

## Case Report

# Surgical management of an impacted inverted Mesiodense- a case report

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### Abstract

Mesiodens is the term used for describing the supernumerary tooth that occurs within the maxilla, between the central incisors, and within the midline region. These might erupt within the oral cavity or keep themselves impacted. Their presence causes cleaning inadequate, an impossibility in the eruption of the regular teeth, and aesthetic compromise. This case report presents the clinical case of a seven-year-old kid, with a chief complaint of malaligned upper front teeth. Clinical and radiographic exams were done and they demonstrated the presence of two supernumerary teeth between 11 and 21. one erupted and another impacted and inverted in position. The plan of treatment aimed at the exact localization, extraction of both mesiodens teeth, and continuous follow-up of the case.

Keywords: Early intervention, eruption, inverted mesiodens, supernumerary teeth

### Introduction

Mesiodens” is the term used to describe the supernumerary tooth that occurs within the upper jaw, between the central incisors, and within the midline region Supernumerary is the given denomination to the tooth which ends up from the hyperdontia or a developmental alteration<sup>1-6</sup>

Several theories suggest possible etiological factors to this alteration in the ordinary number of teeth, such as phylogenetic reversion, dichotomy of a tooth germ and hyperactivity of the dental lamina<sup>6</sup>. The combination of genetic factors can also influence this anomaly<sup>3,7-10</sup>. The studies have shown that there is a connection between the occurrence of mesiodens the gender, which occurs twice more in males than in females<sup>3,6-7,11-12</sup>.

The mesiodens diagnosis, in most cases, is established from routine panoramic and periapical radiographs<sup>13,14</sup>, and clinical exams. There are cases in which the mesiodens are associated with eruption problems, a diastema, resorption of adjacent teeth, and dentigerous cyst formation<sup>1,2,15-17</sup>.

This case report aims at showing the clinical case of impacted inverted mesiodens, its complications and the importance of early diagnosis, and the ways of treatment.

### Case report

A 7-year-old male patient reported to the department of pedodontics and preventive dentistry with the chief complaint of malaligned upper front teeth There was no underlying medical history, and he presented with good general health. Intraoral examination showed that the intraoral soft tissues were healthy and he practiced good oral hygiene. He presented in the middle-mixed dentition stage with an increased overjet and an end-on molar relationship, primary

canines relating as Class I. Maxillary anterior proclination was excessive with midline erupted mesiodens present [Figure 1a,1b,1c]. No carious lesions were evident and no restorations were required.



1a. upper arch

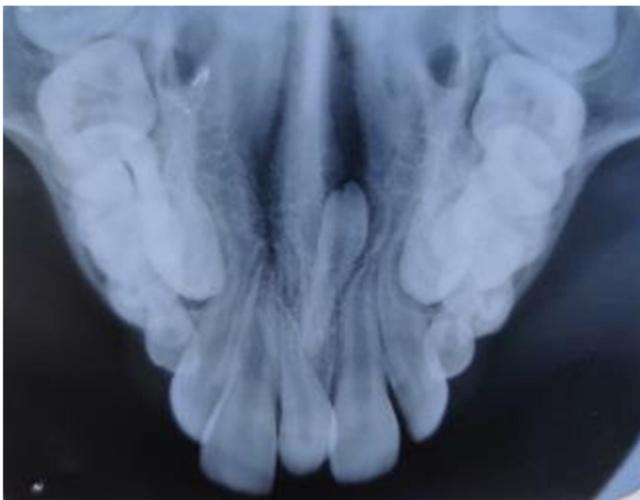


1b. front view



1c. lower arch

Intraoral radiograph and orthopantomogram were taken to localize the supernumerary tooth and assess the potential approach which disclosed the presence of an inverted impacted mesiodens [Figure 2a,2b] between erupted supernumerary teeth and 21.



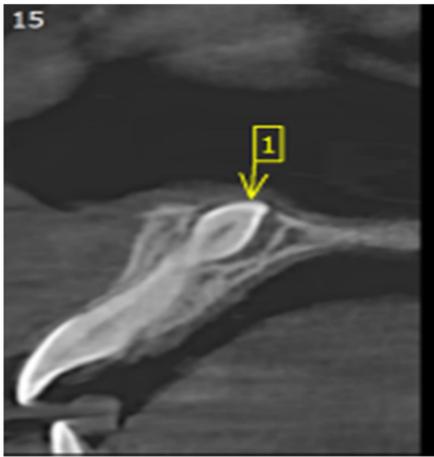
2a.: Occlusal radiograph



2b. Orthopantomograph (OPG)

OPG showed that the impacted inverted mesiodens crown extends to the floor to the nasal cavity. so, to identify the exact location of the impacted inverted mesiodens maxillary sectional CBCT was done (figure 3a,3b,3c). which showed that the mesiodens was palatally impacted and inverted in position with the crown on the anterior nasal floor. Both supernumerary teeth obstruct the permanent incisors

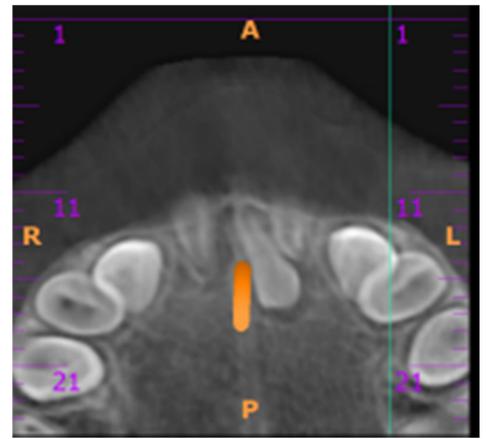
movement in the midline and would not have allowed for its proper position, thereby necessitating the removal of both mesiodens. It was decided to extract both mesiodens in the same visit.



