

# Supernumerary Tooth Extraction with Intranasal Approach: A Case Report

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## Abstract

Ectopic teeth can be supernumerary, deciduous, or permanent, and their incidence in the nasal cavity is very low. Although the etiology is not clear, maxillofacial trauma, developmental anomalies, infections, radiation exposure, and many genetic factors are considered potential causes. Although it may present with a variety of clinical findings ranging from difficulty in breathing to nasal deformities, pansinusitis, and oronasal fistula, some patients may be asymptomatic and may be detected incidentally during routine radiographic examinations. Surgical extraction of the tooth may be beneficial to reduce symptoms and prevent possible complications. In this case report, an unusual and rare case of an intranasal ectopic tooth with no clear etiology and its surgical treatment is presented.

Keywords: Ectopic tooth; intranasal tooth; supernumerary tooth.

Ectopic teeth can be supernumerary, deciduous, or permanent and can occur in a wide variety of locations outside the oral cavity, including the hard palate, maxillary antrum, mandibular condyle, orbit, coronoid process, and nasal cavity. Supernumerary teeth usually affect 0.1-1% of the general population. Although intranasal teeth are extremely rare, supernumerary teeth tend to grow intranasally more frequently than deciduous and permanent teeth<sup>[1]</sup>. It has been reported in the literature that they are most commonly seen in males (60% of all cases), and approximately half of all patients are diagnosed before adulthood. Ectopic intranasal teeth are often seen unilaterally in the nasal cavity, with no more than one tooth present in cases affecting both nasal cavities<sup>[2]</sup>.

Although the etiology of intranasal ectopic teeth is not clear, maxillofacial trauma, developmental anomalies, infections, radiation exposure, and many genetic factors are considered potential etiologic factors in the literature<sup>[3]</sup>. It may present with various clinical findings ranging from difficulty in breathing to nasal deformities, pansinusitis, and oronasal fistula<sup>[4]</sup>.

Surgical extraction of the tooth may be beneficial to reduce symptoms and prevent possible complications. Intranasal teeth may not cause any symptoms and may be detected during routine clinical or radiographic examination.

In this case report, we present an unusual and rare case of an intranasal ectopic tooth with no clear etiology according to SCARE 2023 guidelines<sup>[5]</sup>.

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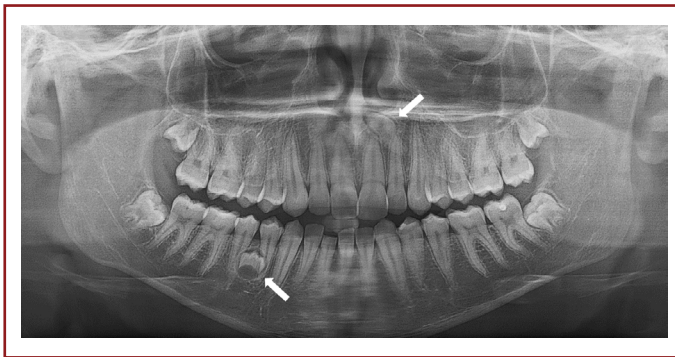
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## Case Report

A 14-year-old boy with normal facial development was referred due to the presence of an impacted supernumerary tooth in the intranasal position after an orthopantomogram taken by the orthodontic department. The patient was referred because the left central tooth was in the palatal position, and the supernumerary tooth seen on the orthopantomogram was preventing tooth movement during the application of orthodontic forces towards the labial direction. Anamnesis of the patient and his family revealed no genetic disease, history of cancer, trauma, drug use, or allergy. Intraoral examination revealed no pathology in the permanent teeth.

The orthopantomogram did not show any deficiency in the permanent dentition, but two supernumerary teeth were identified, one located in the left intranasal region

