Facial Pain in a Collegiate Football Player

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Background: An 18 year-old male football player with no previous related history presented with acute, severe, sharp mandibular pain accompanied by loss of function, malocclusion, and mild headache secondary to a direct blow. The patient was running while holding a 45lb rubberized weight during a spring season workout when he tripped and fell forward, dropping the weight which bounced off the floor and made direct mandibular contact. Pain quotient was described as a 9/10 with most of the discomfort being felt in the mouth due to a lip laceration. Visual inspection revealed significant swelling, moderate amount of bleeding from the lip laceration, and gross deformity to the TMJ and mandible which appeared to be shifted to the right. Physical inspection elicited moderate point tenderness and deformity over the left TMJ and along the mandibular body without crepitus. The patient was unable to perform TMJ elevation, depression, or lateral deviation due to pain. No cervical pain or ROM limitations were reported. Differential Diagnosis: TMJ dislocation, closed head injury, tooth fracture, trismus, and mandibular fracture. Treatment: EMS was summoned for transport to the emergency department. Direct pressure was applied to the laceration to control bleeding, a rigid cervical collar was applied for immobilization, and his airway was stabilized. After initial consultation with the emergency medicine physician, he was referred to a maxillofacial surgeon. Maxillofacial radiographs revealed five fracture sites and the patient was subsequently definitively diagnosed with multiple unstable mandibular fractures on the body and condyles causing the TMJ to appear dislocated. Status-post three days, the patient underwent maxillomandibular fixation with wire osteosynthesis and braces to keep his teeth from shifting. He was placed on a strict liquid diet for two weeks, then permitted to progress to soft foods, and finally advanced to solid foods as tolerated. Two months post-maxillomandibular fixation, the patient was cleared for non-contact activity and resumed conditioning. Three months status-post, the patient was expected to follow up to be medically cleared for unrestricted participation; however, the patient was ruled ineligible and is no longer participating in intercollegiate athletics due to personal reasons. Uniqueness: Common etiologies of mandibular fractures include motor vehicle accidents and assaults, rather than sports, which account for less than 4% of reported cases. Mandibular fractures occur with an average of 1.5 to 1.8 fracture sites depending upon the mechanism; however, the incidence of four or more fracture sites is reported in less than 1% of cases. In addition to the number of fracture sites, the mechanism and location of the fracture sites make this case unique. The speed and angle of force with which the 45lb plate made contact with the mandible caused unique and multiple combination fractures along both the body and the condyles. Common fracture combinations include the angle and the body or condyle and the condyles and the symphysis. A final unique aspect of this case is that none of the fractures sustained were located under the third molar, which is the most common site. Conclusion: Mandible fractures occur as a result of the prominent position, distinctive shape, and lack of support of the bone. Patients suffering from mandibular fractures require airway stabilization and examination to rule out pathologies to the spine, brain, face, and teeth prior to maxillomandibular fixation and are normally permitted to return to activity six to eight weeks post injury. Patients placed on liquid diets should be closely supervised and offered commercial meal replacements to ensure proper nutritional balance and sufficient caloric intake. In this case, the maxillomandibular fixation hindered the patient's nutritional status and oxygen consumption required by athletic participation which delayed his anticipated return. Word Count: 598