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RESEARCH ARTICLE

PALATALLY ERUPTED TWIN MAXILLARY MESIODENS: A CASE REPORT.

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Abstract

The most common type of supernumerary tooth is a mesiodens, which is located in the maxillary central incisor region. The prevalence of mesiodens varies between different racial groups and in the Indian population varies between 0.3% and 3.8% with a higher frequency in men than in women in the ratio of 2:1. We report a case of a 12 year old child in the mixed dentition stage with two conical mesiodentes present palatal to 11 and 21 resulting in proclination of the maxillary central incisors and difficulty in speech. Following clinical and radiographic examination to assess the position of the mesiodente and its relation to the incisors, the supernumerary teeth were extracted under local anaesthesia.

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Introduction:-

Supernumerary tooth is defined as a developmental anomaly characterized by the presence of extra teeth in addition to the normal dentition. They can occur in almost any region of the dental arch, but with a particularly strong predilection of about 90% towards the premaxilla area. They are found to be present in the maxillary arch more commonly than in the mandibular arch and although they can occur in both primary and permanent dentition their occurrence in primary dentition is very unusual. (Russel, 2003)

The etiology of supernumerary teeth is not completely understood. Various theories exist for the different types of supernumerary. One theory suggests that the supernumerary tooth is created as a result of a dichotomy of the tooth bud. (Liu, 1995) Another theory, is the hyperactivity theory, which suggests that supernumerary teeth are formed as a result of local, independent, conditioned hyperactivity of the dental lamina. (Levine, 1961)

The most common type of supernumerary tooth is a mesiodens, which is located in the maxillary central incisor region. The prevalence of mesiodens varies between different racial groups, and there is a higher frequency in the Asian population of about 3% or even higher compared to the Caucasian population. (Davis, 1987, Niswander, 1963) The prevalence of Mesiodens in the Indian population varies between 0.3% and 3.8% with a higher frequency in men than in women in the ratio of 2:1. (Mukhopadhyay, 2011) Multiple mesiodens are known as "mesiodentes". Mesiodens may occur as a single isolated tooth or may be associated with syndromes such as cleft lip or palate, Down's syndrome, Cleidocranial dysplasia, Gardner syndrome etc. Mesiodens may occur unilaterally or bilaterally. It may erupt normally into the oral cavity or may remain unerupted i.e. impacted. It can alter the occlusion and appearance by altering the path and position of the eruption of permanent central incisors. The best way to diagnose a Mesiodens is by the combination of clinical and radiographic examination. (Khathri, 2014)

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Occurrence of mesiodens in twins, sibling and sequential generations of a single family highlights heredity as an etiological factor that does not follow a simple Mendelian pattern. It is believed that environmental factors might have an influence on genetic susceptibility. (Khathri, 2014)

Mesiodens can be classified based on occurrence number, morphology, orientation, eruption pattern and symmetry as shown in the figure 1.

