CASE REPORT

An unusual step-ladder pattern of impacted supernumerary teeth – A case report

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Abstract

The aim of this study was to report in literature a rare pattern of supernumerary teeth for the enhancement of data. Supernumerary tooth is also called as hyperdontia. It may cause a delayed eruption, malalignment of erupted teeth, etc. A 37-year-old male patient reported with a chief complaint of pain in the upper left back region of the jaw in the past 2 days. There was an accidental finding of bilaterally impacted supernumerary premolars. On the left side, there was a pair of impacted premolars with one tooth supernumerary and the other was first premolar. There was no history of any systemic disease. The presence of supernumerary teeth which may or may not be impacted can cause discomfort, malalignment of teeth, pathology, etc. Hence, proper history and record should be obtained to rule out any syndrome and systemic disease associated with supernumerary teeth as reported in the literature.

Clinical Significance: A rare pattern of bilaterally impacted premolar with a pair of supernumerary and first premolar in the lower left quadrant with a step-ladder pattern.

Keywords: Impacted, impacted premolar, step-ladder pattern, supernumerary teeth

Introduction

Supernumerary teeth or hyperdontia are the extra teeth that exceed the normal number of primary or permanent teeth in the oral cavity.

It may occur as single or multiple, unilateral, or bilateral, erupted or impacted in the dental arch. Most commonly, it is associated with syndromes. Supernumerary teeth may cause a delayed eruption, non-eruption, crowding, displacement, or resorption of roots.

The incidence of supernumerary teeth ranges between 0.3% and 1.7% of the population. The prevalence of supernumerary teeth is 0.1% and 3.8% while that of a supernumerary premolar is 0.075–0.26%. Many theories have been postulated for the occurrence of supernumerary teeth. One such theory suggests that supernumerary teeth develop from the third tooth bud arising from dental lamina near the permanent tooth bud or from the splitting of tooth bud itself. Another theory suggested hyperactivity of dental lamina responsible for the formation of supernumerary teeth.

The aim of this paper was to present a case who had bilaterally impacted mandibular supernumerary teeth in the premolar region with step-ladder pattern in the third quadrant without any associated syndrome.

Case Report

A 37-year-old male patient reported to the Department of Oral and Maxillofacial Surgery, with a chief complaint of pain in the upper left back region of the jaw for 2 days. It was a not known case of any systemic disease. Dental history was suggestive of restoration and root canal treatment 10 years back with 26, 36, and 47. An extraoral examination showed no unusual findings. Intraoral examination revealed a root piece with 16, 25, 26, and grossly decayed 18. The other quadrants revealed partially erupted teeth between 33 and 35, and 34 were missing. All the other teeth were present but bulge was evident in canine-premolar region of the fourth quadrant. There was no tenderness present in canine-premolar region of the third as well as a fourth quadrant.

An orthopantomogram was advised that revealed a pair of premolars impacted in a step-ladder pattern, leading to the mesial inclination of the adjacent second premolar and first molar in the third quadrant. The impacted supernumerary tooth was seen in apical one-third of the lower right first premolar. The impacted lower right first premolar was in close proximity to mental foramen but there was no history of paraesthesia in chief complaint and findings.
Goel, et al. The step-ladder pattern

Discussion

The prevalence of supernumerary premolars varies due to different population and inclusion criteria. Supernumerary teeth are classified into various categories according to (1) morphology as conical, tuberculate, supplemental, and odontoma (2), position or topography as mesiodens, paramolar, parapremolar, and distomolar (3), chronologically as predeciduous, similar to permanent teeth and post-treatment or complementary, and (4) inclination or angulation as vertical, inverted and transverse.\(^5\)

The most prevalent anomalies among Indian population seen were positional anomalies \((P < 0.05)\) and in that rotational anomalies were the most common.\(^5\) Even the statistical analysis showed that dental anomalies were not dependent on gender.\(^5\)

Supernumerary teeth usually occur in association with syndromes and only rare cases of non-syndromic multiple supernumerary teeth were reported.\(^6\) Mostly supernumerary teeth occur singly, rarely <1% cases show multiple patterns of supernumerary teeth.\(^6\)

Etiological factors responsible for supernumerary teeth were genes and transcription factors.\(^4\) The occurrence of asymptomatic impacted supernumerary teeth with no deleterious effects on dentition should be under observation and follow-up.\(^6\) Radiographic investigations have an important role in the determination or evaluation of supernumerary teeth.\(^1\)

Surgical removal of impacted supernumerary teeth that may cause complications should be done very cautiously because mostly they are in close proximity with inferior alveolar nerve, mental nerve, and blood vessels.\(^5,6\) Regular follow-up should be done after surgical removal of impacted premolar because chances of recurrence of supernumerary premolar were reported in the literature.\(^5,8\)

To the best of our knowledge, there were no case reports presented, describing impacted supernumerary teeth in the step-ladder pattern. This was a case report of an unusual pattern with bilaterally impacted mandibular supernumerary teeth with step-ladder pattern in the third quadrant.

Figure 1: Intraoral photograph of erupting tooth in the third quadrant

Figure 2: Intraoral photograph showing bulge in the buccal vestibule of the fourth quadrant

Figure 3: Orthopantomogram showing bilaterally impacted supernumerary premolar and step-ladder pattern in the third quadrant

Conclusion

1. The prevalence of supernumerary teeth varies in the literature depending on the population and inclusion criteria of the study
2. Supernumerary teeth can occur in part or area of the oral cavity. They occur as single or in multiple, which may be erupted or impacted. Various etiological factors are responsible for the formation of supernumerary teeth. They commonly occur in association with syndromes
3. Supernumerary teeth, especially mandibular supernumerary premolar, may cause complications such as destruction or resorption of adjacent teeth, delayed eruption, pathology, malposition, and malocclusion
4. Radiographic investigations should be done for proper diagnosis and management
5. This was a rare case report showing non-syndromic asymptomatic bilaterally impacted mandibular supernumerary teeth with step-ladder patterns in the third quadrant with close proximation to mental foramen causing malpositioning
of adjacent teeth and impacted supernumerary premolar in the fourth quadrant
6. Careful treatment should be planned when teeth are in close proximity with vital structures with regular observation or follow-ups.

Clinical Significance
A rare pattern of asymptomatic non-syndromic bilaterally impacted supernumerary premolars with a pair of supernumerary and first premolar in the third quadrant in a step-ladder pattern which can modify the planning of surgical removal of impacted teeth as well as altered the treatment planning for orthodontic considerations.

References