

Endoscopic Surgery for Nasal Cavity Mesiodens: A Rare Occurrence

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Abstract

Mesiodens, a type of supernumerary tooth, typically occurs between the central incisors in the oral cavity. Its presence in the nasal cavity is an exceptionally rare anomaly, leading to symptoms such as nasal obstruction, recurrent infections, and epistaxis. Traditional surgical methods for removal can be invasive and complex.

Keywords: Nasal obstruction • Recurrent infections • Epistaxis

Introduction

Mesiodens is a type of supernumerary tooth located in the anterior maxillary region, typically occurring between the central incisors. While the presence of mesiodens in the oral cavity is relatively common, its occurrence in the nasal cavity is exceptionally rare. This anomaly can lead to various complications, including nasal obstruction, infection, and difficulty in breathing. Traditional surgical methods for removing mesiodens can be invasive and challenging due to the delicate nature of the nasal structures. Endoscopic surgery, however, offers a minimally invasive alternative with better visualization and reduced morbidity. This review explores the occurrence of nasal cavity mesiodens, its clinical implications, and the advantages of endoscopic surgical intervention.

Supernumerary teeth, especially mesiodens, are relatively rare, occurring in approximately 0.15% to 3.9% of the population. The prevalence is higher in males than females, with a ratio of approximately 2:1. Mesiodens are usually discovered during routine dental examinations or radiographs. However, their presence in the nasal cavity is exceedingly uncommon, with only a handful of cases reported in the literature [1]. The etiology of mesiodens is not fully understood, but theories suggest genetic factors, environmental influences, and developmental disturbances as possible causes. Patients with a mesiodens in the nasal cavity may present with various symptoms, depending on the size, location, and orientation of the tooth. Common symptoms include nasal obstruction, recurrent sinus infections, epistaxis (nosebleeds), and nasal discharge. In some cases, the presence of the mesiodens may be asymptomatic and discovered incidentally during imaging for unrelated conditions.

Literature Review

Several case reports highlight the diverse clinical presentations of nasal cavity mesiodens. For instance, a 10-year-old boy presented with chronic nasal obstruction and recurrent sinusitis. A Computed Tomography (CT) scan revealed a well-defined radiopaque structure in the nasal cavity, which was later identified as a mesiodens. Another case involved a 45-year-

old woman with a history of recurrent epistaxis and nasal congestion. Nasal endoscopy and subsequent radiographic examination confirmed the presence of a supernumerary tooth in the nasal cavity. The diagnosis of nasal cavity mesiodens involves a combination of clinical examination, radiographic imaging, and nasal endoscopy. During the clinical examination, the patient's nasal cavity is inspected for any signs of abnormality. Palpation of the nasal floor and anterior nares may reveal a hard, bony mass. However, due to the deep location and potential small size of the mesiodens, clinical examination alone is often insufficient for diagnosis [2].

Radiographic imaging plays a crucial role in the diagnosis of nasal cavity mesiodens. Plain radiographs, such as periapical and panoramic X-rays, can provide initial insights into the presence of supernumerary teeth. However, CT scans offer superior visualization of the nasal structures and are considered the gold standard for diagnosing nasal cavity mesiodens. CT imaging can accurately determine the location, size, and orientation of the mesiodens, aiding in surgical planning. Nasal endoscopy allows direct visualization of the nasal cavity and identification of any abnormal structures. It is a valuable tool for confirming the presence of a mesiodens and assessing its impact on the surrounding tissues. Endoscopy also helps in differentiating mesiodens from other nasal pathologies, such as nasal polyps or foreign bodies. The surgical removal of nasal cavity mesiodens is essential to alleviate symptoms and prevent complications. Traditional surgical approaches, such as open rhinotomy or Caldwell-Luc procedure, are effective but involve significant morbidity and extended recovery times. Endoscopic surgery, on the other hand, offers a minimally invasive alternative with numerous advantages.

