

Inverted supernumerary nasal tooth: a case report and literature review

Invertirani prekobrojni zub u nosnoj šupljini: prikaz slučaja i pregled literature

Thomas Ferenc, Goran Zovak, Vinko Vidjak*

Summary

The eruption of a tooth into the nasal cavity is a rare and incidental finding during routine clinical or radiological examination. Since the 1960s there were more than 60 reported cases of nasal teeth. To the best of our knowledge, this is only the sixth case report of a supernumerary intranasal canine in the selected period. A 22-year-old male presented with a history of recurrent rhinorrhea, nasal congestion, tension headaches, and insomnia but without previous epistaxis or facial trauma episodes, and with no history of congenital craniofacial malformations. Following a computed tomography examination, a diagnosis of a supernumerary inverted ectopic canine eruption into the left nasal cavity was established. To identify such rarities and prevent possible complications, it is essential to acquire detailed patient history, be familiar with both normal and variant maxillofacial structures, and conduct systematic radiological image analysis.

Keywords: nasal cavity, supernumerary tooth, canine, computed tomography

Sažetak

Erupcija zuba u nosnu šupljinu rijedak je i slučajan nalaz tijekom rutinskog kliničkog ili radiološkog pregleda. Od 1960-ih zabilježeno je više od 60 takvih slučajeva, a ovo je tek šesti dokumentirani slučaj prekobrojnog očnjaka u nosnoj šupljini u promatranom razdoblju. Predstavljamo 22-godišnjeg muškarca s anamnezom ponavljajuće rinoreje, nosne kongestije, tenzijskih glavobolja i insomnije, bez prethodnih epizoda epistakse ili facijalne traume, odnosno bez prethodnih kongenitalnih kraniofacijalnih malformacija. Nakon pregleda kompjutoriziranom tomografijom postavljena je dijagnoza prekobrojnog invertiranog i ektopično smještenog očnjaka u lijevu nosnu šupljinu. Kako bi se što uspješnije identificirale ovakve rijetke pojave i spriječile potencijalne komplikacije, ključno je uzeti detaljnu anamnezu, biti upoznat s normalnim i varijantnim strukturama maksilofacijalne regije, te provoditi sustavnu analizu radioloških snimki.

Ključne riječi: nosna šupljina, prekobrojni zub, očnjak, kompjutorizirana tomografija

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Introduction

Ectopic teeth are a rare clinical entity and often an incidental finding during routine clinical or radiological examination. They may be permanent, primary, or supernumerary, and in a vertical,

horizontal, or inverted position.^{1,2} Supernumerary teeth develop from an ectopic tooth bud arising from the dental lamina near the permanent tooth bud or from an incomplete union of the permanent bud.² The prevalence of intranasal supernumerary teeth in the general population is around 0.1-1%, occurring at any

*Clinical department of diagnostic and interventional radiology, Merkur University Hospital, Zagreb (Thomas Ferenc, MD; Goran Zovak, MD; Vinko Vidjak, MD, PhD, Full professor); School of Medicine, University of Zagreb, Zagreb (Vinko Vidjak, MD, PhD, Full professor)

Corresponding author/Autor za dopisivanje: Thomas Ferenc, Clinical department of diagnostic and interventional radiology, Merkur University Hospital, Zajčeva 19, 10 000 Zagreb, Croatia E-mail: thomas.ferenc95@gmail.com
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age.^{3,4} The reported locations of the erupted teeth include the nasal cavity, nasal septum, maxillary sinus, mandibular condyle, coronoid process, orbit, palate, chin, and facial skin.^{1,5} Since the 1960s there have been more than 60 reported cases of intranasal teeth eruption. Intranasal ectopic canine has been rarely documented with only five previously reported cases.⁶⁻¹⁰ Hence, we report a patient with an inverted supernumerary canine in the nasal cavity.

Case report

A 22-year-old male patient presented with a past medical history of recurrent rhinorrhea and nasal congestion, tension headaches in the projection of paranasal sinuses (PNS), and insomnia. Nasal symptoms were present since childhood, while the headaches emerged during the teenage years. Within one year (2020-2021), the patient noticed an exacerbation of the reported symptoms, especially insomnia. He also experienced several upper respiratory tract infections but without significant purulent nasal discharge. The patient also reported no previous episodes of epistaxis or facial trauma and no congenital orofacial malformations including cleft lip or palate. Several Ear Nose Throat (ENT) specialists detected only moderate nasal septum deviation and mild to moderate nasopharyngeal secretion; however, there were no reported signs of significant inflammation or other pathologic conditions of the mucosa. Following ENT examinations, in 2021 the patient performed an orthopantomography in another institution, and the image analysis revealed a tooth-like structure in the left maxillary projection (Figure 1).



Figure 1 Orthopantomogram with the highlighted ectopic tooth (arrow).

Slika 1. Ortodontogram s označenim ektopičnim zubom (strelica).

He was then referred to our Radiology Department as an outpatient for computed tomography (CT) examination of the PNS. It revealed chronic post-inflammatory thickening of the mucosa in the nasal

cavity. Middle nasal conchae were partially inverted. Image evaluation in the bone window setting displayed an inverted and hyperdense tooth-like structure that was elevating the anterior third of the left nasal floor (Figure 2A-C).

