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A novel transnasal technique for the removal of nasally impacted mesiodens: A case report

In cases of complex nasally impacted inverted mesiodens, vestibular transnasal approach is crucial. [1]These methods often involve oral intubation, general anesthesia (GA), and significant dislocation of the nasal septum and vomer, requiring a high level of technical skill. We introduce a modified maxillary vestibular transnasal approach that simplifies the surgical procedure while still utilizing nasal intubation.

In June 2022, an 8-year-old Taiwanese male was referred to our Oral and Maxillofacial Surgery clinic with an inverted nasally impacted mesiodens. The patient's medical history was unremarkable, and intraoral examination revealed no soft tissue abnormalities. Panoramic radiography illustrated the presence of the inverted impacted mesiodens, while cone-beam computed tomography revealed its position, breaching the nasal floor towards and involving the nasal septum. Situated centrally within the premaxilla and positioned posteriorly to the left maxillary central incisor (Fig. 1A, B and C), the mesiodens presented a distinctive and intricate challenge. A modified vestibule transnasal approach was planned to remove the mesiodens.

Under right nasal intubation and GA, mucoperiosteal incisions were meticulously made along the vestibular mucosa from canine-to-canine region (Fig. 1D). A vestibular curvilinear flap was used to expose the pyriform apertures, with the left nasal mucosa gently reflected anteriorly by approximately 10–15 mm (Fig. 1E). A facial slot osteotomy was performed to access and expose the mesiodens, followed by odontectomy using the bur method (Fig. 1F, G and H). A collagen plug (Teruplug®, Olympus Terumo Biomaterials Co. ; Tokyo, Japan) was carefully applied to the extraction site for hemostasis. An alar cinch was then performed through the anterior nasal spine using 4-0 Vicryl before closing the surgical wound with 4–0 chromic gut sutures (Fig. 1I).

This investigation introduces a streamlined vestibular procedure that diverges from conventional approaches. Unlike traditional methods, this modified technique involves a single-nostril incision, optimizing the preservation of anatomical structures and eliminating the need for nasal septum and vomer dislocation. In this case, the mesiodens crown was located over the crista nasalis. The facial approach allows mesiodens removal with minimal nasal mucosa elevation and precise tooth dissection, avoiding the need for extensive nasal osteotomy. Specifically designed for unilateral mesiodens case, this approach avoids the need for oral endotracheal intubation, allowing placement through the unaffected nostril and facilitating concurrent oral and dental surgeries.

The use of GA offers significant benefits, particularly in nasally impacted mesiodens surgery. Although local anesthesia[2] and deep sedation[3] have been explored in similar cases, these methods present substantial challenges, especially due to the intricate neural structures in the nasal region. Additionally, the risk of adverse effects such as snoring, crying, vomiting, pain at the intravenous site, and aspiration under sedation further underscores the superiority of GA in ensuring both patient safety and surgical efficacy.

Our review found inverted mesiodens at the nasal cavity base in 9 %–67 % of cases.[1–4] Therefore, when addressing unilateral nasally impacted inverted mesiodens, the technique mentioned above can help practitioners manage such cases more easily.

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Figure 1 Cone-beam computed tomography (CBCT) images, clinical photographs, and surgical procedure for our patient with nasally impacted inverted mesiodens. (A) Axial view of CBCT showing a mesiodens slightly to the left of the midline, occupying the nasopalatine duct. (B) Coronal view of CBCT revealing the mesiodens elevating the nasal floor, with a prominent dental follicle space occupying the upper portion of the nasopalatine duct. (C) Sagittal view of CBCT showing the deeply inverted position of the mesiodens crown in the crista nasalis, attached to part of the nasal septum and in close proximity to the adjacent root of the left maxillary central permanent incisor. (D) Surgical marking pen used to outline the curvilinear vestibule incision line at the vestibule bottom from the canine-to-canine region. (E) A mucoperiosteal incision made from the canine-to-canine regions, followed by the use of a vestibular flap to expose the pyriform apertures. (F) A facial slot osteotomy performed to access and expose the mesiodens. (G) Extraction completed with minimal elevation of the nasal mucosa and without dislocating the nasal septum. (H) The mesiodens was removed with crown dissection. (I) An alar cinch was performed through the anterior nasal spine using 4-0 VICRYL before closing the surgical wound with 4–0 chromic gut sutures.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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