Oral and Maxillofacial Surgery (2019) 23:247–252
https://doi.org/10.1007/s10006-019-00763-4

CASE REPORT

Supernumerary nasal tooth removed with a modified maxillary vestibular approach: case report and literature review

Samuel Macedo Costa[1] · Alessandro Oliveira de Jesus[1] · Roger Lanes Silveira[1,2] · Marcio Bruno Figueiredo Amaral[1]

Received: 25 September 2018 / Accepted: 25 April 2019 / Published online: 9 May 2019
© Springer-Verlag GmbH Germany, part of Springer Nature 2019

Abstract

Purpose The aim of this present study is to describe a case of supernumerary nasal tooth removed with a modified maxillary vestibular approach with subperiosteal dissection.

Methods Also, a review of English-language literature of supernumerary nasal teeth from 1959 to 2018 was performed.

Results This study demonstrated that the modified maxillary approach with subperiosteal intranasal dissection is a useful approach for the exposure and removal of teeth impacted in the floor of the nasal cavity. The advantage of its use versus the other techniques is the lower risk of complications and postoperative morbidity. The use of computed tomography is essential to determinate the position of the tooth and to help in the surgical planning.

Conclusions The transoral approaches are more natural to the oral and maxillofacial surgeons than the transnasal or endoscopic ones.

Keywords Supernumerary nasal tooth · Nasal tooth · Supernumerary tooth

Introduction

Ectopic and supernumerary teeth can be found in up to 1% of the population. The anterior palate and the mandibular premolar region are the most common area of the supernumerary teeth. Supernumerary teeth have been described in the literature in other locations like condyle, coronoid process, maxillary sinus, and nasal cavity [1].

The eruption of a tooth in the nasal cavity is very rare [2]. Deciduous or permanent teeth into the nasal cavity can be associated with previous trauma, cysts, cleft palate, or in some rare cases, with osteomyelitis and syphilis [1, 2]. Supernumerary nasal teeth (SNT) can cause crusting of the nasal mucosa, facial pain, abscess, headaches, recurrent epistaxis, and unilateral nasal obstruction [3].

The aim of this present study is to describe a case of supernumerary nasal tooth removed with a modified maxillary vestibular approach with subperiosteal dissection associated with a review of English-language literature of supernumerary nasal teeth from 1959 to 2018.

Methods

One patient with a noncontributory medical, social, and cultural records was referred to the outpatient clinic at the Oral and Maxillofacial Surgery Residency Program, Hospital João XXIII/FHEMIG, Belo Horizonte, Brazil. Previous studies of supernumerary nasal tooth, published between 1959 and 2018, were researched by means of a detailed investigation of English-language literature across PubMed, by searching the following keywords: supernumerary nasal tooth, nasal tooth, and supernumerary tooth. All studies that included supernumerary tooth inside the nasal cavity were included in this review [1–33] Together with this present study, a total of 44 cases were selected. The data from all studies are presented in Table 1.

Case report

A 13-year-old woman presented with an aesthetic complaint from the anterior teeth and a radiographic finding of a tooth in the anterior maxilla during a routine orthodontic

✉ Marcio Bruno Figueiredo Amaral
marciobrunoamaral@gmail.com

[1] Residency Program of the Oral and Maxillofacial Surgery Service, Hospital João XXIII/FHEMIG, Av. Alfredo Balena, 400, Santa Efigênia, Belo Horizonte, MG, Brazil

[2] Otorhinolaryngology and Head and Neck Surgery Service, Santa Casa, Belo Horizonte, MG, Brazil

