

MESIODENS- AN OBSTACLE TO ERUPTION: A CASE SERIES

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Abstract

Generally fixed number of teeth are present in human jaw but when this number increase from the normal value either clinically or radiographically called hyperdontia and the additional tooth known as supernumerary tooth. Supernumerary tooth is a developmental anomaly which is more common with permanent dentition in comparison to primary dentition. The supernumerary tooth may be few or many in number as well as they can occur at any part of the jaw. On the basis of the arrangement it can be symmetrical or asymmetrical. The presence of the supernumerary tooth may develop malocclusion or they be asymptomatic. On the basis of the site of the eruption they named as disto-molar, para-molar, mesiodens etc. Supernumerary teeth may delay the eruption of the permanent teeth, may develop crowding and sometime this supernumerary teeth can cause cystic lesion. Mesiodens is the one of the most common supernumerary teeth which is present at the midline between two permanent central incisors. Treatment options may include surgical extraction of the mesiodens. This case series presents surgical management of mesiodens in early stage which prevent the need of the fixed orthodontic treatment and the development of other pathological conditions.

Key Words: Mesiodens, Supernumerary tooth, Surgical extraction, Midline.

INTRODUCTION

Generally fixed number of teeth are present in human jaw but when this number increase from the normal value either clinically or radiographically called hyperdontia and the additional tooth known as supernumerary tooth. Supernumerary tooth is a developmental anomaly which is more common with permanent dentition in comparison to primary dentition. The supernumerary tooth may be few or many in number as well as they can occur at any part of the jaw. On the basis of the arrangement it can be symmetrical or asymmetrical. The presence of the supernumerary tooth may develop malocclusion or they may be asymptomatic. On the basis of the site of the eruption they named as disto-molar, para-molar, mesiodens etc. supernumerary teeth may delay the eruption of permanent teeth, may develop crowding and sometime this supernumerary teeth can cause cystic lesion.¹

Mesiodens is the one of the most common supernumerary teeth which is present at the midline between two permanent central incisors.²This mesiodens may be single and multiple in the number and similarly to the other supernumerary teeth it also be unilateral or bilateral on the basis of the arrangement. If mesiodens tooth is multiple in the number then it called "mesiodentes".³ Mesiodens present between the two central incisors, so it develops anterior crowding and rotation of central incisors. It commonly affects aesthetics of the patient. Mesiodens is more common in male in comparison to female and the prevalence of the mesiodens in the general population is 0.15% to 0.19%.⁴ The cause of the supernumerary tooth is not fully known but hereditary factor and environmental factor may responsible for it. Single mesiodens is more common in comparison to multiple. It develops from the accessory tooth bud proliferating from the dental lamina. Due to its site of eruption of mesiodens get more attention by the clinician as well as patient because it may cause delayed

eruption of central incisors, crowding of anteriors which leads aesthetic problems. Clinician should diagnosed it in

the early stage of the development so early management of can be done with minimal treatment. The main treatment option for the mesiodens is surgical removal. It is difficult to decide that when this mesiodens will remove due its proximity to the root of adjacent teeth. Completion of the root formation is also a factor which decides the timing of the extraction of that mesiodens. Therefore, we need to evaluate the criteria to decide the appropriate extraction timing of mesiodens.^{5,6}

This case series present surgical management of mesiodens in mixed dentition stage which prevent the need of fixed orthodontic treatment and occurrence of other pathological conditions.

CASE -1

A 9 year old patient reported to the department of paediatric and preventive dentistry with the chief complaint of missing permanent anterior teeth. In medical and dental history patient having the history of trauma one year ago in the anterior region following which retained primary anterior teeth were extracted.



Figure 1: Pretreatment Intraoral photographs



Figure 2: Surgical removal of Mesiodens



Figure 3: Extracted mesiodens

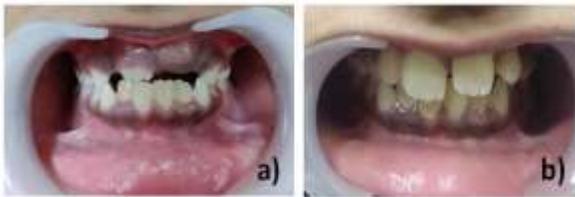


Figure 4: Follow up: a) One month follow up; b) Six months follow up.

Medical and family histories were non contributory. Extra oral examination didn't reveal any abnormalities. Intraoral examination revealed mixed dentition (figure 1). Occlusal radiograph was advised and it was found that there was an unerupted supernumerary tooth present. Patient was advised to undergo radiographic investigation (CBCT) to diagnose the accurate position and proximity of mesiodens to the adjacent teeth.

