14/M	Fall	Lateral blow	Swelling, tenderness, mucosal lip ecchymosis, facial skin ecchymosis	Not specified	Lateral	Conservative
Escada and Penha*	18/M	Sports-related	Upward blow	Swelling, pain, tenderness, mucosal lip ecchymosis, nasal obstruction	Nasal septum deviation	Lateral	Conservative Delayed surgical correction of associated nasal septum deviation

ANSF, anterior nasal spine fracture

MVA, motor vehicle accident

\* These row data refers to the present case report

The straight lateral view of the skull may be of diagnostic value to ANSF. Nevertheless, evaluation of the presence of nasal airway obstruction and careful internal examination of the nose, requiring the use of a head lamp or head mirror lighting, suction, mucosal vasoconstriction and topical anaesthesia are essential aspects of diagnosis. In the 3 reported cases, ANSF alone did not impair the nasal function or the appearance of the nose. In our reported case, it was an associated injury - the nasal septal deviation, with resulting nasal airway obstruction, that had to be corrected. However, previous studies demonstrated unfavourable functional and aesthetic consequences of both septal cartilage and ANS modifications resulting from surgery (Jacobs, 1978). ANS is related superiorly to the antero-inferior free end of the septal cartilage, from which it is separated by perichondrium, periosteum and an intervening mobile layer (Lang, 1989). It seems logical to conclude that the same traumatic mechanism may lead, like in our reported case documented for the first time, to both ANS and septal injury.

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