ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24SEP314

Management of Dens in Dente in Mesiodens (A Rare : Case Report)

Dr. Rutuja Shinde[1]; Dr. Shivanshi Shastri[2]
Department of Pediatric and Preventive Dentistry
Pacific Dental College and Hospital,
Debari, Udaipur, India

Dr. Dinesh Rao[3]; Dr. Sunil Panwar[4]
Department of Pediatric and Preventive Dentistry
Pacific Dental College and Hospital,
Debari, Udaipur, India

Abstract:- Dens in dente in mesiodens is rare. Supernumerary teeth cause various complications such as failure of eruption of permanent teeth, malocclusion, development of cyst and various pathologies. So, management of such anomalies are important.

Keywords:- *Dens in Dente, Mesiodense, Disimpaction.*

I. INTRODUCTION

A rare tooth deformity with a broad range of morphological characteristics is called dens invaginatus. Ploquet initially documented dens invaginatus in a human tooth in 1794, and 'Socrates' a dentist, described it in 1856.[1] Dens invaginatus (DI), also called dentoid in dente,[2] dilated composite odontoma, invaginated odontoma, dens in dente, and telescopic tooth,[3] is caused by the enamel organ infolding into the dental papilla prior to tooth calcification.[4] Although teeth in the mandibular and maxillary arches may be affected, the permanent maxillary lateral incisors are the teeth that are most frequently affected. In a 3:1 ratio, males are affected more often than females.[5] From a small pitting to an abnormality taking up much of the crown and root, the invagination varies. Variations in size and form can be seen in both tooth crowns and roots. Dense invagination of supernumerary teeth has been seen in certain cases. Research has indicated that the frequency varies between 0.25% and 10%.[6] There is a rare chance that DI and supernumerary teeth could occur at the same time.[7] Even though genetic and environmental etiological components have been identified, the exact cause of DI is still unknown.[7] Based on the most widely used radiographic features[8] and apical extension, Oehlers[9] divided DI into three categories. Type I DI is restricted to the crown;[2] type II is an invagination that forms a blind sac through the root, either with or without communication with the dental pulp; and type III is defined by an infolding lined with enamel that penetrates the root and opens an independent lateral (also known as type IIIa)[8] or apical (also known as type IIIb)[8] foramen without any pulpal communication.[4]

This is a rare case report of invagination in a partially impacted supernumerary tooth (mesiodens). The invagination extended beyond the cementoenamel junction to form a blind sac through the root, with or without communication with the dental pulp. In this case report management of rare anomaly of dense in dente in supernumerary teeth has been discussed.

II. CASE REPORT

The primary complaint of a 9-year-old male patient who presented to the Department of Pediatric and Preventive Dentistry was an unerupted upper anterior tooth. On intra-oral examination, there was an unerupted permanent maxillary left central incisor that is 21, over-retained deciduous maxillary left lateral incisor (62), proximal dentinal caries was evident in 54, 55, conical cusp tip of erupting tooth palatal to 11 and 12. Because of the partially erupted tooth, there was an ectopic eruption of the lateral incisor 12. (Figure 1 and 2) The patient's dental hygiene was generally good and medical and family history was non-contributory.

For further evaluation, CBCT was done. It was observed that there were mesiodentes present palatally to both central incisors. (Figure 3) After close examination of CBCT mesiodens present palatal to 11 showed central radiolucency and somewhat oval radiopacity which was giving the appearance of tooth within tooth indicative of dens invaginatus. (Figure 4) Following extraction, a histological study along with radiograph was conducted on the partially erupted mesiodens. Enamel invagination into the tooth was seen in the specimen's ground section and the radiograph indicating type II dens invaginatus. (Figure 5)

