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REVIEW ARTICLE

MULTIPLE DENTAL ANOMALY IN AN ASYMPTOMATIC PATIENT–CASE REPORT WITH REVIEW OF LITERATURE

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ABSTRACT

Multiple Dental anomalies are rare findings in asymptomatic patient. Here, a case of multiple anomalies in permanent dentition is reported. Routine oral examination revealed fusion in mandibular anterior region. A mesiodense was observed in maxillary anterior region. In the panoramic radiograph view, multiple supernumerary teeth on either side were seen. The article describes unique case of multiple developmental anomalies in an asymptomatic patient and its review of literature.

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INTRODUCTION

Odontogenic anomalies are the developmental defects caused by genetic disturbances or acquired factors during tooth morphogenesis. Occurrences of multiple anomalies in individuals or families, without evidence of other systemic manifestations or syndromes have rarely been reported (Desai *et al*., 2006; Dash *et al*., 2004; Suprabha *et al*., 2009). Desai *et al*. described concomitant occurrence of idiopathic generalized short root anomaly and microdontia, taurodontism of posterior teeth, obliterated pulp chambers, infected cyst, and multiple dens invaginatus (Desai *et al*., 2006). Dash *et al*. presented a case of talon cusp affecting the mandibular central incisor and maxillary lateral incisor, an inverted impacted migrating mandibular second premolar, and hypodontia (Dash *et al*., 2004). Suprabha *et al*. showed presence of multiple dens invaginatus, generalized enamel hypoplasia, generalized microdontia, root resorption and multiple periapical lesions, and supernumerary teeth (Suprabha *et al*., 2009). Supernumerary teeth, fusion and impacted supernumerary teeth individually have been previously reported (Sumer *et al*., 2007; Aydin *et al*., 2004; Aras *et al*., 2008; Jafarzadeh *et al*., 2008; Seow and Lai, 1989; Keene, 1966; Blumberg *et al*., 1971; Daito and Hieda, 1971; Mangion, 1962; Muller *et al*., 1970; Rolling and Poulsen, 2001). The combined occurrence of these anomalies, however, has not been reported till date in non syndromic patient. The present case report describes 18 year old Indian patient in whom the above-mentioned anomalies were present. Occurrence of these number of anomalies in a single patient without known any other abnormalities or syndromes is certainly a rare case and possibly unique.

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Case report

A 18 year-old boy underwent a routine dental check up without having any dental complaints except for malaligned teeth. His medical history was noncontributory and there were no similar condition in parents or siblings. But, he had a history of previous dental treatment in the form of RCT with crown on mandibular left first molar and maxillary right first molar. There was no previous history of previous trauma to the teeth or jaws. The patient was a second child of a no consanguineous marriage.

