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Multiple Permanent Impacted Supernumerary Teeth in a Non-Syndromic Patient- A Case Report with a Review of Literature

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Abstract Supernumerary teeth are those which are excess of the normal number. It can be either single or multiple, unilateral or bilateral and seen anywhere in the dental arch with predilection for the anterior maxillary region. The prevalence of this condition varies from 0.10% to 6% in permanent dentition and 0.02-1.9% in the primary dentition and males are affected approximately twice as compared to females. Multiple impacted supernumerary teeth are usually associated with syndromes, but sometime could be idiopathic. In this report, we present a case of 27 years old male patient reported with the mobility of upper front teeth of two weeks duration. The patient's medical and family history and general physical examination were non-contributory. A panoramic radiograph revealed multiple impacted supernumerary teeth. Based on clinical examination and radiographic investigation, a diagnosis of idiopathic hyperdontia was given. In such cases, management should be planned by a multidisciplinary approach.
Keywords *Multiple Impacted Supernumerary Teeth; Syndromes; Idiopathic Hyperdontia*

1. Introduction

Supernumerary teeth are defined as those in addition to the normal series of deciduous or permanent dentition. It can be single or multiple, unilateral or bilateral, and seen in one or both the jaws. They can develop in any region of the dental arch; however, they are located mostly in the anterior maxillary region [1]. Ersin et al. described the prevalence with a frequency of about 0.10% to 6% in permanent dentition and 0.02-1.9% in the primary dentition. Shah et al. reported that prevalence ranges between 0.3% and 0.8% in the primary dentition and 0.1-3.8% in the permanent dentition and that males are affected approximately twice as often as females [2]. The most common supernumerary teeth are the *mesiodens, maxillary fourth molars, maxillary premolars, mandibular premolars, maxillary lateral incisors, mandibular fourth molars, and maxillary premolars.* In most cases, multiple supernumerary teeth are associated with other conditions or defects such as, cleft lip and palate, or with variable syndromes [3].

But sometimes it occurs without being associated any syndromes. This condition is infrequent and normally asymptomatic. The diagnosis is usually made as a result of a casual finding during routine panoramic X–ray studies [4].

In this paper we have discussed a case of multiple un-erupted supernumerary teeth without any associated syndrome.

2. Case Report

A male patient aged 27 years, had reported to the department of Oral Medicine & Radiology, with a chief complaint of mobility of upper front teeth of 2 weeks duration. There was no associated history of trauma. Past medical, dental and family histories were noncontributory. The patient was habituated to cigarette smoking daily 2-3 times since 5 years. General examination & extra-oral examination did not reveal any abnormalities. Soft tissue examination revealed no abnormalities. Intra-oral examination revealed missing maxillary right 3rd molar. One paramolar was present in relation to maxillary left 2nd molar (Figure 1), lingually placed left mandibular 2nd pre-molar (Figure 2), traumatic deep bite was noted in relation to right and left maxillary permanent central incisor. Crowding was noted in maxillary and mandibular anteriors.

Figure 1: *Intraoral Picture of Maxillary Arch Showing the Presence of Para-Molar in Relation to Left Maxillary Permanent 2nd Molar*

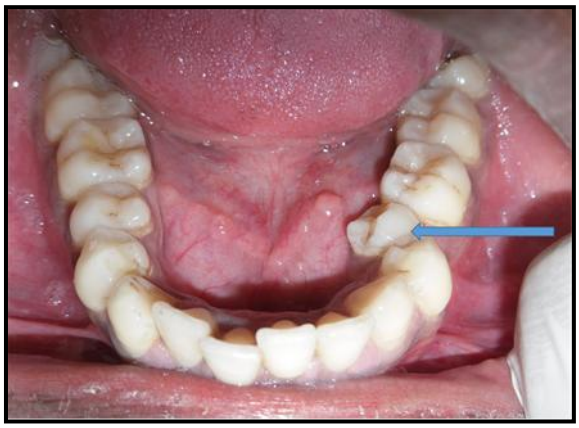

Figure 2: *Intraoral Picture of Mandibular Arch Showing Lingually Placed Mandibular Left Premolar*

A local examination in relation to left maxillary central incisor revealed grade I gingival recession and extrusion. Grade II mobility and periodontal pocket depth measuring about 6mm were present in relation to both maxillary central incisors.