Table 1 Clinical features of supernumerary nasal teeth between 1959 to 2018

Authors	Number of cases	Age	Gender	Symptoms	Anterior rhinoscopy	X-ray	CT	Side	Localization	Anesthesia	Approach
Quinn et al. 1959 [5]	1	20	M	Y	Y	Y	N	R + L	Nasal floor, 1,5 mm behind the anterior nares	Local	Nasal speculum
Bahn et al. 1966 [6]	1	44	M	Y	Y	Y	N	L	Nasal Floor	Local	Nasal speculum
Hiranandani et al. 1968 [7]	1	28	F	Y	Y	Y	N	L	Nasal floor, near junction from soft to hard palate	General	Nasal speculum
Chopra and Joshi, 1969 [8]	1	45	F	Y	Y	Y	N	R	Nasal floor	Local	Nasal speculum
Kohli and Verma, 1970 [9]	1	13	M	Y	Y	N	N	R	Nasal floor, 15 mm behind the anterior nares	General	NR
Arora et al. 1973 [10]	1	14	M	Y	Y	Y	N	L	Nasal floor, basal septum	General	Nasal speculum
Sood and Kakar, 1975 [11]	1 of 2	28	M	N	N	Y	N	R	Nasal floor, 20 mm behind the anterior nares	General	NR
	2 of 2	12	M	Y	Y	N	N	R	Nasal floor,15 mm behind the anterior nares	General	NR
Thawley et al. 1977 [12]	1	25	F	N	Y	Y	N	L	Nasal floor, 10 mm posterior the anterior concha	Patient denied removal	Patient denied removal
Smith et al. 1979 [13]	1 of 2	14	M	N	Y	Y	N	L	Nasal floor, posterior aspect of the nasal cavity	General	Nasal speculum
	2 of 2	34	F	Y	Y	Y	N	R	Nasal floor, 15 mm behind the anterior nares	Patient denied removal	Patient denied removal
Murty et al. 1988 [14]	1	30	M	Y	Y	Y	N	L	Nasal floor	Local	Nasal speculum
Pracy et al. 1992 [15]	1	30	M	Y	Y	Y	Y	L	Nasal floor	General	Nasal speculum
Nastri and Smith, 1996 [16]	1	18	F	Y	Y	Y	N	L	Nasal floor	General	Nasal speculum
Chen et al. 2002 [17]	1	8	M	Y	Y	N	Y	L	Nasal floor	Local	Endoscope
Kim et al. 2003 [18]	1	12	M	N	Y	N	Y	R	Nasal Floor, halfway between the anterior and the posterior portion	General	Endoscope
Kuroda et al. 2003 [19]	1	27	M	Y	Y	N	Y	L	Nasal floor, 20 mm behind the anterior nares	General	Nasal speculum
Lin et al. 2004 [20]	1 of 3	16	F	Y	Y	N	Y	L	Nasal floor	Local	Endoscope
Smith et al. 1979 [13]	2 of 3	21	M	Y	Y	N	Y	L	Nasal floor, immediately near the inferior turbinate	Local	Endoscope
Smith et al. 1979 [13]	3 of 3	6	F	Y	N	Y	Y	R	Nasal floor	Local	Endoscope
Sokolov et al. 2004 [21]	1 of 2	22	F	Y	Y	Y	Y	R + L	Nasal floor	Local	NR
Smith et al. 1979 [13]	2 of 2	36	F	Y	Y	Y	N	R	Nasal floor, posterior part of the nasal septum	General	Microscope
Lee, 2006 [22]	1	61	M	Y	Y	N	Y	Medial	Nasal floor	General	Endoscope
Kirmeier et al. 2009 [3]	1	49	F	Y	Y	N	Y	L	Nasal floor	Local	Microscope
Clementini et al. 2012 [29]	1	9	NA	N	Y	Y	Y	R	Nasal floor, under the septum	NR	Endoscope
Janardhan et al. 2012 [23]	1	30	M	Y	Y	Y	Y	L	Nasal floor	General	Endoscope
Iwai et al. 2012 [24]	1	27	M	Y	Y	Y	Y	R + L	Nasal floor	General	Endoscope
Krishnan et al. 2013 [2]	1	13	F	Y	Y	N	Y		Nasal floor, 20 mm posterior to the anterior end of the inferior turbinate	General	Endoscope
Mohebbi et al. 2013 [25]	1	19	M	Y	Y	N	Y	Medial	Nasal floor	NR	NR

Table 1 (continued)

