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Review article

Fracture of the anterior nasal spine: A systematic review

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ABSTRACT

Objective: Fracture of the anterior nasal spine is uncommon and poorly described in the literature. Herein we report a rare case of anterior nasal spine fracture (ANSF) and conduct the first systematic review on the management of ANSFs.

Methods: A systematic review of PubMed, Ovid-MEDLINE, and EMBASE was conducted per PRISMA guidelines. Articles in English of all study designs were eligible for review.

Results: From an initial 53 articles reviewed, 6 met criteria for qualitative analysis (all Case Reports) comprising a total of 7 ANSF cases including our own. Patients with ANSF were more often young (mean age, 24.3 years), male (86%), and Caucasian (83%) with a history of facial trauma (100%). Common clinical features included columellar tenderness (71%), mucogingival ecchymosis (57%), and mucosal edema (57%). Lateral plain films definitively diagnosed an ANSF in 3/4 patients (75%). A computed tomography scan definitively diagnosed an ANSF in 4/4 patients (100%). Six of 7 patients (86%) experienced an ANSF with either no, mild, or unspecified displacement and were treated conservatively. One of 7 patients (14%) exhibited an ANSF with severe displacement and underwent open repair. Satisfactory outcomes were reported in 3/3 patients who underwent conservative treatment and 1/1 patient who underwent open repair.

Conclusion: ANSF remains a poorly elucidated mid-face fracture. There is insufficient evidence to make definitive recommendations regarding the management of ANSFs. Further prospective research is warranted.

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Fig. 1. Intra-oral examination reveals mucosal ecchymosis near left maxillary mucogingival border (circle).

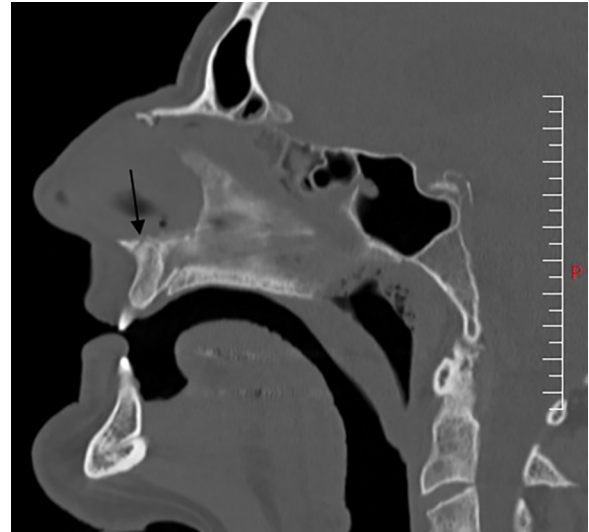


Fig. 2. CT scan of the face in sagittal view depicts anterior nasal spine fracture (arrow).

1. Introduction

No facial injury is more common than the nasal fracture [1]. The anterior nasal spine fracture (ANSF), however, is a rare type of nasal fracture [2] that is poorly described in the literature [3–8].

The anterior nasal spine (ANS) is a unique bony structure in humans and exists as a small midline bony protrusion of the pre-maxilla located at the lower border of the midline nasal aperture [9]. Rarity of documented ANSFs may be best explained by the ANS's favorable anatomic location, including its relatively small and centralized position in the mid-face. On the contrary, ANSFs may not be as rare as the literature indicates since such fractures may go unnoticed by patients and physicians [4]. A small prospective study of 86 patients reported a 12% incidence of ANSFs in patients diagnosed with nasal bone fractures [10]. Herein we describe a rare case of an ANSF and conduct the first systematic review on the most effective management of ANSFs with aims to guide clinical decision making.

2. Case report

A 65 Caucasian male presented to the emergency department with upper lip pain after suffering a fall from standing several hours prior. He had no other complaints. Superficial abrasions to the left forehead and left malar prominence were present, but no significant aesthetic abnormalities were appreciated. Light palpation of the columella elicited moderate pain. The intra-oral examination revealed small mucosal ecchymosis of the left maxillary mucogingival junction (Fig. 1). A computed tomography (CT) scan of the head, brain and cervical spine were unremarkable. A CT scan of

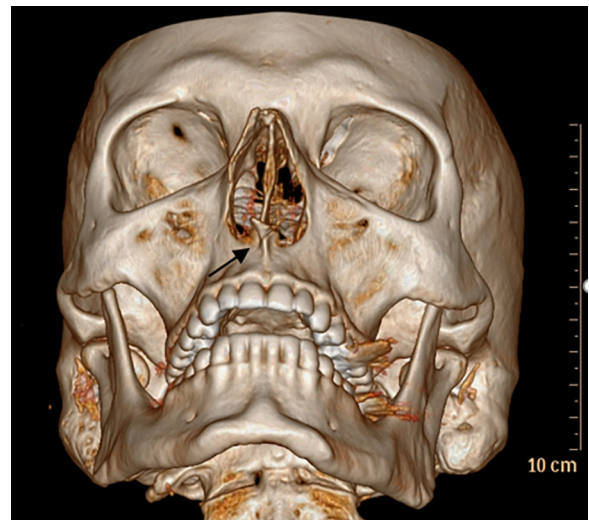


Fig. 3. CT scan of the face with 3-dimensional reconstruction depicts an anterior nasal spine fracture with mild displacement to the right (arrow).

the maxillofacial bones with 3-dimension reconstruction revealed a fracture of the ANS with mild rightward displacement and a mildly displaced right nasal bone fracture (Fig. 2 and 3). The patient was discharged from the Emergency Department with analgesia, systemic decongestants, and instructions to avoid excessive lip manipulation for 3 weeks. The patient reported complete resolu-

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