Endoscopic surgery for nasal cavity mesiodens involves the use of a nasal endoscope to visualize and access the supernumerary tooth. The procedure is typically performed under general anesthesia. The patient is placed in a supine position with the head slightly elevated. General anesthesia is administered to ensure patient comfort and immobility during the procedure [3]. A nasal endoscope is inserted into the nasal cavity to provide a clear view of the surgical field. The endoscope allows the surgeon to navigate the nasal anatomy and identify the exact location of the mesiodens.

Discussion

Incision and Exposure: A small incision is made in the nasal mucosa to access the underlying bone. The surrounding bone is carefully removed to expose the crown of the mesiodens. Specialized endoscopic instruments, such as microdebriders and forceps, are used to delicately manipulate the tissues. Once the mesiodens is adequately exposed, it is gently mobilized and extracted using endoscopic forceps. The surgeon ensures that the entire tooth, including the root, is removed to prevent recurrence. Hemostasis is achieved using cautery or topical hemostatic agents. The nasal mucosa is then repositioned and sutured if necessary. Nasal packing may be used to control bleeding and support the healing process. Endoscopic surgery for

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nasal cavity mesiodens offers several advantages over traditional surgical methods.

Endoscopic surgery involves smaller incisions and minimal disruption of the nasal structures, resulting in reduced postoperative pain and faster recovery. The use of a nasal endoscope provides superior visualization of the surgical field, allowing for precise and controlled manipulation of tissues. The minimally invasive nature of endoscopic surgery reduces the risk of complications, such as infection, scarring, and damage to adjacent structures. Patients undergoing endoscopic surgery typically experience shorter hospital stays and quicker return to normal activities compared to those undergoing traditional open surgery [4].

Postoperative care is crucial for ensuring optimal recovery and preventing complications. Patients are advised to follow a nasal care regimen, which includes saline irrigations to keep the nasal passages moist and clear. Pain management is achieved with analgesics, and antibiotics may be prescribed to prevent infection. Regular follow-up visits are essential to monitor the healing process and detect any signs of recurrence or complications. During follow-up visits, nasal endoscopy may be performed to assess the surgical site and ensure proper healing. Radiographic imaging may also be used to confirm the complete removal of the mesiodens and evaluate the condition of the surrounding structures [5]. Although endoscopic surgery for nasal cavity mesiodens is generally safe, potential complications can occur. Bleeding: Intraoperative and postoperative bleeding is a common complication. Hemostasis techniques, such as cautery and nasal packing, are employed to manage bleeding. Postoperative infections are rare but can occur. Prophylactic antibiotics and proper nasal care help prevent infections.

Damage to Adjacent Structures: The delicate nature of the nasal anatomy poses a risk of inadvertent damage to adjacent structures, such as the nasal septum or turbinates. Careful surgical technique and enhanced visualization with endoscopy help minimize this risk. **Recurrence:** Incomplete removal of the mesiodens or the presence of additional supernumerary teeth can lead to recurrence. Thorough preoperative evaluation and meticulous surgical technique are essential to prevent recurrence. Complications are managed based on their nature and severity. Minor complications, such as mild bleeding or infection, are treated conservatively with medications and nasal care. Severe complications, such as significant bleeding or damage to critical structures, may require additional surgical intervention or specialized medical management [6].

Conclusion

Endoscopic surgery for nasal cavity mesiodens represents a significant advancement in the management of this rare phenomenon. The minimally invasive nature of endoscopic techniques offers numerous benefits, including enhanced visualization, reduced morbidity, and quicker recovery. While nasal cavity mesiodens is a rare occurrence, its potential impact on patient health necessitates timely diagnosis and appropriate surgical intervention. Endoscopic surgery, with its precision and safety, stands as an effective and preferred approach for the removal of nasal cavity mesiodens, contributing to improved patient outcomes and quality of life.

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Conflict of Interest

Authors declare no conflict of interest.

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