CASE REPORT

Bilateral Impacted Supplemental Premolar Teeth in Mandibular Premolar Region: A Case Report

G. Manjunath[1], Aparna Sheetal[2], Syed Mohammed Ali[3]

ABSTRACT

Supernumerary teeth are extra teeth above the normal number. Supernumerary teeth in the premolar region are rarer than in incisor and molar region. There are reports of the increased occurrence of supernumeraries in the maxilla, but supernumerary premolars are more likely to develop in the mandible. This paper reports a rare case of bilaterally impacted supplemental premolar teeth in the mandibular arch of permanent dentition and discusses the etiology, clinical significance, and treatment modalities.

Keywords: Bilateral, Hyperdontia, Impacted, Premolar, Supplemental.

How to cite this article: Manjunath G, Sheetal A, Ali SM. Bilateral Impacted Supplemental Premolar Teeth in Mandibular Premolar Region: A Case Report. Int J Prev Clin Dent Res 2018;5(1):S178-181.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Supernumerary teeth or hyperdontia is a mammalian developmental abnormality characterized by the presence of extra teeth in addition to teeth of the normal eruption series.[1] They may be single, multiple, unilateral, or bilateral; erupted or impacted; and in one or both jaws.[2] Their shape and size may resemble the group of teeth at the site where they are found in the jaws or there may be little or no resemblance at all. They may erupt normally, stay impacted, appear inverted, or assume an ectopic position.[3]

The most common supernumerary teeth, listed in order of frequency, are the maxilla midline supernumeraries, maxillary fourth molars, maxillary paramolars, mandibular premolars, maxillary lateral incisors, mandibular fourth molars, and maxillary premolars.[4]

[1]Reader, [2]Assistant Professor, [3]Senior Lecturer

[1]Department of Orthodontics, Dr. Hedgewar Smruti Rugna Seva Mandals Dental College, Hingoli, Maharashtra, India

[2]Department of Pediatrics Dentistry, Ibn Sina National College for Medical Studies, Jeddah, Kingdom of Saudi Arabia

[3]Department of Orthodontics, C.S.M.S.S Dental College, Khanchanwadi, Aurangabad, Maharashtra, India

Corresponding Author: Dr Manjunath G, Reader, Department of Orthodontics, Dr. Hedgewar Smruti Rugna Seva Mandals Dental College, Hingoli, Maharashtra, India

The prevalence in the premolar region is 0.14% as compared to 1.3% for the anterior region.[5] Studies of Caucasian populations have indicated that approximately 90% of all supernumerary teeth occur in the premaxillary region,[5] and 1.5% are located in the mandibular premolar and maxillary canine regions, respectively. Prevalence ranging from 0.2% to 0.8% in the primary dentition and from 1.5% to 3.5% in the permanent dentition, with a male-to-female ratio of approximately 2:1, has been indicated.[6] The prevalence of supernumerary premolars has been found to be low in Asiatic populations.[1,7-10]

Supernumerary premolars have been reported in one of 10,000 cases which are approximately 10 times less than generalized hyperdontia in which case it has been reported to be one of 100 cases.[1] Multiple supernumerary teeth are more common when a syndrome is involved. A high occurrence rate of 21.2% has been reported in Gardner syndrome, whereas in the cleidocranial dysplasia, it is 22% in the maxillary incisor region and 5% in the molar region.[3] Yosof suggests that it may be rare to find multiple supernumerary teeth without an associated syndrome.[2,11] Supernumerary teeth in premolar region are rarer than in the incisor region.

CASE REPORT

A 35-year-old male patient visited Smile recreations, Orthodontic and Multispeciality Dental Clinic, with pain in the lower left posterior region due to partially impacted third molar. Radiographic examination revealed bilateral lingually impacted supplemental premolar in the mandibular premolar region, and the root apex of both the supernumerary premolars was mature [Figure 1]. The patient was unaware of the presence of the impacted extra premolar teeth. The supplemental premolars as well as the adjacent premolars presented were of normal anatomy and were asymptomatic. The patient did not complain of any difficulty in speech or mastication [Figure 2].

The patient's medical and dental history was noncontributory toward associating with any kind of syndrome. He was informed of the developmental anomaly, and the periodic evaluation was advised. Radiographic and clinical findings in the absence of patient symptoms did not warrant any treatment.