Authors	Number of cases	Age	Gender	Symptoms	Anterior rhinoscopy	X-ray	CT	Side	Localization	Anesthesia	Approach
Van Essen and Van Rijswijk, 2013 [31]	1	26	M	Y	Y	N	Y	L	Nasal floor	General	Nasal speculum
Dhaferi et al. 2014 [27]	1	22	M	Y	Y	N	Y	L	Nasal floor	NR	Endoscope
Sakat et al. 2015 [28]	1	22	F	N	Y	N	Y	L	Nasal floor, 20 mm posterior to the anterior end of the inferior turbinate	General	Forceps with endoscope guidance
Sukegawa et al. 2015 [30]	1	15	M	N	Y	Y	Y	R	Nasal floor	Local	V-shaped maxillary approachh
Ogane et al. 2017 [31]	1	2	M	N	Y	Y	Y	R	Nasal floor	General	Nasal speculum
Hauer et al. 2018 [32]	1 of 9	9	M	NR	NR	NR	NR	R	NR	NR	Modified maxillary approach
	2 of 9	11	M	NR	NR	NR	NR	Medial	Inside the nasal septum	NR	Modified maxillary approach
	3 of 9	13	M	NR	NR	NR	NR	L	NR	NR	Modified maxillary approach
	4 of 9	10	M	NR	NR	NR	NR	L	NR	NR	Modified maxillary approach
	5 of 9	16	F	NR	NR	NR	NR	Medial	Inside the nasal septum	NR	Modified maxillary approach
	6 of 9	10	M	NR	NR	NR	NR	L	NR	NR	Modified maxillary approach
	7 of 9	7	M	NR	NR	NR	NR	L	NR	NR	Modified maxillary approach
	8 of 9	17	F	NR	NR	NR	NR	Medial	Inside the nasal septum	NR	Modified maxillary approach
	9 of 9	12	M	NR	NR	NR	NR	R	NR	NR	Modified maxillary approach
Costa et al. 2018 (present study)	1	13	F	Y	Y	Y	Y	Medial	Nasal floor, basal septum	Local	Modified maxillary approach
Total	44	2 to 61 mean 20.8	63% male 34% female 2% NA	61% yes 20% NR 18% no	75% yes 20% NR 4% no	48% yes 31% no 20% NR	47% yes 32% no 20% NR	51% left 29% right 13% medial 6% right + left	80% nasal floor 13% NR 6% nasal septum	41% general 27% local 27% NR 4% patient denied surgery	40% nasal speculum 27% endoscope 22% Modified maxillary approach 4% Patient denied surgery 4% Microscope 2% V-shaped maxillary approach

documentation. Also, the patient reported occasional anterior epistaxis. A computed tomography (CT) was carried out demonstrating the presence of a supernumerary tooth in the floor of the nasal cavity, behind the anterior nasal spine, close to the nasal septum (Fig. 1a). An anterior rhinoscopy was carried out; however, the tooth or elevation of the nasal mucosa was not observed. A modified maxillary vestibular approach was performed to expose the nasal cavity. The anterior nasal spine was removed and a subperiosteal dissection of the nasal mucosa was used to expose the dental crown in the floor of the nasal cavity (Fig. 1d). An osteotomy was performed and the tooth was removed under direct vision. The modified maxillary vestibular approach was closed in a common fashion with 4.0 absorbable sutures. The patient received routine postoperative care guidelines with the use of pain and anti-inflammatory medications and decongestants if necessary. The postoperative period was uneventful with no complications such as nose bleeding, synechia of the nasal mucosa, or damage to the adjacent teeth.