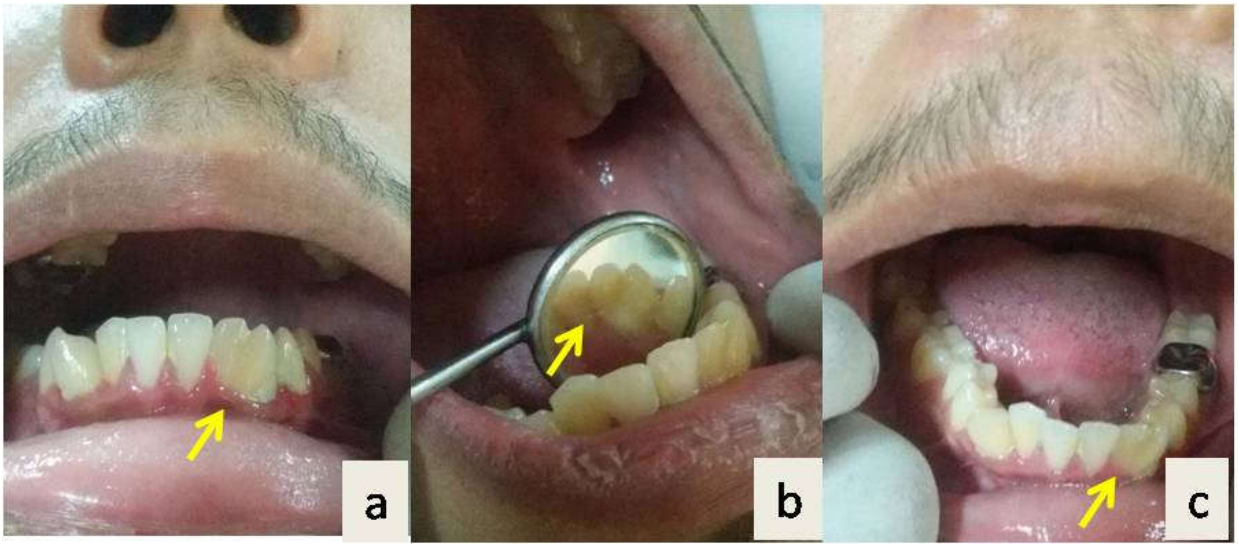

Fig. 1. Intraoral picture shows fusion of teeth

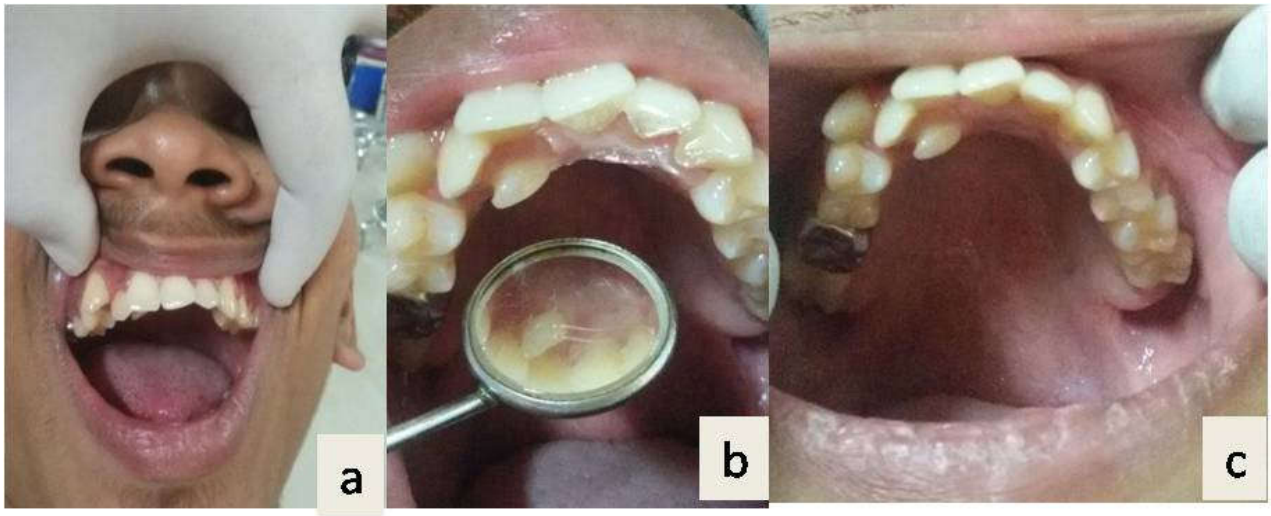

Fig. 2. Intraoral picture shows mesiodense

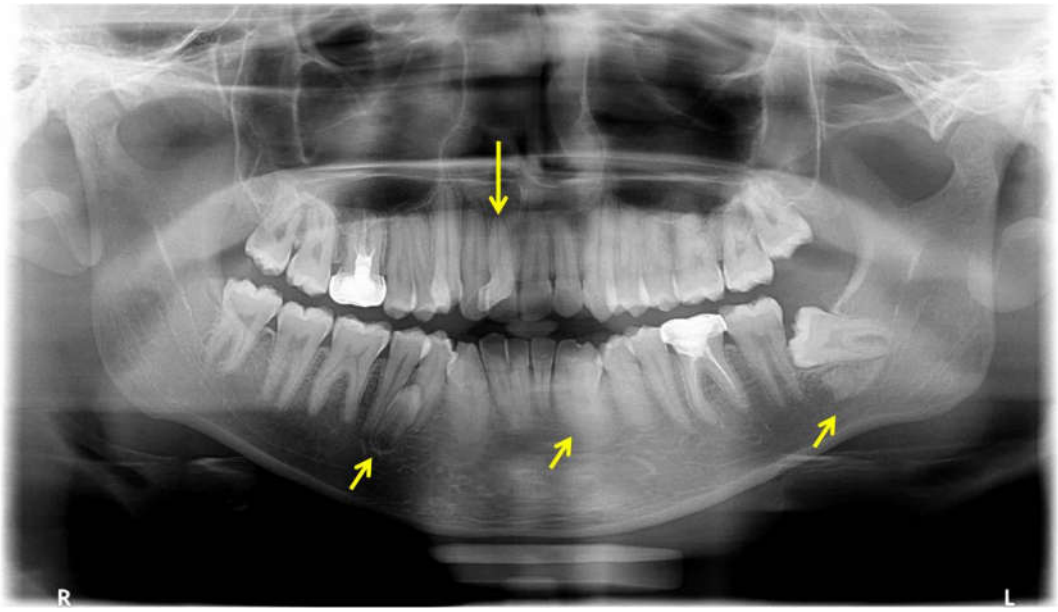

Fig. 3. Panoramic radiograph shows multiple impacted supernumerary teeth in mandibular arch

Intraoral examination revealed a mandibular left lateral incisor which was fused with adjacent canine, with a small groove observed on the labial. In the maxillary arch supernumarary tooth was noted on the palatal aspect of 11,12 region, suggestive of mesiodense. Mandibular left first molar and maxillary right first molar were endodontically treated with prosthesis and there was no significant periodontal pocket present. There was crowding in the anterior region due to a lack of space. The total number of teeth were normal (Fig. 2). As the presence of two dental anomalies suggests probable existence of further anomalies, a panoramic radiograph was prescribed to verify permanent tooth buds. OPG examination revealed that 38 was mesio-angulary impacted .Significant finding in the OPG was the presence of multiple supernumerary teeth in the maxillary and mandibular arches. In the mandibular arch extra tooth like morphology was seen with density lesser than the dental tissues in the third quadrant inferior to the impacted tooth number 38. Impacted Supernumerary tooth was also seen interdentally at the mid-root level of tooth number 44 and 45 (Fig 3). As all the pathologies were asymptomatic patient declined to undergo any treatment procedure. But he was advised to undergo regular dental check up.

