



CASE REPORT

An Inverted Impacted Mesiodens Perforating the Nasal Floor with an Impacted Canine

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Abstract

Ectopically erupting supernumeraries constitute one of the common anomalies of the maxillofacial region [1]. The most frequently impacted teeth in the maxilla are the maxillary canines, when the third molars are excluded. The mesiodens is the most well-known supernumerary tooth and is located between the maxillary central incisors [2,3]. However, inverted impacted mesiodens is a rare finding. Herein, we report a case of impacted maxillary right canine and inverted impacted mesiodens encroaching the nasal mucosa, which was diagnosed as an incidental finding of dental radiography.

Keywords

Impacted, Supernumerary, Mesiodens, Inverted, Intranasal tooth

Introduction

An intranasal tooth (INT) is an ectopic tooth that erupts into the nasal cavity. It is rare in occurrence with only 0.1 to 1% people being affected from the all-inclusive community [4]. Thus, the etiology of INT stays unclear. It appears that the supernumerary tooth (mesiodens) develops from the floor of the nasal cavity with different etiologies that may result in an injury, rhinogenic maxillary sinusitis, a dental disease, maxillary blisters, blockage of dental eruption, and damage of formative issue, for example, palatine gap [4]. Additionally, it can result in potential complications, such as septal perforation, aspergillosis, and naso-oral fistula [4]. The plausible dental complications include delayed eruption of the permanent incisors (38.8%), maxillary midline diastema (17.6%), axial rotation or

inclination of the erupted permanent incisors (16.4%), resorption of the adjacent teeth (4.7%) [5], cyst formation [6], and infection [1]. Thus, on diagnosis of such an exceptional entity, a multidisciplinary team approach is necessary for planning and execution of an appropriate treatment method.

Case Report

A 31-year-old female patient was referred from a primary care clinic to a comprehensive dental clinic in dental university hospital of King Saud University for treatment. The patient was unaware of any medical condition, and was not receiving any medication. Her physical status as per the American Society of Anesthesiologists (ASA) physical status classification system was ASA 1. Her dental history revealed the presence of an additional tooth between the lower left premolars, which was extracted one year back. However, her family history with respect to the presence of an additional tooth was insignificant. Clinical and radiographic (periapical and panoramic) examinations revealed retention of a primary canine and presence of an unerupted permanent canine (#13). Cone-beam computed tomography (CBCT) was conducted to further investigate the case and plan a comprehensive treatment, including the possibility of orthodontic treatment.

CBCT revealed an impacted upper right permanent canine (#13) located in the mid-alveolar region, with mild bone loss in comparison to the primary canine (#53). The buccal surface of the tooth was rotated towards the distal side while the palatal surface was



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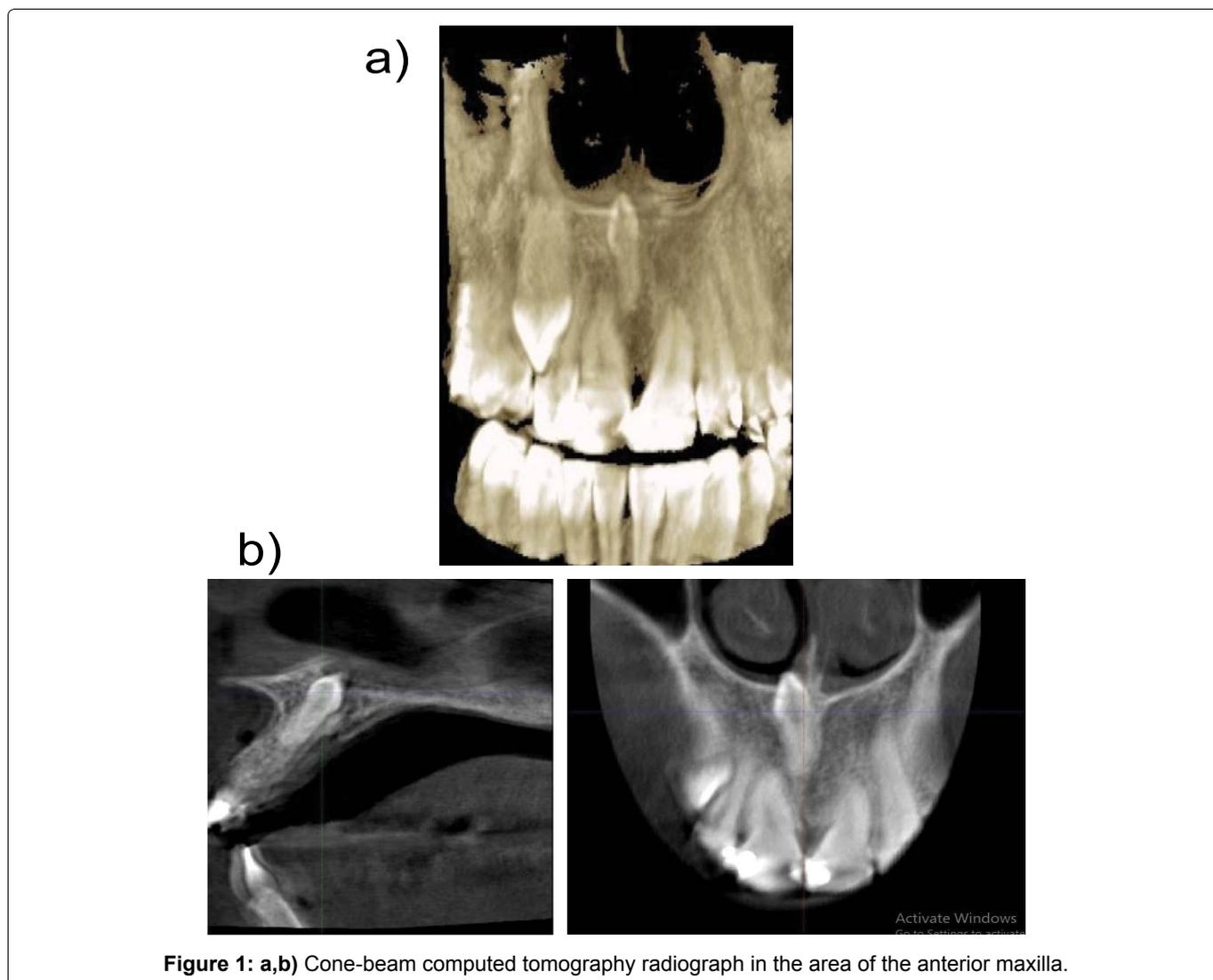


