Nasal obstruction secondary to an inverted midline supernumerary tooth

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ABSTRACT

We present the case of a 36-year-old man who presented with left-sided nasal obstruction and facial pain. Clinical examination and computed tomography revealed an inverted midline supernumerary tooth buckling and deviating the nasal septum to the left. Full surgical resection of the tooth was achieved through a minimally invasive endoscopic septoplasty with full resolution of symptoms. There is little precedent within the literature to guide our management in this case and therefore we offer a successful surgical treatment strategy.

KEYWORDS

Inverted supernumerary tooth – Nasal obstruction – Deviated nasal septum

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Case history

A 36-year-old man presented to the ear, nose and throat (ENT) department at the Queen Alexandra Hospital, Portsmouth, with a longstanding history of left-sided nasal obstruction and left-sided facial pain. There was no other relevant past history of note. Endoscopic examination of his nasal cavity demonstrated a severely deviated nasal septum to the left with an obstructed left middle meatus and pus draining through the left maxillary sinus ostium. The remaining examination was unremarkable. Allergy testing was negative. Computed tomography (CT) of the sinuses demonstrated an inverted midline supernumerary tooth within the maxillary crest, growing superiorly into the nasal septum and buckling it into the left nasal cavity, causing middle meatal obstruction with associated left-sided maxillary, ethmoidal and frontal sinus opacification (Lund–Mackay score 11; Fig 1). Multidisciplinary discussion took place between ENT, oral and maxillofacial surgeons and head and neck radiologists to plan surgical treatment.

Full surgical resection of the tooth was achieved through a minimally invasive endoscopic septoplasty. Submucoperichondrial flaps were raised endoscopically through a left-sided Killian's incision. A chondrotomy was made anteriorly to the buckled septum and the deviated cartilage was excised inferiorly down to the maxillary crest. The floor of the maxillary crest was exposed and the midline supernumerary tooth was identified, covered with a thin layer of maxillary bone (Fig 2A). This bone was removed with a small curette to expose the entire tooth, which was subsequently removed (Fig 2B–D). The empty socket was not fistulating

with the oral cavity and was therefore left untouched. The submucoperichondrial flaps were opposed with quilting sutures. Left uncinectomy and middle meatal antrostomy were performed to clear the middle meatus and to help drain the obstructed sinuses. At the two-month follow-up, complete resolution of obstructive symptoms had been achieved.

Discussion

Supernumerary teeth are defined as any teeth that appear in addition to the regular number of teeth and can present in any region of the dental arch. Prevalence is reported as 0.1–3.5% depending on whether deciduous or permanent dentition is involved, and the condition is most frequently found in males.^{1,2} They have been reported to arise within the mandibular condyle, coronoid process, palate, the orbit and within the nasal cavity, most commonly in the maxillary sinus or nasal floor.

When supernumerary teeth arise in the midline between the upper two incisors they are termed mesiodens. Mesiodens can present as labiopalatal impacted, vertical impacted, angular erupted or inverted.² The embryology surrounding mesiodens formation remains unclear. The most widely accepted theory, the hyperactivity theory, suggests that additional tooth buds result from the proliferation of remnants of dental lamina mesenchymal tissue.² This proliferation may be the result of developmental disturbances caused by trauma, infection, genetic predisposition or alterations in the Wnt signalling pathways.^{2,5} Supernumerary teeth are more common in cleidocranial dysplasia, cleft palate and in Gardner's syndrome.²

Figure 1 Computed tomography demonstrating an inverted supernumerary tooth (yellow arrow) arising superiorly from the maxillary crest leading to buckling and deviation of the nasal septum to left (red arrow). This resulted in blockage of the left ostiomeatal complex with associated obstruction of the left maxillary sinus ostium and frontal recess. A) Coronal view. B) Sagittal view.

The rarest type of mesiodens are inverted incisors which grow superiorly through the maxillary crest and into the inferior aspect of the anterior cartilaginous nasal septum.² Only two previous cases have been described in the literature. El-Sayed, 1995, described an incidental radiological finding of an inverted tooth within the nasal septum in an asymptomatic patient.⁵ In the second case, Mohebbi *et al* described the intraoperative finding of an intraseptal tooth in a patient undergoing a septoplasty for nasal septal deviation and this was removed without endoscopic assistance.⁵

The detection of intraseptal teeth is challenging, owing to the large range of nonspecific presenting symptoms and the lack of clinical signs. Reported symptoms include chronic foul smelling rhinorrhoea, epistaxis, septal perforation, crusting of nasal mucosa and local ulceration. In the case we have described, the presenting symptoms included nasal blockage and facial pain. These represent two of the most common symptoms presenting to a rhinology clinic and do not alone warrant radiological investigation. In this case, the CT scan was requested after

Figure 2 A–C) Endoscopic images demonstrating the identification and gradual exposure of the midline inverted supernumerary tooth (yellow arrows) arising from the maxillary crest. A thin layer of bone encasing the tooth was removed using a small curette. Once fully exposed, the tooth was lifted out of its socket and removed. D) Removed tooth in full demonstrating crown and root.

thorough endoscopic examination revealed discharging pus from the left middle meatus and was therefore performed for the investigation of unilateral pathology. Differential diagnosis would have been a dento-alveolar abscess, fungal ball or an inverted papilloma. The diagnosis of an inverted midline supernumerary tooth was only made radiologically. Owing to the rarity of this case, discussion within a multidisciplinary team involving ENT, oral and maxillofacial surgeons and the head and neck radiologists, allowed us to form a successful surgical plan, which resulted in full resolution of the patient's symptoms.

Conclusion

An inverted supernumerary tooth erupting into the nasal septum is exceedingly rare. This case highlights the

importance of a thorough endoscopic assessment and the involvement of a multidisciplinary team. There was little precedent within the literature to guide our management in this case and therefore we offer a successful endoscopic surgical treatment strategy.

References

1. Lin I, Hwang C, Su C, Kao Y, Peng J. Intranasal tooth: report of three cases, *Chang Gung Med J* 2004; **27**(5): 385–389.
2. Jangid K, Varghese SS, Jayakumar ND. Ectopic supernumerary tooth at anterior nasal spine – a developmental glitch. *J Clin Diagn Res* 2015. **9**(11): ZJ01–ZJ02.
3. Kunotai W, Ananpomruedee P, Lubinsky M *et al.* Making extra teeth: a lesson from a TRPS1 mutation. *Am J Med Genet* 2017; **173**(1): 99–107.
4. El-Sayed Y. Sinonasal teeth. *J Otolaryngol* 1995; **24**(3): 180–183.
5. Mohebbi S, Salehi O, Ebrahimipoor S. Ectopic supernumerary tooth in nasal septum: a case study *Iran J Otorhinolaryngol* 2013; **25**(72): 183–186.