Fig 1 Shows the Occlusal View

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24SEP314

Fig 2 Shows Labial View with Unerupted 21 with Malocclusion

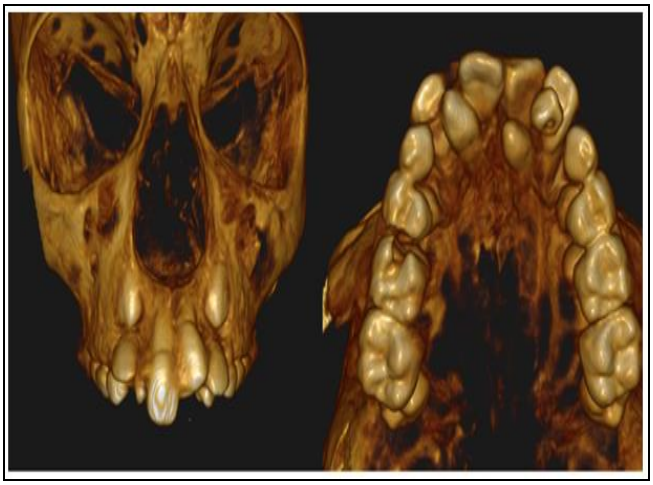

Fig 3 CBCT Revealing Mesiodentes on Palatal Aspect of 11,12

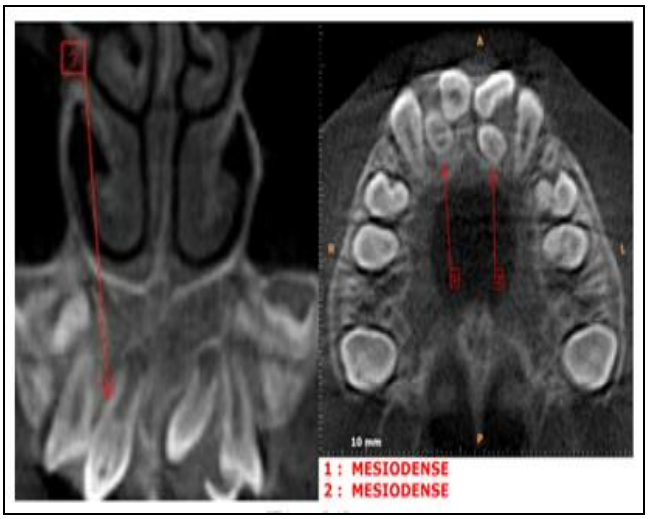

Fig 4 CBCT Showing Mesiodens Present Palatal to 11, Showed Central Radiolucency and somewhat oval Radiopacity which was giving the Appearance of Tooth within Tooth Indicative of Dens Invaginatus

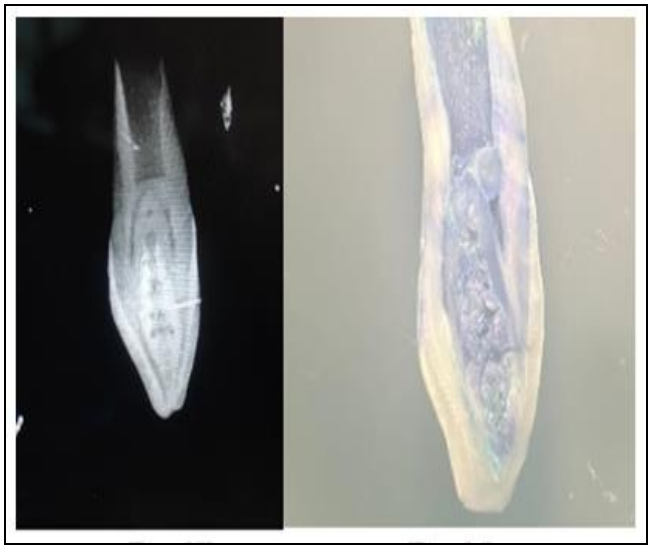

Fig 5 & 6 Reveals IOPA and Ground Section of the Tooth having Dens Invaginatus Type II

III. MANAGEMENT

Impacted teeth were causing difficulty in the eruption of the central incisor and malocclusion so it was decided for extraction. The treatment plan was explained to the patient's parents and written informed consent was taken. Before starting the procedure, complete blood investigations were done to evaluate the presence of haematological disorders, HIV, and hepatitis. After conforming to normal blood investigation procedure was started. First complete Oral prophylaxis was done followed by Caries excavation and glass ionomer cement restoration of teeth 54, and 55 were completed. Local anaesthesia was given in the anterior palatal area for extraction of teeth. The crevicular incision was given from the distal surface of 12 to the distal surface of 22 using the number 15 surgical blade and the flap was raised. Together with the retained 62, the mesiodentes were surgically extracted using elevators followed by irrigation with betadine solution. After extraction sutures were given to approximate the flap such that an open window would remain for the eruption of 21. Post-operative instructions were given to patients along with antibiotics and analgesics. Extracted teeth were kept in formalin and sent for histological study. Enamel invagination into the tooth was seen in the specimen's ground section of one of the mesiodens. Further Follow-up was taken for further healing of the surgical site and eruption of central incisor.

IV. DISCUSSION

Supernumerary teeth are caused by developmental abnormalities during odontogenesis, resulting in more teeth than usual.[10] Mesiodens are extra teeth in the premaxilla that exist between two incisors.[11] [12] They seldom erupt in the oral cavity. Molariform mesiodens is an uncommon form. Supplementary lateral incisors are more prevalent than supplementary central incisors.[12]

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24SEP314

In the present case, the crowns of supernumerary teeth are conical and have incomplete roots. One of the teeth showed the appearance of a tooth within the tooth and was diagnosed as dense in the dente. [13] In most cases, it is identified by coincidence on a radiograph. Clinically, an atypical crown (dilated, peg-shaped, or barrel-shaped) or a deep foramen coecum may be useful indicators.[13] The association of this anomaly with the mesiodens is extremely rare. Various complications might occur as a result of the presence of supernumerary teeth and dens invaginatus such as delayed eruption, crowding, spacing, impaction, diastema, cystic lesion, and root resorption.[14] The dens invaginatus in dens in dente permits irritants to enter a region isolated from pulpal tissue by a thin layer of enamel and dentine, increasing the risk of caries.[14] Other problems include pulpal necrosis, abscess development, cysts, and internal resorption.