Discussion

Together with this present study, a total of 44 cases of SNT were found in the literature. The majority of the cases was observed in male patients (63%), with and an average age of 20.8 years (range 2 to 61 years). Patients reported symptoms in 61% of the cases [5–11, 13–17, 19–22, 25–27]. The anterior rhinoscopy is a widely used clinical examination being recommended in 75% of the cases in the literature [3, 5–22, 25–33]. The periapical and panoramic radiographs were the exams of choice before the advent and popularization of the CT being applied in 48% of the cases. CT was used in 47% of cases described in the literature. By contrast, this present study

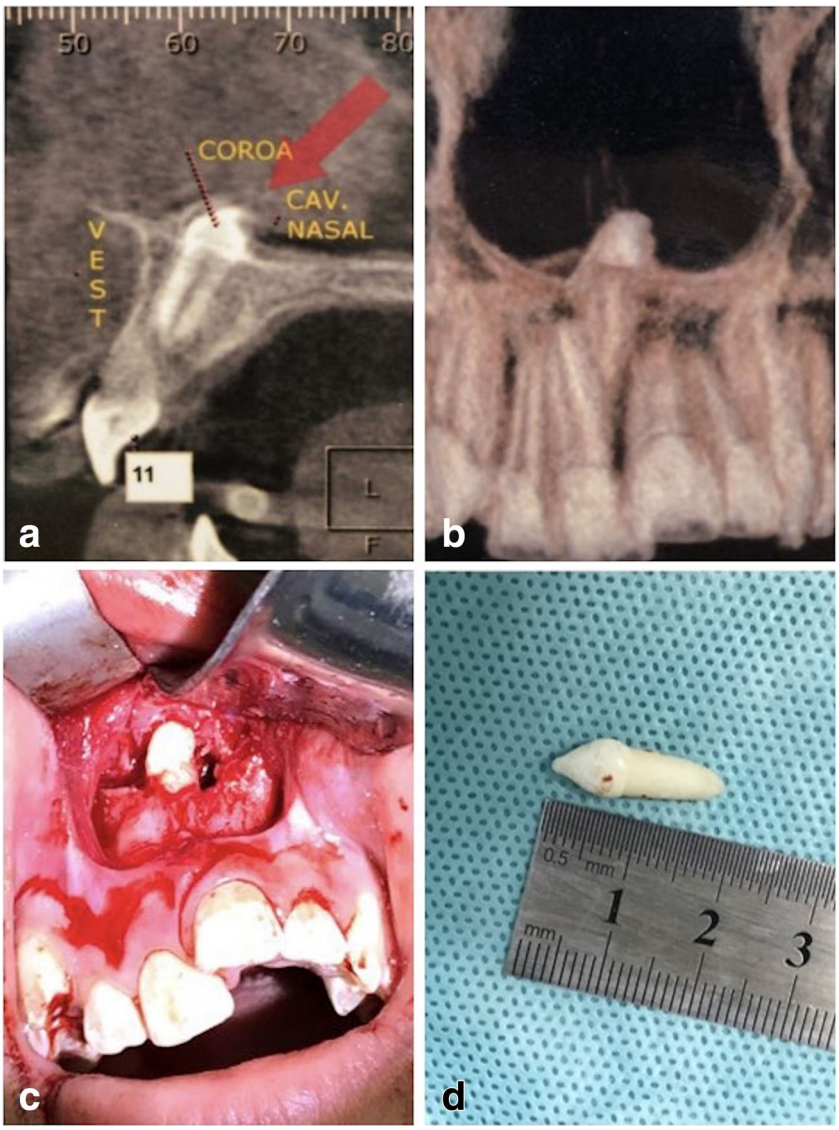

Fig. 1 Clinical features of the supernumerary nasal tooth. **a** Cone beam computed tomography, sagittal view showing the supernumerary tooth and the relation with the nasal cavity floor, palatine bone, and vestibular portion of the anterior maxilla. **b** Cone-beam computed tomography, volumetric reconstruction, anterior view showing the relation of the supernumerary tooth and the nasal cavity in the medial aspect. **c** The exposure provided by the modified maxillary approach, after the osteotomy of the anterior nasal spine. **d** Conic aspect of the supernumerary tooth after removal

described a teenager female patient with no symptoms unless eventually nasal epistaxis. Anterior rhinoscopy, periapical radiograph, panoramic radiograph, and cone-beam CT were applied in this present case for diagnose and surgical planning.

