

## Traumatic Displacement of Maxillary Teeth into the Nasal Cavity: A Diagnosis Delayed for 15 Years

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### ABSTRACT

*Intrusion is defined as displacement of a tooth into the alveolar bone. In this report, we presented a patient with 15 years of delayed diagnosis of maxillary teeth intrusion into the nasal cavity. A 30-year-old male presented to our clinic with nasal discharge. He had been in a traffic accident 15 years ago. Radiographic examination revealed intrusion of two anterior teeth into the nasal cavity. In patients with maxillofacial trauma, the possibility of having an accompanying dentoalveolar trauma must always be kept in mind. While a computerized tomography (CT) scan is useful in diagnosis of such traumas, it must be performed in all patients with maxillofacial trauma to avoid misdiagnosis.*

**Keywords:** Dentoalveolar trauma, nasal cavity, tooth intrusion.

### INTRODUCTION

The most common dental injuries following facial traumas are luxation, avulsion, intrusion and enamel-dentin fractures. Luxation is defined as displacement of the tooth from its location. In avulsion, the tooth is totally displaced out of its socket. Intrusion is defined as displacement of a tooth into the alveolar bone (1). As various reasons can cause dental injuries, in childhood and youth, they frequently occur in association with sports injuries or motor vehicle accidents. Teeth and fragments may exhibit anterior, posterior or vertical location following trauma. The majority of dentoalveolar traumas occur in the anterior region of the mandible and maxilla. Traumas and their outcomes in these regions are important in terms of aesthetic appearance (2).

In this report, we presented a patient with traumatic intrusion of maxillary teeth into the nasal cavity that could be diagnosed 15 years after the trauma. The purpose of this report is to draw clinicians' attention to dentoalveolar trauma and to indicate the importance of detailed examination in patients with maxillofacial trauma.

### CASE REPORT

A 30-year-old male presented to our clinic with nasal discharge resistant to treatment for 2–3 months. He had a history of a car accident 15 years ago which resulted in his losing most of his teeth. Oropharyngeal examination revealed complete edentulousness and destruction in the right part of the hard palate. Panoramic radiography revealed intrusion in teeth 11 and 13 and that tooth 18 was congenitally embedded independently of trauma (Fig. 1). Since the relation of the intruded teeth with the right maxillary sinus and nasal base could not be assessed at panoramic radiography, a paranasal sinus computerized tomography (CT) was also performed. The 3-mm coronal sections revealed trauma-related destruction and perforation in the base of the right maxillary sinus and nasal cavity and intrusion of teeth 11 and 13 into the right nasal fossa (Fig. 2). The intruded teeth in the hard palate were removed through the right superior gingivobuccal sulcus incision under general anaesthesia. Since the destructed sinus base may heal spontaneously, partial reduction was performed in the surgical field and alveolar structure.

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Fig. 1: Panoramic radiography revealed intrusion in teeth 11 and 13.



Fig. 2: Coronal CT revealed trauma-related destruction and perforation in the base of right maxillary sinus and nasal cavity and intrusion of teeth 11 and 13.

## DISCUSSION

Intrusive luxation or intrusion is defined as displacement of the teeth further towards the interior from its socket inside the alveolar bone, and is generally seen in maxillary teeth. The maxillary central incisors are most susceptible to trauma and are present in 80% of all dental injuries (3). This kind of injury accompanies fracture or complete fragmentation of the tooth socket, thus constituting dislocation following the tooth axis. It is regarded as a serious dental injury which is difficult to treat (4).

The incidence of intrusion is highest between the ages of 1 and 3 years. Avulsion injuries are more common after the age of 4 years (5). This may be attributed to

primary teeth root development, physiological shortening of the root with resorption and bone morphology. Bone marrow cavities are wider than those in adults, and the bone is more elastic (5). In literature, adults have been reported to be more predisposed to bone fractures, while adolescents to dentoalveolar traumas (6). Intrusion accidents into the nasal cavity involving permanent teeth are rare (7). In this case, we reported a patient who had a dentoalveolar trauma associated with a traffic accident at the age of 15 years and a rare intrusion of two maxillary teeth into nasal cavity.

The diagnosis of the disease depends on radiological examinations. Plain radiography is economical and requires less radiation, but CT and cone beam CT (CBCT), which provide the highest level of anatomical visualization, have replaced plain radiography as initial radiography in patients with trauma (8). It is impossible to accurately estimate the boundaries of fractures in plain radiographs because of superimpositions of structures (9). In addition to eliminating superimpositions, advanced imaging techniques such as CT and CBCT also permit imaging in the axial, coronal and sagittal planes. CT and CBCT should, therefore, be routinely used in radiological diagnosis in all trauma cases exhibiting intrusion into anatomical structures in the oral and maxillofacial regions.

Existing treatment strategies in intrusion injury consist of retracting the tooth to its primary position and waiting (passive repositioning), emergency surgical repositioning and restoring the tooth to its former position using orthodontic methods (active repositioning). Spontaneous repositioning is the treatment choice for permanent teeth with incomplete root formation with minor or moderate intrusion. Surgical reconstruction is required in cases of intrusion that is deeper or reaches the nasal cavity. When none of these are possible, or in severe cases exhibiting fracture in the tooth, extraction of the tooth or teeth concerned (10) is recommended. In our case, the intruded teeth located secondarily in the hard palate were extracted and the area was surgically restored.

## CONCLUSION

In patients with maxillofacial trauma, the possibility to have an accompanying dentoalveolar trauma must always be kept in mind. Because CT is useful in diagnosis of such traumas, it must be performed in all patients with maxillofacial trauma to avoid misdiagnosis.

**REFERENCES**

1. Gassner R, Bösch R, Tuli T, Emshoff R. Prevalence of dental trauma in 6000 patients with facial injuries: implications for prevention. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1999; **87**: 27–33.
2. Gumus N, Coban YK. Traumatic displacement of teeth into maxillary sinus cavity: an unusual dentoalveolar fracture. *J Craniofac Surg* 2006; **17**: 1187–9.
3. Trabert KC, Caput AA, Abou-Russ M. Tooth fracture: a comparison of endodontic and restorative treatments. *J Endod* 1978; **4**: 341–5.
4. Oulis C, Vadiakas G, Siskos G. Management of intrusive luxation injuries. *Endod Dent Traumatol* 1996; **12**: 113–9.
5. Andreasen JO, Andreasen FM. Essentials of traumatic injuries to the teeth. Copenhagen, Denmark: Munksgaard; 1990.
6. Gassner R, Tuli T, Hachl O, Rudisch A, Ulmer H. Cranio-maxillofacial trauma: a 10 year review of 9,543 cases with 21,067 injuries. *J Craniomaxillofac Surg* 2003; **31**: 51–61.
7. Luna AH, Moreira RW, Moraes M. Traumatic intrusion of maxillary permanent incisors into the nasal cavity: report of a case. *Dent Traumatol* 2008; **24**: 244–7.
8. Langlais RP, Rodriguez IE, Maselle I. Principles of radiographic selection and interpretation. *Dent Clin North Am* 1994; **38**: 1–12.
9. Shintaku WH, Venturin JS, Azevedo B, Noujeim M. Applications of cone-beam computed tomography in fractures of the maxillofacial complex. *Dent Traumatol* 2009; **25**: 358–66.
10. Chrcanovic BR, Bueno SC, Silveira DT, Custodio AL. Traumatic displacement of maxillary permanent incisor into the nasal cavity. *Oral Maxillofac Surg* 2010; **14**: 175–82.

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