Figure 1: OPG showing bilateral supplemental teeth

Figure 2: Mandibular arch

DISCUSSION

Classification

Supernumerary teeth may be classified in one of the following ways.

1. Chronologically: As predeciduous, similar to permanent teeth, post permanent, or complementary.
2. Morphologically: As supplemental, where the supernumerary resembles the tooth of the normal series or rudimentary, where the supernumerary may be described as conical, tuberculate, molariform, or odontome.
3. Topographically: As mesiodens, supernumerary premolars or supernumerary molars. Supernumerary teeth in the molar region are either paramolar (buccally or lingually) or distomolar (distal to the third molar).[12]

Etiology

Theories related to the origin of supernumerary teeth have proposed that they may form due to reversion to an atavistic trait, aberrant hyperactivity of the dental lamina, reactivation of the residues of the dental lamina and its derivatives (cell rests of Serres or Malassez), or a dichotomy (schizodontia) of an initiated enamel organ which provides extra tooth buds. Supernumerary teeth were previously thought to be associated with the post-permanent dentition series, which formed in addition to the usual diphyodont in mammals. It has also been postulated that they form due to the continuation of growth in the progress zones of a specific proliferating tooth class attributed to the morphogenetic field theory or occur due to a decrease in the size of the enamel organ below a certain threshold limit which signals the dental lamina to generate additional enamel organs. Hyperdontia has been reported to occur concomitantly among family members due to the interaction of polygenetic and environmental factors. A mode of genetic transmission has not been described with certainty.

Sedano and Gorlin indicated that hyperdontia may be autosomal dominant in nature with variable expressibility. A sex-linked chromosomal mode of inheritance has been postulated to explain the formation of extra teeth. Hyperdontia is reported to occur in certain single gene mutation syndromes such as Hallermann-Streiff syndrome, cleidocranial dysplasia, and Gardner's syndrome. A 28% of the incidence of hyperdotia is reported among cleft palate patients. Multiple supernumerary teeth may also occur in non-syndrome cases.[1]

CASE DISCUSSION

Supernumerary premolars in this case were lingually impacted. The time of tooth development and eruption unfortunately could not be estimated as the patient was unaware of its presence and presented inconclusive medical and family history. On dental examination, the patient was normal in his facial appearance, showed no signs of mental retardation, and did not exhibit any physical or skeletal abnormality, and hence, most of the syndromic conditions were ruled out. Varied radiographic angulations separate a superimposed image of a supplemental tooth from adjacent permanent root [Figures 3 and 4]. The root apices of the supernumerary teeth and the adjacent normal teeth were mature when radiographically evaluated by identifying the intact outline of the lamina dura, periodontal ligament space, and root surface. A dichotomy of the tooth bud has also been suggested as a possible etiological factor in the development of supernumerary teeth, and one study speculated that the tooth bud splits into two equal or differently sized parts during development, which results in two teeth of equal size or one normal and one dysmorphic tooth. The findings suggest that the supernumerary teeth, in this case, may have formed as a result of focal hyperactivity in the dental lamina. The lingual extension of additional tooth buds from present mandibular premolars may lead to the development of supernumerary teeth with a normal shape.

The majority of the mandibular supernumerary premolars are eumorphic (supplemental) and rarely heteromorphic (conical).[13] Studies indicate that the delayed development of supernumerary premolars can follow