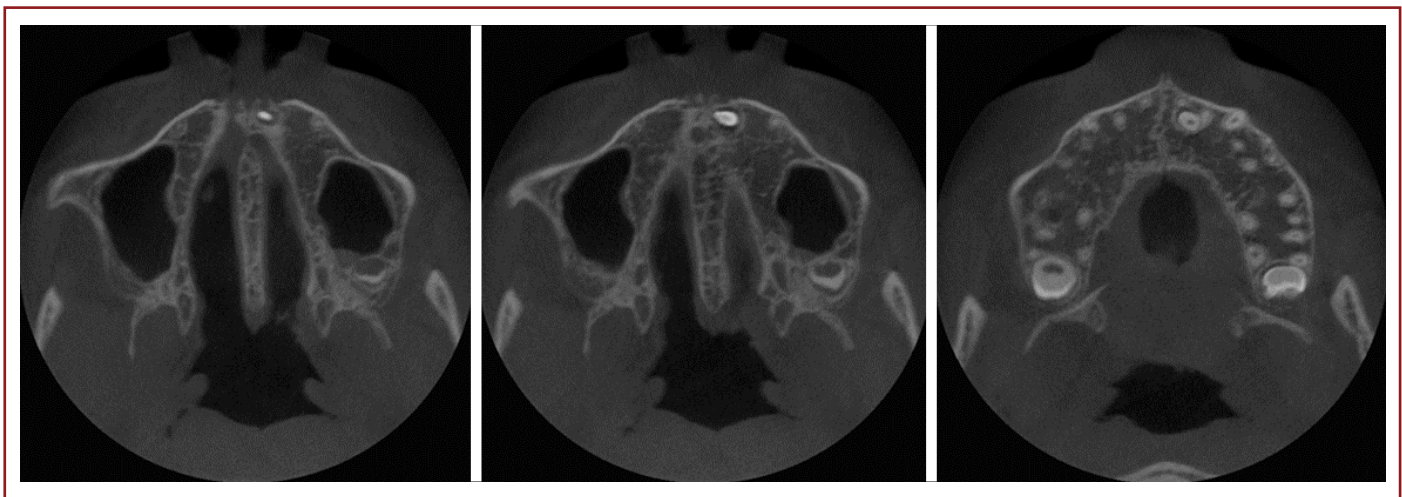


**Figure 1.** Arrows point to two supernumerary teeth, one located in the left intranasal region and the other embedded between premolars in the right mandible.

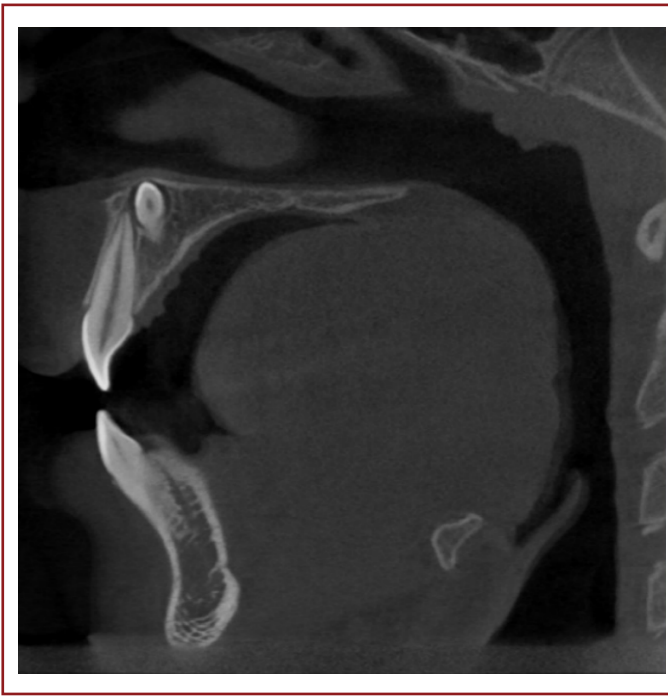
and the other embedded in the right mandible between the premolars (Fig. 1). The patient underwent cone beam computed tomography (CBCT) imaging for surgical evaluation and to observe the exact location and position of the tooth. The CT scan showed that the tooth's crown was located near the midline in the left nasal cavity, and the root was located palatally between the left central and lateral teeth (Figs. 2 and 3). Based on the available data, extraction of the supernumerary intranasal tooth was decided, and necessary consents were obtained from the patient and his family.

The extraction of the supernumerary intranasal tooth was planned to be performed under local anesthesia. The patient underwent bilateral maxillary block, left side infraorbital block, deep incisive, and vestibular infiltrative anesthesia. During surgery, a mucogingival incision was made extending to the premolars. The full-thickness flap was lifted superiorly to expose the nasal floor. The anterior nasal spine, incisura nasalis, and paranasal areas were exposed, and the nasal mucosa was dissected (Fig. 4). A few millimeters above the apex level of the left maxillary central and lateral teeth, bone was removed with burs under saline washout. The supernumerary tooth seen in the nasal cavity was elevated and removed as a whole. The area was sutured after washing with saline and ensuring that no bone chips were left.

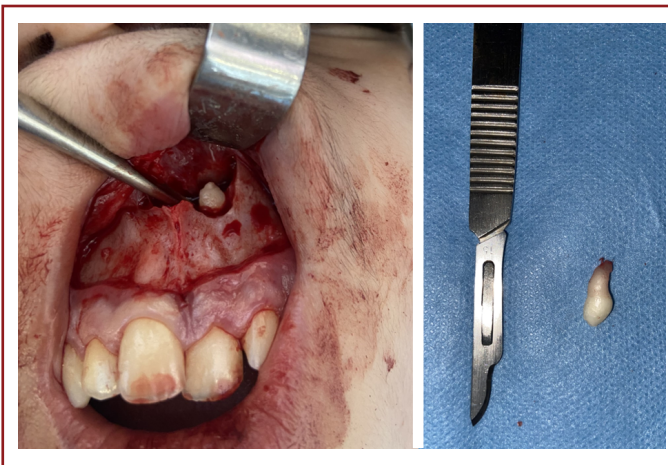
The patient was called for follow-up visits two days, one week, and one month after discharge. No adverse events were observed in the post-operative period.