DISCUSSION

Teeth fusion a rare developmental anomaly that stems from the embryogenic union of two teeth originating from two or more tooth germs (Desai *et al*., 2006; Dash *et al*., 2004) and also termed as synodontia, presents as one of the most unusual and rarest anomaly of shape of the tooth. In 1963, Tannenbaum and Ailing defined fusion as union between the dentin or enamel of two or more separate developing tooth buds (Tarasingh and Balaji, 2010; Pereira *et al*., 2000). The terms "double tooth", "joined teeth", or "connoted teeth" are often used to describe fusion and gemination, both of which are primary developmental abnormalities of the teeth (Chalakkal and Thomas, 2009). Fusion of teeth refers to the union of two normally separated tooth germs, and depending upon the stage of development of the teeth at the time of union, it may be either complete or incomplete Fusion can occur between teeth of the same dentition or mixed dentitions, and between normal and supernumerary teeth (Hülsmann *et al*., 1997; De Velasco *et al*., 1997). Fusion of primary teeth has been reported to occur in less than 1% of the general population (Brook and Winter, 1970; Ruprecht *et al*., 1985). Although the exact etiology of fusion is unclear, pressure or physical force producing close contact between two developing tooth buds has been reported as a possible cause, and trauma, genetic and environmental factors have also been implicated as contributing factors (Suprabha *et al*., 2009; Sumer *et al*., 2007; Aydin *et al*., 2004; Aras *et al*., 2008) but in our case no significant factor was revealed by patient.

The literature suggests fusion has a higher incidence in deciduous dentition (0.5%–2.5%) than in permanent dentition (0.1%–1.0%) but this case showed in permanent dentition (Jafarzadeh *et al*., 2008; Mangion, 1962; Muller *et al*., 1970). Fused teeth are found predominantly in the anterior region, with incisors and canines the most frequently affected (Rolling and Poulsen, 2001; Hülsmann *et al*., 1997) as seen in our case. These anomalies may be bilateral or unilateral (Rolling and Poulsen, 2001; Khandelwal *et al*., 2011). Fused teeth may occur in both the maxilla and mandible, but they are more frequently present in the mandible (Meighani and Pakdaman, 2010). The majority of fused teeth show an anomalous broad crown and two distinct root canals. Clinically, the crowns appear melded together, with a small groove between the mesial and distal parts. Fused teeth may be characterized by one pulp chamber divided into two root canals, two independent endodontic systems, or one common pulp canal (Aydin *et al*., 2004; Reeh and ElDeeb, 1989; Sedano *et al*., 1969). The first documented report of supernumerary teeth has been found in the ancient human skeletal remains of lower Pleistocene era (Primosch, 1981; Von Arx, 1992). Until recently the most primitive evidence of the presence of mesiodense goes back to 13000 years when it was found among the remains of an Australian aborigine (Sulabha *et al*., 2012). It is usually present in between upper central incisors but present case it was in between maxillary lateral and canine. The prevalence of supernumerary teeth is reportedly between 0.15% and 3.9%. (Sulabha *et al*., 2012; McKibben and Brearley, 1971). The literature reports three theories concerning the cause of mesiodense (McKibben and Brearley, 1971). It was originally postulated that mesiodense represented a phylogenetic. Relic of extinct ancestors who had 3 central incisors (Primosch, 1981). This theory, known as phylogenetic reversion (atavism), has now been largely discarded by embryologists. A second theory known as dichotomy suggests that the tooth bud is split to create 2 teeth, one of which is the mesiodens (Sedano and Gorlin, 1969). Supporters of this theory believe that dichotomy represents complete germination, which also occurs frequently in the anterior maxilla. The third theory, involving hyperactivity of the dental lamina, is the most widely supported (Primosch, 1981). According to this theory, remnants of the dental lamina or palatal offshoots of active dental lamina are induced to develop into an extra tooth bud, which results in a supernumerary tooth. This case can be a good example for combined developmental dental anomalies.

Conclusion

No specific treatment of the fused tooth was necessary at the moment of the patient´s examination, as he had no complains and symptoms that required dental treatment . Nevertheless, a careful clinical examination and regular dental visits are necessary in order to prevent additional orthodontic problems, particularly considering the fact that the patient already presented crowding in the anterior region of the mandible. When multiple anomalies are observed, a panoramic radiograph should be prescribed to discover possible anomalies in permanent dentition and eruption paths, to schedule careful periodic recalls and make necessary interventions at the proper time. Developmental anomalies of teeth are a significant category of dental morphological variations. Abnormalities in tooth number, size, shape, and structure result from disturbances during the tooth bud morpho differentiation as a result of ectodermal and mesodermal drifts. Severity of the condition depends on the formative stage of the involved teeth.

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