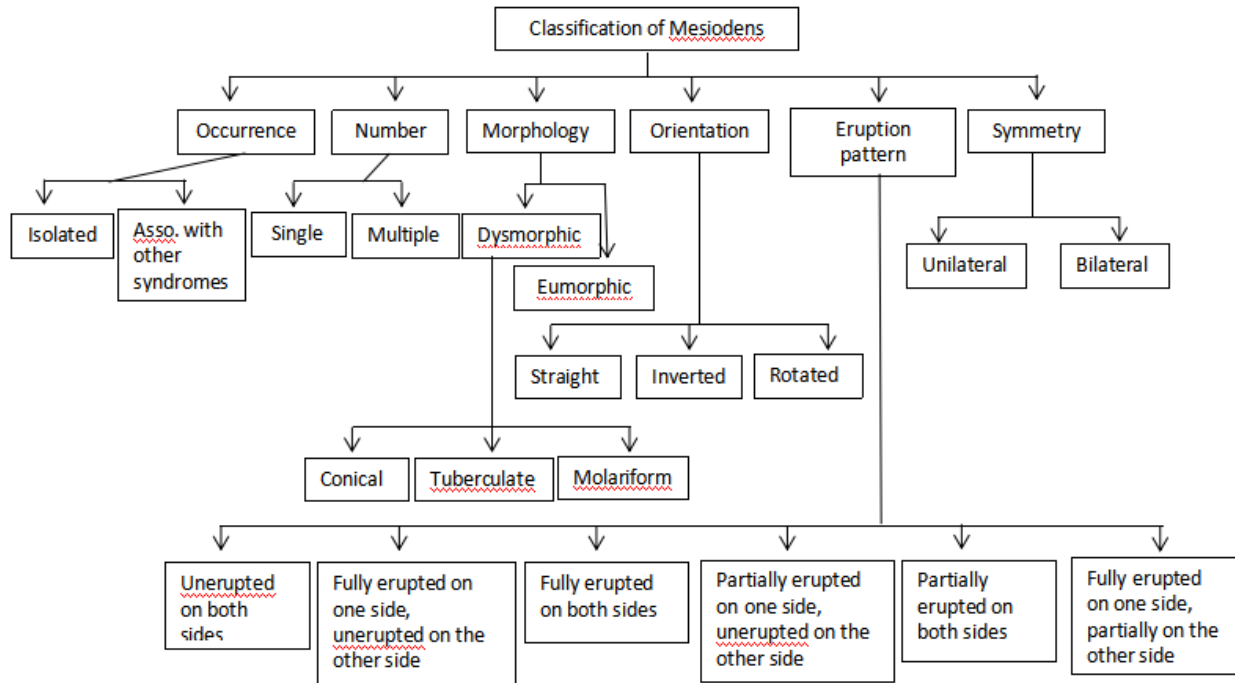


Figure 1:- Classification of Mesiodens. (Adapted from - Khatri MP, Samuel AV. Overview of Mesiodens: A Review. Int J Pharm Bio Sci 2014 April ;5 (2): (B) 526 - 539.)



Figure 2:- Palatally placed twin mesiodens



Figure 3:- The extracted mesiodente

Complications associated with the presence of Mesiodens:

- Delayed eruption
- Malposition and impaction of permanent incisors
- Crowding
- Spacing and median diastema
- Rotation
- Root resorption of the adjacent teeth
- Eruption of incisor in the nasal cavity and cyst formation.

There are two ways to manage a case of Mesiodens: observation and review or extraction. The preferred method of management is by early extraction to prevent future complications.

Here, we report a case of double mesiodentes in a non-syndromic patient, which are present palatal to the maxillary central incisors and caused speech difficulties due to inability to place the tongue appropriately during speech.

Case Report:-

A 12-year-old boy reported to the Department of Oral Medicine and Radiology, Jagadguru Sri Shivarathreeshwara Dental College and Hospital Mysuru, Karnataka, India; with the chief complaint of extra teeth in the upper front teeth region of the jaw, causing difficulty in speech. There was no relevant medical and family history, and the patient was otherwise healthy with no associated syndrome. On clinical examination, the patient was found to be in a mixed dentition stage and in addition, there were two conical mesiodentes present palatal to 11 and 21 resulting in proclination of the central incisors (Figure 2). No interference with the occlusion was noted, and the soft-tissue appeared normal. To investigate further, routine intraoral periapical radiographic examination was carried out to evaluate the status of the mesiodens, as well as the other teeth and to exclude the presence of any other impacted supernumerary teeth. The radiographs revealed twin conical mesiodens with completely formed roots between the central incisors. The patient was referred to the Department of Pedodontics and Preventive Dentistry, where mesiodentes were extracted under local anesthesia (Figure 3), and it was planned to keep the patient under observation until all the permanent teeth erupt into the oral cavity and then to decide for the extent of orthodontic treatment required.