**Figure 2.** CT images in axial sections. The crown of the intranasal supernumerary tooth is located near the midline in the left nasal cavity, and the root is positioned between the roots of the central and lateral teeth.



**Figure 3.** CT image in sagittal sections.



**Figure 4.** On the left elevation of the tooth in the nasal cavity; on the right, view of the extracted supernumerary tooth next to the no.15 blade.

## Discussion

The first ectopic nasal tooth in the literature was described as a case report in 1934<sup>[6]</sup>. Since then, many cases have been documented in both pediatric and adult groups. Studies have reported an incidence of 0.1% to 1% in the general population<sup>[7]</sup>.

Due to the relative rarity of ectopic teeth developing entirely within the nasal cavity, there is a lack of evidence regarding the best treatment approach. This is because most studies have been conducted on a small number of cases. In the

literature, the majority of cases (60%) were reported to be male patients, and approximately half of all patients were diagnosed before adulthood<sup>[1,8]</sup>. Many potential etiologic causes have been identified in reported cases, including maxillofacial trauma, maxillary osteomyelitis, cleft palate-like developmental anomalies, previous odontogenic or rhinogenic infections, radiation exposure, hereditary factors such as Gardner syndrome and cleidocranial dysostosis. Intranasal ectopic teeth tend to be more frequently observed in children with cleft lip or alveolus<sup>[3]</sup>.

Clinical manifestations can be diverse and include facial and nasal pain, difficulty in nasal breathing, foul odor, headache, mild fever, recurrent epistaxis, crusting of the nasal mucosa, localized ulcerations, deviated septum, nasal deformities, nasal septal abscess, pansinusitis, and oronasal fistula<sup>[4]</sup>.

Two theories regarding the development of supernumerary teeth are frequently emphasized in the literature. The first proposes that supernumerary teeth develop either from a third tooth bud arising from the dental lamina near the permanent tooth bud or from the division of the permanent bud itself. The second hypothesis is that the development of these teeth is related to the dentition of extinct primates, which had three pairs of incisors<sup>[2]</sup>.

Diagnosis of intranasal teeth is usually based on clinical and radiographic findings. An intranasal tooth is generally located at the base of the nasal cavity and can be visualized by anterior rhinoscopy or nasal endoscopy. Although tooth eruption into the nasal cavity is rare, erupted intranasal teeth may appear as hard white masses embedded in the nasal mucosa<sup>[2]</sup>. However, in some cases, the nasal mucosa may completely cover the tooth and may be the source of an underlying infection. The differential diagnosis of such an intranasal white mass includes foreign bodies, odontomas, osteomas, calcified odontogenic cysts, or malignant tumors such as chondrosarcomas, rhinoliths, exostoses, bone sequestrum, and osteosarcomas. The findings of tooth-equivalent attenuation and centrally located cavity on CT are distinctive findings that help to confirm the diagnosis of intranasal teeth<sup>[9]</sup>.

Intranasal teeth are located in the "dangerous triangle" of the face and can be a source of serious complications, as they can lead to infection. Although asymptomatic intranasal teeth can sometimes be followed radiographically, surgical removal is an accepted approach due to the risk of complications. The ideal time to remove such teeth is when the roots of the permanent anterior teeth are fully formed, to minimize the risk of developmental damage to the dentition<sup>[10]</sup>.

Endoscopic removal of intranasal teeth is a frequently used method because it allows for precise dissections and good visualization of adjacent structures. Due to its proximity to intranasal structures, septoplasty may be required during or after the extraction of the intranasal tooth. For this reason, the use of intranasal endoscopic methods for the removal of supernumerary intranasal teeth can be considered<sup>[9,11]</sup>. Since experience is very important when using the endoscopic approach, many oral and maxillofacial surgeons may often prefer the intraoral route. The intraoral transnasal approach may be favored because it reduces potential damage to the surrounding teeth, neurovascular structures, and tissues, facilitates surgical field control, and improves visualization.

In conclusion, surgery aims to alleviate or eliminate the symptoms associated with intranasal teeth and is the most effective treatment to prevent complications such as osteomyelitis, nasal septal abscess or perforation, rhinosinusitis, dacryocystitis, oronasal or intraoral fistula, aspergillosis, and nasal deformity. In the extraction of impacted supernumerary teeth localized in the anterior maxilla, if the tooth is positioned superiorly, the intraoral transnasal approach may be preferred to limit the surgical field and provide a less painful and faster post-operative recovery period.

**Informed Consent:** Written informed consent has been obtained from the patient and the patient's family for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

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