Depending on clinical examination, provisional diagnoses of localized periodontitis in relation to both right and left maxillary central incisors were given.

A panoramic view of teeth and jaw revealed, horizontal loss of alveolar bone in relation to the right maxillary central and lateral incisors. Multiple impacted permanent supernumeraries present in both maxillary and mandibular region (Figure 3) and impacted left maxillary and mandibular 3rd molar. First quadrant showed the presence of five supernumeraries. Among them one was distomolar exhibiting fully formed crown and lying in the maxillary tuberosity area distal to the impacted right maxillary 3rd molar. Two supernumerary premolars were also present between permanent maxillary canine and 1st premolar and apex of 2nd premolar respectively without formation of roots. One supernumerary tooth was presented distal to the maxillary permanent 2nd molar with ill-defined cuspal morphology. Second quadrant showed one supernumerary premolar with well-defined cuspal morphology and one paramolar was noted in the region of permanent maxillary 2nd molar. Two supernumerary teeth were noted in both third and fourth quadrant premolar regions on each side. Both had fully formed crowns and partly formed roots, and appeared to be of the same size and morphology of a normal premolar.

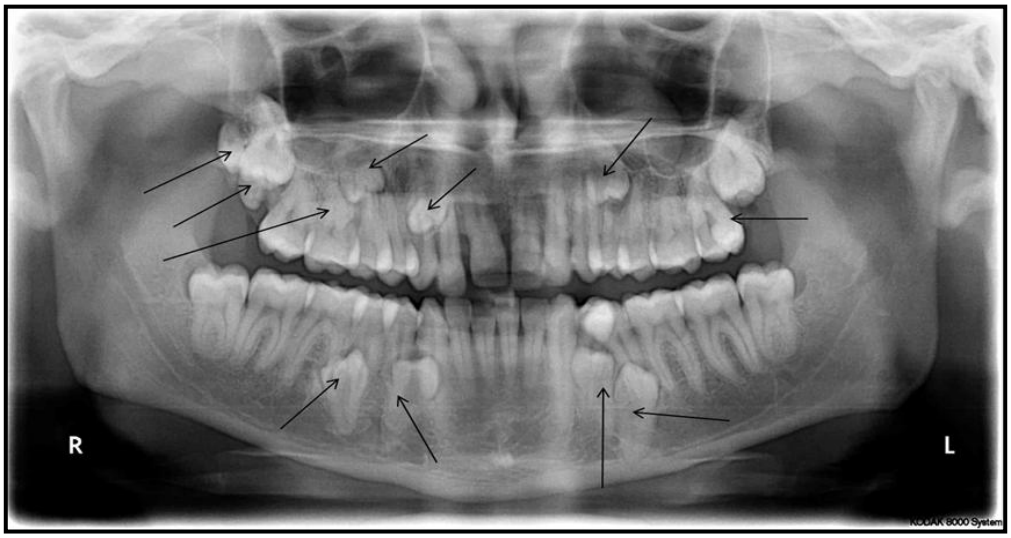

Figure 3: *Multiple Impacted Permanent Supernumeraries Present in both Maxillary and Mandibular Regions*

As per clinical examination and radiographic investigation; final diagnosis of localized periodontitis in relation to right and left maxillary central incisor and non-syndromic hyperdontia was given. Periodontal evaluation of maxillary incisors and periodic evaluation of supernumerary teeth were advised.

3. Discussion

By definition a supernumerary tooth is the one that is additional to the normal series and can be found in almost any region of the dental arch [5]. Various studies have been done to describe the prevalence and gender predilection of supernumerary teeth in different populations. Ersin et al. concluded that, the frequencies of supernumerary teeth are about 0.10% to 6% in permanent dentition and 0.02-1.9% in the primary dentition. According to Shah et al. prevalence of supernumerary teeth ranges between 0.3%-0.8% in the primary dentition and 0.1-3.8% in the permanent dentition [2]. Males are commonly affected than female. Rajab et al. in Jordan had

conducted a study and concluded that males were more commonly affected than females, the ratio being 2.2:1. Mitchell reported a 2:1 ratio in favor of males [6].