Discussion:-

Mesiodens is most commonly diagnosed in the first two decades of life. The etiology behind the occurrence of Mesiodens is unclear, but over the years many theories have been presented: (Khathri, 2014)

1. Phylogenetic reversion: also known as 'Atavism' suggested that mesiodens represented a phylogenetic relic of extinct ancestors who had 3 central incisors; has been discarded by the embryologists.

2. Dichotomy theory: suggested that splitting of tooth bud in two equal or unequal sections may either form two equal sized teeth or one normal and one dysmorphic tooth. It is believed that dichotomy represents complete germination and is mostly commonly found in maxillary anterior region.
3. Hyperactivity theory (most accepted): suggests that the induction of the remnants of dental lamina or palatal offshoots to develop into an extra tooth bud gives rise to a supernumerary tooth.
4. Genetic theory: has also been proposed to explain the cause of supernumerary teeth. Genetic theory suggests an X linked autosomal dominant pattern with incomplete penetration which explains the occurrence of anomaly twice as common in males than in females.
5. Associated Syndromes: Supernumerary teeth have been reported in patients with syndromes such as Cleidocranial dysplasia, Ehlers-Danlos syndrome Type III, Ellis-Van Creveld syndrome, Gardner's syndrome, Goldenhar syndrome, Hallermann-Streiff syndrome, Orofaciodigital syndrome type I, Incontinentia pigmenti, Marfan syndrome, Nance Horan syndrome, and Trichorhinophalangeal syndrome I and also have been reported in conditions like cleft lip and/or palate. (Mallineni 2014)

Mesiodens is usually diagnosed by clinical and radiographic examinations. Radiographic examinations like intraoral periapical radiographs (IOPARs), Occlusal radiographs, Orthopantomograph and occasionally, Cone beam computed tomography (CBCT) are employed to assess the exact location and the position of the mesiodens with respect to the adjacent tooth. In this case, both the mesiodens were fully erupted and clinically visible, thus, in order to prevent excessive unwarranted exposure to radiation, only intraoral periapical radiographs were taken.

Based on the type of mesiodens, developmental stage of the dentition, position and the status of eruption of the mesiodens (erupted or unerupted), the management of Mesiodens can go one of two ways:

- Retain and observe
- Extract the mesiodens

The protocol to wait and observe the supernumerary tooth was suggested by Garvey et al (Garvey 1999) and was to be followed under the following conditions:

- normal eruption of the succeeding teeth
- absence of pathological condition
- associated risk of damaging the vitality of the pulp of the related teeth.

Extraction of the tooth can be done either immediately, at an early stage of dental development or toward the end of the mixed dentition stage. Immediate extraction is followed when the supernumerary tooth is preventing the eruption of the succedaneous tooth altering the path of eruption of the tooth or in case of a pathological condition. Munns et al (1981) and Yague-Garcia et al (2009) recommend the early extraction of the mesiodens in order to prevent future complications. Henry et al (1989), Humerfelt et al (1985) and Solares et al (1990) suggest that in order to avoid the risk of iatrogenic injury to the developing permanent teeth, surgical intervention must be postponed until the late mixed dentition period.

Asha et al (2015) reported a similar case report wherein a 10 year old child had mesiodens between the two maxillary central incisors which was of aesthetic concern and was extracted followed by planning for orthodontic intervention.

In the present case, the Mesiodens were fully erupted and had caused labial displacement of the maxillary central incisors. Additionally, they were also causing disturbance in speech. Thus, a clinical decision to extract the supernumerary teeth immediately was made and the teeth were extracted.

Conclusion:-

This is a report of a rare case of double mesiodens in the maxillary anterior region, present palatal to the maxillary central incisors, which caused labial displacement of the maxillary anterior teeth along with causing speech difficulties for the patient.

Although fairly common, mesiodens may cause malpositioning of the permanent teeth, aesthetic concern and speech disturbances for the patient. Thus, early diagnosis and prompt extraction of the mesiodens is important to prevent further malalignment and enable early orthodontic intervention of the developing malocclusion.

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