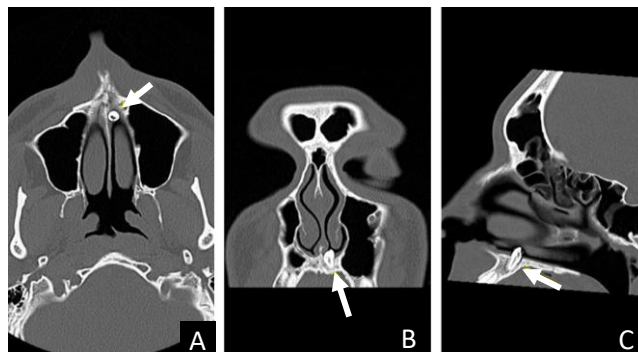


Figure 2 CT of PNS with the highlighted intranasal ectopic canine (arrow) on the axial (A), coronal (B), and sagittal (C) planes.

Slika 2. CT PNS s označenim intranasalno smještenim ektopičnim ocnjakom (strelica) na aksijalnim (A), koronalnim (B) i sagitalnim presjecima (C).

The patient's dentition was normal, and no teeth were missing. The diagnosis was a supernumerary inverted ectopic canine eruption into the left nasal cavity. Following the ENT specialist's recommendations, the patient was appointed for elective removal of the ectopic tooth in combination with septoplasty. However, by the time of writing this case report, he did not show up for the scheduled procedure or follow-up examination.

Discussion

The eruption of a tooth into the nasal cavity is a rare finding. To our knowledge, this is the second documented case of an intranasal tooth in this region of Europe¹¹ and the sixth case of a supernumerary intranasal canine according to the literature review in PubMed/MEDLINE.⁶⁻¹⁰ By some authors, the first description of an ectopic nasal tooth was in 1754 while others claim the year 1897.¹²⁻¹⁴ The prevalence of intranasal supernumerary teeth in the general population is between 0.1-1%; however, in the Indian subcontinent higher occurrence rates have been noticed (2.5%).^{3,4,15} The age of reported patients ranged from 2 to 71 years of age (the mean age was 27 years), with more cases occurring in males than females (60:40 ratio, in some studies 70:30 ratio).^{1,3,4,16,17} There was no side predilection (right or left).¹ One study reported the bilateral presence of

ectopic teeth in the nasal cavity.⁹ The etiology of intranasal teeth has not been completely understood. It is believed to be associated with genetic predisposition, malunion of the embryonic processes, cleft lip and/or palate, dental trauma, osteomyelitis of the maxilla, rhinogenic or odontogenic infection, and squamous cell carcinoma of the orofacial region.^{1,2,6,12,18–22} A study by Medeiros *et al.*²¹ analyzed the prevalence of intranasal ectopic teeth in children with complete unilateral and bilateral cleft lip and palate. Authors reported that intranasal teeth can be found in 61% of children with complete bilateral and 40% of children with complete unilateral cleft lip and palate. Furthermore, intranasal teeth eruption may be associated with the Gardner syndrome or extramedullary plasmacytoma.^{23,24}

Patients with ectopic nasal teeth are either asymptomatic or present with headache, facial pain, nasal obstruction, serous or purulent rhinorrhea, recurrent epistaxis, oronasal fistula, and septal deformity.^{1,3,25} Our patient was a 22-year-old male who presented with a history of recurrent rhinorrhea, nasal congestion, tension headaches, and insomnia but without previous episodes of epistaxis or facial trauma and with no history of congenital craniofacial malformations. A possible explanation for the insomnia episodes is the enhanced postnasal drip which can result in nights of impaired sleep. Other documented patients with a supernumerary canine in the nasal cavity were between 4 and 27 years of age. They presented with various symptoms such as nasal obstruction, recurrent, often purulent, nasal discharge, headache, or epistaxis. Three patients denied previous maxillofacial trauma or craniofacial malformations, one presented with cleft lip and palate, and one with bilateral ectopic teeth. Conventional radiography may seldom raise suspicion of the ectopic tooth with the depiction of an unusual tooth-like structure; however, the clinical evaluation combined with a CT scan in the bone window setting is the gold standard for the diagnosis of ectopic nasal teeth. Moreover, CT can provide valuable information for treatment planning due to the ability to evaluate the depth of the eruption site and to provide accurate anatomic localization.² In recent years, cone beam CT (CBCT) emerged as an alternative, sometimes as a modality of the first choice compared to conventional CT, due to high-resolution images, submillimeter slice-thickness, and short imaging time which results in the reduction of radiation up to 15 times.²⁶ The differential diagnosis for atypical bony structure in the nasal cavity includes foreign body, rhinolith, inflammatory lesion with calcification, benign tumors such as osteoma,

enchondroma or dermoid and malignant tumors such as osteosarcoma, and chondrosarcoma.^{2,15}

It is advised to remove supernumerary nasal teeth to avoid potential complications (external nose deviation, septal abscess, oronasal fistula) or at least to monitor them radiologically.^{14,27,28} The preferred treatment is endoscopic tooth extraction, either transnasally or transpalatally, due to adequate illumination, improved visualization, and precise dissection.²⁷ In their systematic review, Levin and Sommer also emphasized the importance of endoscopic visualization to avoid damaging structures adjacent to the tooth (e.g., nasal septa mucosa, cartilage).³

Intranasal teeth are an incidental finding and are most often diagnosed during a routine clinical or radiological examination. This is the sixth case report of a supernumerary canine in the nasal cavity. Detailed knowledge of both normal and variant maxillofacial anatomy is essential for the initial suspicion of the ectopic nasal tooth, and the basis for quality interdisciplinary collaboration between dental doctors, ENT specialists, oral surgeons, and radiologists.

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