Surgical extraction (figure 2 & 3) was planned under L.A. Surgical extraction of unerupted mesiodens was carried out by raising mucoperiosteal flap. Adequate amount of bone was removed and the extraction socket was checked for any pathological tissue. The flap was relocated and interrupted sutures were placed. After 1 week sutures were removed and patient was kept on a follow up.

After one month right central incisor was seen in the oral cavity (started erupting) and after 3 months both right and left central incisors erupted (figure 4).

CASE - 2

A 9 year old male patient reported to the department of paediatric and preventive dentistry with chief complaint of missing left front tooth. There was no history of associated trauma. Medical history was noncontributory. Extra oral examination revealed symmetrical face. Intraoral examination (figure 5) revealed missing 21 and partially erupted 11. Alveolar ridge i.r.t 21 revealed enlargement. Patient was advised IOPAR and Occlusal radiographs. Radiographic evaluation showed presence of supernumerary tooth in path of eruption of 21. Tube shift technique was used to assess the position of supernumerary I.r.t to 21, and it was found that supernumerary tooth was positioned lingual to 21. So

parents were counselled and surgical removal of supernumerary was planned.



Figure 5: Pre-treatment Records



Figure 6: Surgical removal of mesiodens



Figure 7: Follow up: a) Three months follow up; b) Nine months follow up.

Profound anesthesia was obtained. Full thickness palatal mucoperiosteal flap was raised and supernumerary tooth was exposed and removed atraumatically (figure 6). Sutures were placed. Patient was advised to practice meticulous oral hygiene and was recalled after 7 days. Healing was uneventful and sutures were removed. Patient was kept on recall examination at 1, 3 and 6 months. At 3 months follow up tooth appeared in oral cavity and at 9 months follow up tooth was in occlusion and well aligned in the arch (figure 7).

DISCUSSION

Paediatric dentistry is the branch of dentistry which deals with preventive as well as interceptive measures and provides guidance to the developing occlusion. This case series presents management of mesiodens in two cases in mixed dentition stage.

The development of the mesiodens was explained by various theories but it still debated for explaining the accurate etiology. A lot of theories present in the literature to elaborate the etiology of mesiodens.⁷ Among all of these theories one theory states that the development of mesiodens is the outcome of the proliferation and splitting of a tooth bud. This theory is known as the dichotomy theory. Dichotomy theory was proposed by the Taylor. According to him if a supernumerary tooth developed from the splitting of the tooth bud then they develop into two teeth which may be equal sized or one normal tooth with one dysmorphic tooth.⁸ If two equal sized normal teeth developed by a

splitting of a tooth bud then it is called as supplemental tooth.

For the management of the mesiodens two treatment options were suggested by the Hogstrum and Andersson.⁹ First modality includes non invasive approach. It means the treatment of the supernumerary tooth should be delayed till the completions of the adjacent roots were done. Second treatment modality consist early management of the supernumerary tooth. It suggested the removal of that supernumerary tooth as soon as possible so it can not develop any eruption and alignment problem of the permanent teeth. But this modality can leave a psychological effect on the very young child behavior or it may cause the devitalization or deformation of adjacent teeth.

To prevent the crowding and ectopic eruption of the normal teeth adjacent to the supernumerary tooth, clinician should diagnose it early and do the needful treatment on the basis of clinical and radiographic observation. Generally it is recommended to extract the supernumerary tooth as early as possible to prevent malocclusion of teeth and the need of the orthodontic treatment. The unerupted permanent teeth adjacent to the supernumerary tooth may take six months to three years for eruption after extraction of the supernumerary tooth.¹⁰ Clinician should take care of the erupting adjacent teeth during removal of the mesiodens that the developing root can be damaged during this procedure. Some authors suggested delayed removal of the mesiodens and allow the adjacent teeth to complete their root formation. They suggested the age of 10 year is the appropriate time for the extraction of mesiodens because at that age the apex of the central incisors is near to closure.¹¹ Further delay in the removal of mesiodens or other supernumerary tooth may lead the development of malocclusion and required more complex surgical procedure. As well as it develops the need of the orthodontic treatment.

CONCLUSION

Mesiodens is the one of the most common developmental anomaly found in the oral cavity. Generally females are more commonly affected by mesiodens. Early diagnosis and treatment of mesiodens may prevent further complications. Surgical extraction is the only treatment option suggested for the mesiodens so clinician should evaluate the clinical condition like proximity with adjacent teeth/root, development of adjacent root by appropriate diagnostic radiographic examinations like IOPAR/ CBCT.

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