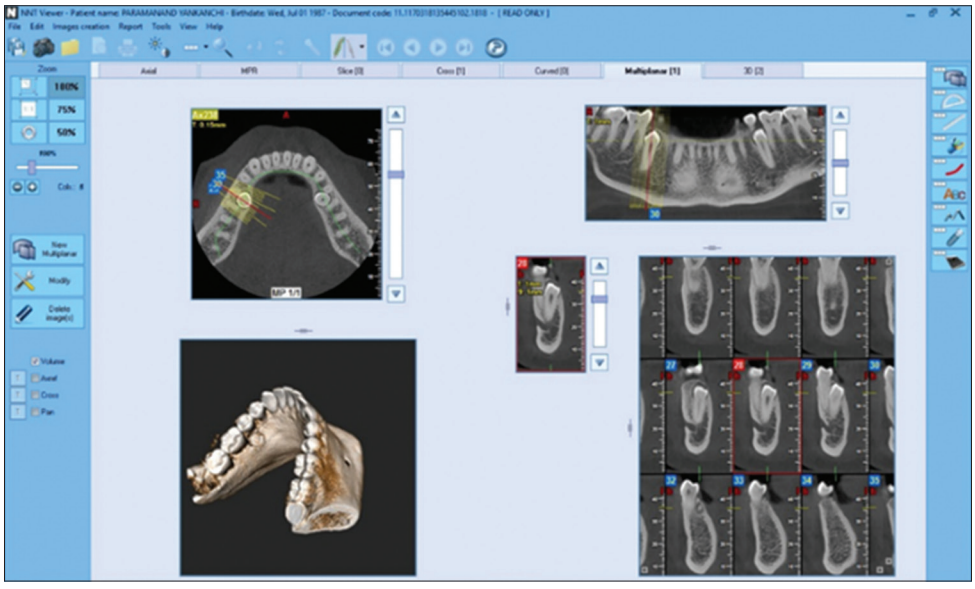

Figure 3: Cone-beam computed tomography, periapical radiograph of mandibular right quadrant, and impacted supplemental teeth with matured apex

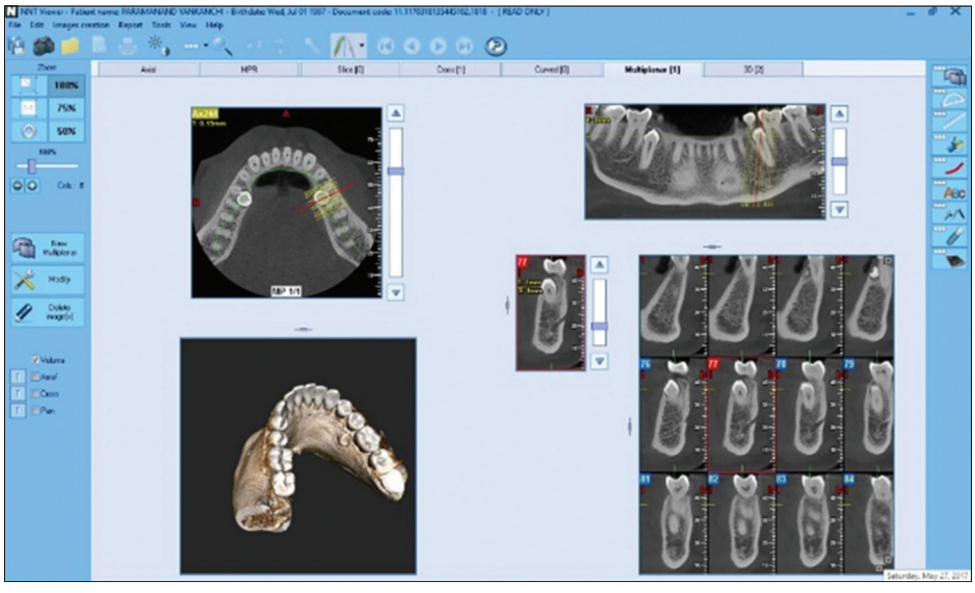

Figure 4: Cone-beam computed tomography, periapical radiograph of mandibular left quadrant with matured apex

the normal dentition by 4–10 years. Root development is often delayed and has been reported to continue past the age of 23 years, while most are impacted.[1]

However, multiple supernumerary erupted teeth are a rare occurrence in individuals with no other associated disease or syndromes. Approximately 75% of supernumerary premolars are unerupted and majority appear to be asymptomatic.[14]

Clinical Significance

Most clinical complications associated with supernumerary teeth are related to interference with normal eruption and positions of the adjacent teeth. Such interference can result in retarded eruption and impaction, as well as, displacement of the adjacent teeth when they are impacted.[6] In addition, supernumerary teeth may cause malalignment of the dentition with crowding.

Supernumerary teeth may also cause diastema, malformation of adjacent teeth such as teeth dilaceration, loss of vitality of adjacent teeth, root resorption of adjacent teeth, or resorption of their own root if they erupt before the permanent teeth. Cystic lesions may develop around the crowns of the unerupted teeth, whether this is the supernumerary or the permanent tooth.[11] When they erupt, they may interfere with occlusion, difficulty in speech, formation of dental caries, or periodontal disease.