Supernumerary teeth can be single or multiple, unilateral or bilateral, erupted or impacted, and in one or both the jaws. The most common supernumerary teeth are mesiodens, which occur between the maxillary central incisors [7]. More rarely, they can be located in the premolar and distomolar regions, and appear as supernumerary premolars or supernumerary fourth and fifth molars. Supernumerary premolars constitute approximately 10% of the total supernumerary cases, and almost 75% of those are in the mandible [3; 6; 8]. It was reported that 76%–86% non-syndromic cases have only one supernumerary tooth, and 12%–23% cases have two supernumerary teeth [3; 9].

Only 1% of non-syndromic cases have multiple supernumerary teeth, which occur most frequently in the mandibular premolar area, followed by the molar and the anterior regions, respectively. Supernumerary Teeth in the deciduous dentition are usually normal or conical shaped, whereas in permanent dentition can exhibit various shapes. Supernumeraries are classified based on their *location, morphology, eruption and orientation* [3]. Chronologically, they can be classified as pre-deciduous, similar to permanent teeth, and post permanent or complementary; topographically as mesiodens, paramolar, distomolar and para-premolar, and according to orientation as vertical, inverted and transverse; morphologically as conical, tuberculate, supplemental (eumorphic) and odontome [1].

The etiology of supernumeraries is still uncertain. A number of theories have been postulated to explain their presence, such as, [3; 6; 9]. Atavism (evolutionary throwback), tooth germ dichotomy, hyperactivity of the dental lamina; which suggests local, independent, conditioned hyperactivity of dental lamina. According to this theory, a supplemental form would develop from the lingual extension of an accessory tooth bud, whereas a rudimentary form would develop from the proliferation of epithelial remnants of the dental lamina. This is the most accepted theory [3; 5; 6].

A combination of genetic and environmental factors are also known to play an important role, where it can be transmitted as an autosomal recessive or autosomal dominant trait with incomplete penetrance or, may be associated with the X chromosome [3; 9].

Multiple supernumerary teeth may be part of developmental disorders such as, *Cleft lip and cleft palate* or with variable syndromes such as, *Cleidocranial dysostosis, Gardner's syndrome, Fabryanderson syndrome*, *Ellis Van creveld syndrome (chondroectodermal dysplasia)*, *Ehlers-Danlos syndrome*, *Incontinentia pigmenti, Tricho-rhino-phalengeal syndrome*, *Hallerman steriff syndrome*, *Nance-horan syndrome*, *Robinow syndrome, Rothmund-Thompson syndrome* [3; 6; 9].

Certain complications associated supernumerary tooth are- failure of eruption, displacement, crowding, and pathologies like dentigerous cyst [7], resorption of the roots [5].

Diagnoses of an un-erupted supernumerary are made by radiographic investigation. An anterior occlusal or periapical radiograph is useful to show the incisor region in detail. The bucco-lingual position of an unerupted supernumerary can be determined by using the parallax radiographic principle [SLOB]. An occlusal film together with a panorex view is routinely used for vertical parallax. A true lateral radiograph of the incisor region is useful for assessment of palatally located supernumeraries [5]. Panoramic view is the most useful radiographic investigation and recently, computed tomography and CBCT [10] has also been used to detect the presence of supernumeraries. Supernumerary teeth can be managed either by removal or by maintaining them in the arch and frequent observation [1].

Several controversies and variety of opinion among the authors are there regarding the timing of removal of supernumerary teeth. Rotberg et al. (1984) suggested that extraction should be initiated before 5 years of age, so that root formation of permanent incisors is incomplete. According to Hogstrum and Andersson et al. (1987) supernumerary teeth should be removed as soon as diagnosed. Later they suggested it could be left until the root development of the adjacent tooth is complete. In the year 2008, Shah et al. suggested if the supernumerary teeth cause no complications and are not likely to interfere with orthodontic tooth treatment, they can be monitored with the yearly radiographic review. Recently Omar et al. (2010) suggested if there is no adverse effect associated with supernumerary and if no future orthodontic intervention foreseen; immediate surgical intervention is not recommended [6].

4. Conclusion

There may be a definitive group of genes, which plays a role in the formation of supernumerary teeth. Research in recent years has taught us much about the molecular mechanisms underlying tooth morphogenesis and differentiation. Radiographs reveal the presence of multiple impacted teeth, but additional investigations are needed to rule out systemic and metabolic conditions. In non-syndromic cases, patients require a multidisciplinary approach to guide eruption of teeth.

Acknowledgement

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