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Traumatic Displacement of Teeth Into Maxillary Sinus Cavity: An Unusual Dentoalveolar Fracture

[Brief Clinical Notes]

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Abstract:

We present an unusual dentoalveolar fracture case who had displacement of teeth into maxillary sinus cavity. This patient was 15 years old. He had oral bleeding and lost teeth after falling from the top of a building. Examination of maxillofacial region showed that there were left maxillary teeth lost, alveolar fracture, gingival bleeding and lacerations. Maxillofacial bones were found intact. Canine, both premolars and the first molar teeth on left maxilla were lost. Pantomographic evaluation viewed two teeth in the left maxillary sinus. In addition, computerized tomography clearly showed oroantral fistula, alveolar fracture and teeth into maxillary sinus. Extraction of teeth from sinus cavity was performed as well as repair of oroantral fistula and alveolar fracture. This patient is thought that dentoalveolar injury may be more serious than expected according to the oral examination and it requires careful evaluation, even if dentoalveolar trauma does not pose a significant morbid risk.

Dentoalveolar fracture is one of the most common maxillofacial fractures occurring after facial injuries. These fractures may be isolated fractures in the face or comminuted with other facial bone fractures. Fragments and teeth may displace anteriorly, posteriorly or vertically. Most dentoalveolar fractures are in front of the maxilla and mandible. In these areas, the fracture and its results are important regarding cosmetic appearance. Prompt and appropriate management can significantly improve prognosis of many dentoalveolar injuries, especially in young patients. We presented an uncommon dentoalveolar fracture. Although maxillary teeth displaced into maxillary sinus, intraoral examination wasn't suspected.

Clinical Report

This patient was a 15-year-old male, admitted to our clinic from emergency service. His main complaints were oral bleeding and teeth lost after falling from the top of a building. Examination of maxillofacial region showed that there were left maxillary teeth lost, alveolar fracture, gingival bleeding and lacerations (Fig 1). Maxillofacial bones were found intact. The canine, first and second premolar and first molar teeth on the left maxilla had been lost. Pantomographic evaluation viewed two teeth in the left maxillary sinus. These were the second premolar and first molar teeth (Fig 2). Computerized tomography (CT) clearly showed oroantral fistula, alveolar fracture and teeth into maxillary sinus (Figs 3 and 4). The tooth in the maxillary sinus were extracted through alveolar fracture site (Fig 5). Oroantral fistula made extraction of teeth from maxillary sinus easy. Reduction of alveolar fracture and repair of fistula with gingival flaps were performed immediately after trauma (Fig 6). Healing was unevenful.

Fig 1 View of the maxillary alveolar wound which resembles an isolated dental fracture.

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Fig 2 Pantomographic view of the maxilla and mandible showing teeth into left maxillary sinus cavity.

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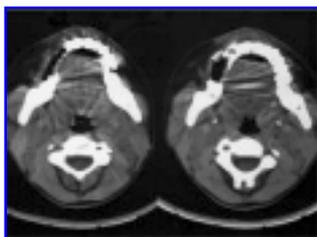


Fig 3 Image of the computerized tomography viewing the oroantral fistula.

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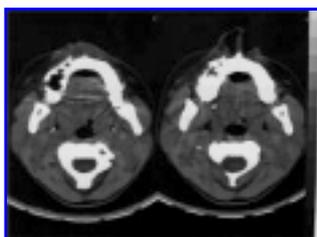


Fig 4 Apparance of the alveolar bone fracture on computerized tomography.

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Fig 5 Postoperative view of the maxillary alveol which was repaired with using gingival flaps.

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Fig 6 Pantomographic apparence of maxillary alveol and sinus, in postoperatively.

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Discussion

Dentoalveolar fractures are commonly occurring injuries after facial trauma. Some of accidents due to play, sports, falls or acts of violence and traffic accidents may be possible causes. The frequency of dentoalveolar injuries in all of maxillofacial fractures varies from one study to another. It has been reported that the occurrence rate of dentoalveolar fracture in maxillofacial trauma was changing from 1.9% to 76.3%.^{1,2} A very large percentage of dentoalveolar injuries has been reported. Each study found its own rate, as the population showed differences from one study to another.¹⁻⁷ It has been reported that older persons were prone to bone fractures and younger persons were more susceptible to dentoalveolar trauma.⁴ The presented patient with dentoalveolar fracture in this report is young, too.

The anterior dentoalveolar area is prone to injury by facial trauma because it is more exposed than the posterior dentoalveolar region.⁶⁻⁸ Moreover, there is another disadvantage: high esthetic demands in this area. However, in the posterior dentoalveolar area, the maxillary floor over the roots of the teeth is thin. So this may cause a tract between the oral cavity and maxillary sinus after the dentoalveolar injury. Since evaluation of the trauma patients is generally made in emergency clinics, diagnosis and first treatment of dentoalveolar injury are achieved there. It seems that examination and some plain radiograph are enough for the diagnoses in most of cases. But, in some rare patients, further imaging modalities and diagnostic examinations must be remembered in emergency service. Failure to recognize or obtain appropriate consultation can result in tooth or alveolar bone loss, resulting in problematic prosthetic rehabilitation.³ Treatment is more important than diagnosis because the long-term consequences of mismanagement can be devastating. Unfortunately, many traumatized teeth are overtreated or left untreated, which leads to a much more complicated treatment later. In rare cases, like our patient, injury may be more extensive and more serious than expected. That is, it must require careful evaluation, even if dentoalveolar trauma does not pose a significant morbid risk.

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Key Words: Dentoalveolar fracture; maxillary sinus; tooth displacement; oroantral fistula

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