Supernumerary teeth are diagnosed, single or multiple, and a decision regarding the appropriate management should be made carefully. Surgical removal of

the teeth may cause damage to adjacent structures.[15-19] In our opinion, the clinical management of multiple supernumerary teeth poses a great challenge to clinicians. Therefore, it is important to initiate appropriate consultation and an interdisciplinary approach for the treatment.

Surgical removal of the supernumerary teeth is indicated if eruption of the adjacent tooth has been delayed and altered eruption, displacement of the adjacent tooth is evident, or pathologies such as cystic lesion and resorption of the adjacent tooth have occurred.

If the risks of surgery outweigh the benefits of removal, the teeth may be left *in situ*, as in our cases, and a regular clinical and radiographic monitoring should be made even after the removal of supernumerary teeth to determine whether further teeth are forming.

CONCLUSION

We emphasize that the complete medical and family history is critical when we come across a patient with multiple supernumerary teeth. One has to rule out all those medical syndromes associated with them before labeling it as a case of non-syndromic multiple supernumerary teeth. The case report highlighted the importance of thorough clinical and radiographic examination. Asymptomatic supernumerary teeth with no effects on adjacent teeth can be followed up regularly without any interventional therapy and be extracted in the event of any complications.

REFERENCES

1. Saini T, Keene JJ Jr., Whetten J. Radiographic diagnosis of supernumerary premolars: Case reviews. ASDC J Dent Child 2002;69:184-90.
2. Scheiner MA, Sampson WJ. Supernumerary teeth: A review of the literature and four case reports. Aust Dent J 1997;42:160-65.
3. Batra P, Duggal R, Parkash H. Non syndromic multiple supernumerary teeth transmitted as an autosomal dominant trait. J Oral Pathol Med 2005;34:621-25.
4. Stafne EC. Supernumerary teeth. Dental Cosmos 1932;74:653-9.
5. Gulati MS, Gupta L. Multiple supernumerary premolars: A case report. J Indian Soc Pedo Prev Dent 1997;15:83-4.
6. Sasaki H, Funao J, Morinaga H, Nakano K, Ooshima T. Multiple supernumerary teeth in the maxillary canine and mandibular premolar regions: A case in the post permanent dentition. Int J Paediatr Dent 2007;17:304-08.
7. Pary RR, Iyer VS. Supernumerary teeth amongst orthodontic patients in India. Br Dent J 1961;11:257-58.
8. Sumiya Y. Statistical study of dental anomalies in Japanese. Zinruigaku Zasssi 1959;67:171-84.
9. Davies PJ. Hypodontia and hyperdontia of permanent teeth in Hong Kong school children. Community Dent Oral 1987;15:218-20.
10. Gardiner JH. Supernumerary teeth. Dent Prac 1961;12:63-75.
11. Yusof WZ. Non syndrome multiple supernumerary teeth: Literature review. J Can Dent Assoc 1990;56:167-69.
12. Scanlan PJ, Hodges SJ. Supernumerary premolar teeth in siblings. Br J Orthod 1997;24:297-300.
13. Garvey MT, Barry HJ, Blake M. Supernumerary teeth: An overview of classification, diagnosis and management. J Can Dent Assoc 1999;65:612-16.
14. Hattab FN, Yassin OM, Rawashdeh MA. Supernumerary teeth: Report of three cases and review of the literature. ASDC J Dent Child 1994;61:382-93.
15. Rajab LD, Hamdan MA. Supernumerary teeth: Review of the literature and a survey of 152 cases. Int J Paediatr Dent 2002;12:244-54.
16. Mason C, Rule DC, Hopper C. Multiple supernumeraries: The importance of clinical and radiographic follow-up. Dentomaxillofac Radiol 1996;25:109-13.
17. Moore SR, Wilson DF, Kibble J. Sequential development of multiple supernumerary teeth in the mandibular premolar region—a radiographic case report. Int J Paediatr Dent 2002;12:143-5.
18. Solares R, Romero MI. Supernumerary premolars: A literature review. Pediatr Dent 2004;26:450-8.
19. Panetta G, Favaretti F, Mariani GC, Gatto R. Multiple and relapsing supernumerary teeth associated to dens invaginatus. Review of the literature and case report. Minerva Stomatol 2005;54:321-32.