Figure 1: a,b) Cone-beam computed tomography radiograph in the area of the anterior maxilla.

rotated towards the mesial side with a fully formed root. The cingulum of the impacted canine was very close to the apical third of the lateral incisor root that lead to mild root resorption. Incidental findings included the presence of a supernumerary tooth which was palatally located between the central incisors. The crown of the super numerary was inverted upward with the tip piercing the nasal cavity. Moreover, it was very close to the nasopalatine canal (Figure 1).

Departments of the oral maxillofacial surgery (OMFS) and ear nose throat (ENT) were consulted regarding the management of mesiodens in the nasal cavity. Case examination and discussion were performed in an ENT clinic. As shown in (Figure 2), the mesiodens was perforating the right nasal cavity without any oral communication.

Management

Ortho-consultation was taken regarding the impacted canine (#13). As per the consultation, the patient would receive orthodontic treatment after completing the comprehensive dental treatment. Moreover, both the oral maxillofacial surgery and ear nose throat (ENT) departments recommended keeping the patient under close follow-up with respect to the



Figure 2: Examination of the right nasal cavity using a nasal speculum.

management of the supernumerary tooth as it was asymptomatic. Any attempt to remove it may result in a direct oral-nasal communication, formation of oro-nasal fistula, regurgitation, whistling, airway problem, and neurosensory dysfunction.

Discussion

A mesiodens is a supernumerary tooth located in the maxillary central incisor region with the overall prevalence of 0.15-2.2% [1,4,5,7]. The frequency of inverted mesiodens constitutes to approximately 9-67% of all reported cases [3]. The incidence of inverted impacted mesiodens in close proximity to nasal floor and nasopalatine canal is reported rare in the literature. The case reports published previously are mostly in pediatric population, this case report is unique in that the presence of mesiodens in nasopalatine canal and perforating nasal mucosa can remain asymptomatic for an adult patient and it does not always necessary, which may lead to complications such as paresthesia and oro-nasal fistula. An INT may also appear in the palate [4]. Mesiodens represents 48.52% of all the instances of supernumerary teeth. Most of the mesiodens (75%) are impacted, of which 6% are located in the labial position, 80% in the palatal position, and 14% between the roots of the maxillary central incisors [1]. Moreover, it is found in a vertical position in 55.2% cases, an inverted position in 37.6% cases, and a horizontal position in 7% cases [5,6]. In our case, the mesiodens was inverted and located palatally with conical roots. It perforated the right nostril.

Hyperactivity of the dental lamina is the most widely supported theory to explain the cause of mesiodens [8]. However, it may also occur due to complex interaction of the genetic and environmental factors that may disrupt the odontogenic process [2]. The incidence is reported more in males, with a male-female ratio of 2:1 for the occurrence of mesiodens [1,8,9]. CBCT is an essential investigative procedure as it provides a high-resolution three-dimensional representation of the maxillofacial region in a cost- and dose-efficient manner [8]. It may help in selecting the right surgical treatment option as it mainly depends on the type and location of impacted teeth and its relation to the adjacent vital structures. Consequently, CBCT aid in minimizing trauma to the adjacent hard and soft tissues [8]. The majority of cases with mesiodens go unnoticed owing to the high position of the supernumerary and to the radiologically unclear maxillary midline region [9].

Mesiodentes are associated with cleft lip and palate, cleidocranial dysostosis, Gardner's syndrome, and chondroectodermal dysplasia [1-3,8]. It may also lead to adjacent teeth impaction or ectopic eruption, cyst formation, crowding, displacement, rotation of adjacent teeth, and root resorption [9]. Additionally, in the cleft palate patients, successful secondary alveolar bone

grafting and implant placement can be compromised by the presence of mesiodens.

Thus, the management of mesiodens is important. It can be surgically removed either at the time of the diagnosis, or after completion of the root development of the adjacent teeth to prevent any damage to their apices [1,8]. Alternatively, the mesiodens can be monitored with periodic radiographs, if they remain asymptomatic without interfering with the orthodontic tooth movement [4]. Thus, we periodically monitored our case as the mesiodens remained asymptomatic during the 6 month follow-up period with no signs of perforation and infection. However, we informed our patient of the possibility of infection and cystic transformation in the region and advised a follow-up [10,11].

Conclusion

This case emphasizes the importance of careful clinical and radiographical examination between medicine and dentistry to meet the needs of the patient to provide comprehensive care and improve their quality of living. Most of the previously reported cases discuss the presence of mesiodens in children which necessitates an immediate surgical intervention. However, our report presents an uncommon case of an asymptomatic mesiodens in an adult patient wherein periodic follow-up is preferred over the surgical intervention so as to avoid long term complications like paresthesia.

Ethics Approval

A consent form to publish the case with the clinical photography and radiography was signed by the patient.

Disclosures

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare no potential conflict of interest.

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