1a. axial



2b. coronal



3c. sagittal

### Treatment

Parents were explained and informed about the procedure, and written informed consent was obtained to carry out the entire treatment under local anesthesia. Local anesthetic, 2% lidocaine with 1/100,000 epinephrine, was administered slowly through labial and palatal infiltration with a 30G needle. Using primary anterior forceps, erupted mesiodens were extracted. Using a #15 blade (Bard-Parker; Rutherford, NJ) a sulcular incision was made from the distal aspect of the maxillary right primary canine to the distal aspect of the maxillary left primary canine. No releasing incision was given. A full-thickness flap then was reflected with a periosteal elevator.

A slight elevation in the alveolus was evident midway between the root apices of the permanent left central incisor and extracted tooth socket. With palpation, it was determined that this was the anterior limit of the mesiodens. A sterile #8 round bur was used with a slow speed to remove the palatal plate of bone which allowed the tooth to be seen. With liberal saline irrigation, a circular window was made surrounding the root of the inverted mesiodens. Care was taken to avoid excessive bone removal or damage to the roots of the adjacent permanent teeth. The tooth was then luxated with an elevator. Although mobile, the larger contour of the crown impeded final removal. Following the additional circumferential expansion of the bony window, delivery of the supernumerary was accomplished. The extraction site was gently curetted, and irrigated with saline and the wound closed with 11 interrupted 4-0 silk sutures. (Fig 4a,4b,4c,4d).



4a. after giving incision



4b. after making a bony window



4c. both Mesiodens after removal



4d. after taking suture

The patient tolerated the procedure well. Surgical pain was controlled with acetaminophen with codeine (Tylenol No. two — McNeil Pharmaceutical; Spring House, PA). The swelling was prevented via the utilization of an immediate ice pack application. Home care instructions, as well as oral hygiene measures and diet counseling, were given to the parents. The patient was recalled after 7 days for suture removal (Figures 5a,5b)



5a. after 7 days follow up



5b. after suture removal

A month after the surgery, the patient came back to the follow-up phase (figure 6). It was noticed that the postoperative results were as it was expected. Clinical and radiographical controls were scheduled periodically. At present, the patient is in the preventive maintenance phase and he will be sent to orthodontic treatment.



Figure 6

### Discussion

Hyperdontia is a developmental alteration that increases the number of teeth and has supernumerary the term used for this extra tooth<sup>4</sup>, which has reported prevalence between 0.15% and 3,9%<sup>11</sup>. An inverted mesiodens is a supernumerary tooth that occurs among the maxillary central incisors, in the inverted position. The most common

form among the three related in the literature: is ordinary, inverted, and horizontal<sup>4,9-10</sup>. According to the literature, the shown case reports the presence of teeth among the upper incisors and in the inverted position, adding to the statistics that 80% up to 90% of the supernumerary occur in the maxilla<sup>4</sup>. Of these, almost half is found in the anterior region with a prevalence of 15% to 1.9%<sup>11</sup>. Among the possible causes for this positioning are cleft palates, tumors, trauma, cleft lip, malformation, and, genetic factors<sup>8</sup>. Some studies associate the alteration in the regular number of teeth with the phylogenetic reversion and hyperactivity of the dental lamina<sup>7</sup> and also with the dichotomy of a tooth germ<sup>6</sup>.

Knowing about different radiographic techniques makes it possible to identify, locate and plan correctly the treatment, creating conditions so that this treatment is done safely, avoiding surgical complications and also with the permanent tooth, decreasing the damages that this anomaly can cause to the patient<sup>9-10,12-13,15,17</sup>.

In this case, the diagnosis of mesiodens is done with the help of an intraoral radiograph and orthopantomography, and the palatal and labial position of the impacted tooth is confirmed with maxillary sectional CBCT. Cone-beam computed tomography has proved to be an advanced radiographic technique to detect the exact location of impacted mesiodens.

In this case conservative approach was carried out for the surgical removal. The most commonly used surgical approach is that the palatal approach with full-thickness mucoperiosteal flaps. However, the labial approach and apically repositioned flaps with releasing incisions also are practiced. A modified maxillary vestibular approach with subperiosteal intranasal dissection is used for impacted mesiodens within the floor of the nasal cavity<sup>18</sup>.

As in more than 80% of the cases, where the extraction was denoted, the additional tooth was removed, since it had been not a part of the regular number of neither deciduous nor permanent teeth. The presence of supernumerary teeth will cause the development of cysts both dentigerous or primary, root reabsorption of the adjacent tooth, or the supernumerary incursion to the nasal cavity<sup>6</sup>. Furthermore, the inverted position of the mentioned tooth leaves no doubt about the surgery indication, since there was neither the possibility of natural eruption nor the extraction by alveolar via<sup>16</sup>.

### **Conclusion**

The presented case shows that the right mesiodens diagnosis permits the treatment and also the case solution, minimizing complications and enabling a better prognosis.

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