In the present case mesiodens and dense dente, cause eruption failure of the left central incisor with an unesthetic appearance and malocclusion. So surgical removal of both mesiodentes was done. The surgical window created during extraction allowed complete eruption of the central incisor within three months. So surgical extraction of impacted supernumerary teeth eliminates the risk of complications such as root resorption involving adjacent teeth, delayed eruption of permanent teeth, dental crowding, and the development of odontogenic cysts.[15]

V. CONCLUSION

Dense in dente in mesiodens is an uncommon condition. Evidence for the aetiology of mesiodens suggests that genetic vulnerability, together with environmental variables, may augment the activity of dental lamina, resulting in the production of an additional tooth/teeth. Extraction of mesiodens in the early mixed dentition promotes spontaneous alignment of adjacent teeth.

REFERENCES

[1]. Schulze C. Developmental abnormatities of the teeth and jaws. *Thoma's oral pathology* 1970; 1: 112-123.

[2]. Martins JN, da Costa RP, Anderson C, et al. Endodontic management of dens invaginatus Type IIIb: Case series. *European Journal of Dentistry* 2016; 10: 561-565.

[3]. Ghandi M, Ghorbani F and Jamshidi D. Nonsurgical management of a patient with multiple dens invaginatus affecting all maxillary incisors. *Saudi Endodontic Journal* 2022; 12: 138-142.

[4]. Alkadi M, Almohareb R, Mansour S, et al. Assessment of dens invaginatus and its characteristics in maxillary anterior teeth using cone-beam computed tomography. *Scientific reports* 2021; 11: 19727.

[5]. Mehta V, Raheja A and Singh RK. Management of dens in dente associated with a chronic periapical lesion. *Case Reports* 2015; 2015: bcr2015211219.

[6]. Ridell K, Mejare I and Matsson L. Dens invaginatus: a retrospective study of prophylactic invagination treatment. *International Journal of Paediatric Dentistry* 2001; 11: 92-97.

[7]. Zhu J, Wang X, Fang Y, et al. An update on the diagnosis and treatment of dens invaginatus. *Australian Dental Journal* 2017; 62: 261-275.

[8]. González-Mancilla S, Montero-Miralles P, Saúco-Márquez JJ, et al. Prevalence of dens invaginatus assessed by CBCT: Systematic review and meta-analysis. *Journal of Clinical and Experimental Dentistry* 2022; 14: e959.

[9]. Pradhan B, Gao Y, He L, et al. Non-surgical removal of dens invaginatus in maxillary lateral incisor using CBCT: Two-year follow-up case report. *Open Medicine* 2019; 14: 767-771.

[10]. Klein OD, Oberoi S, Huysseune A, et al. Developmental disorders of the dentition: an update. *American journal of medical genetics Part C, Seminars in medical genetics* 2013; 163c: 318-332. 2013/10/15. DOI: 10.1002/ajmg.c.31382.

[11]. Rajaram Mohan K, Pethagounder Thangavelu R and Fenn SM. Bilateral Inverted Mesiodens: A Rare Case Evaluated by Cone-Beam Computed Tomography. *Cureus* 2022; 14: e26629. 2022/08/12. DOI: 10.7759/cureus.26629.

[12]. Eigbobo JO and Osagbemiro BB. Bilateral tuberculate supernumerary teeth. *Clinics and practice* 2011; 1: e30. 2011/05/16. DOI: 10.4081/cp.2011.e30.

[13]. Thakur S, Thakur NS, Bramta M, et al. Dens invagination: A review of literature and report of two cases. *Journal of natural science, biology, and medicine* 2014; 5: 218-221. 2014/03/29. DOI: 10.4103/0976-9668.127341.

[14]. Ata-Ali F, Ata-Ali J, Peñarrocha-Oltra D, et al. Prevalence, etiology, diagnosis, treatment and complications of supernumerary teeth. *Journal of clinical and experimental dentistry* 2014; 6: e414-418. 2015/01/17. DOI: 10.4317/jced.51499.

[15]. Gupta S and Marwah N. Impacted supernumerary teeth-early or delayed intervention: decision making dilemma? *International journal of clinical pediatric dentistry* 2012; 5: 226-230. 2012/09/01. DOI: 10.5005/jp-journals-10005-1173.