The nasal floor is the main localization of the supernumerary tooth in the nasal cavity with 80% of the cases described in the literature [2, 3, 5–31, 33] and the most common side of the supernumerary teeth is the left one with 51% of the cases described [2, 3, 6, 7, 9, 13–17, 19, 20, 26–28, 32] versus 29% in the right side [8, 9, 11, 13, 18, 20, 21, 29–31], 13% in the medial portion of the nasal cavity [22, 26, 33], and bilateral in 6% of the cases [5, 21, 24]. General anesthesia was preferred for treatment in 41% of the cases described in literature [7, 9–11, 13, 15, 16, 18, 19, 21, 22, 24, 26, 29, 31], against 27% of cases treated with local anesthesia [3, 5, 6, 8, 14, 17, 21, 30]. In this present study, the SNT was removed under local anesthesia with no complications.

Historically, the supernumerary teeth located in the nasal floor were removed via nasal speculum [5–16] until the advent of the endoscopic approaches [17]. In the literature, 40% of the patients had the supernumerary teeth removed via nasal speculum versus 27% via endoscopy. Others approach variations were suggested, mainly via transoral, as the V-shaped maxillary approach [31] and the modified maxillary approach, suggested by Hauer et al. [32], in 2018.

The diagnosis of nasal teeth is mainly based on clinical and radiographic examination. The supernumerary teeth should be removed and clinicians should maintain a clinical suspicious that the ectopic teeth might be associated with a tumor [4]. The surgical approach most described in the literature is whether using nasal speculum or via endoscopic approaches [3]. When using the nasal speculum approach or via transnasal endoscopic surgery, the nasal mucosa may be affected, coming to injure the noble structures as the nasal septum and causing extensive nasal bleeding or septum injury that may require the use of nasal splint.

In this present study, a modified maxillary approach was performed with subperiosteal intranasal dissection as described by Sammartino et al. [33] and later by Hauer et al. [32]. The advantage of this approach is the lower postoperative morbidity and lower risk of complications, because the smaller surgical wound, the minimal exposure of maxilla, minimal bone loss, reduced risk of damage to the roots of upper incisors, lower risk of damage to the nasopalatine neuromuscular bundle, and greater clarity of the surgical field [32, 33].

The modified maxillary approach with subperiosteal intranasal dissection is a useful approach for the exposure and removal of teeth impacted in the nasal floor, especially if it is not exposed into the nasal cavity. The advantage of its use versus the other techniques is the lower risk of complications and postoperative morbidity. The use of computed tomography is essential to determinate the position of the tooth and to help in the surgical planning. The transoral approaches are more natural to the oral and maxillofacial surgeons than the transnasal or endoscopic ones.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethics The patient read and signs an informed consent form.

Statement of authors All authors have viewed and agreed with this present submission.

References

1. Rajab LD, Hamdan MA (2002) Supernumerary teeth: review of the literature and a survey of 152 cases. Int J Paediatr Dent 12:244–254
2. Krishnan B, Parida PK, Gopalakrishnan S, Satyparakash MVS (2013) An unusual cause of epistaxis in a young patient: the supernumerary nasal tooth. Oral Maxillofac Surg 17:315–317
3. Kirmeier R, Truschnegg A, Payer M, Malyk J, Daghighi S, Jackse N (2009) The supernumerary nasal tooth. Int J Oral Maxillofac Surg 38:1201–1225
4. Zhang Y, Xu Y, Xu Y, Tao Z (2015) Extramedullary plasmocytoma associated with and ectopic tooth in the nasal cavity. Ear Nose Throat J 10–11:E 43-E46
5. Quinn JH, Lewis M (1959) Bilateral inverter supernumerary central incisors penetrating nasal cavity: report of case. J Oral Surg Anesth Hosp Dent Serv 17:61–62
6. Bahn SL (1966) Supernumerary tote in the right nostril associated with a median palatine cyst. Report of a case. Oral Surg Oral Med Oral Pathol 21:409–413
7. Hiranandani LH, Melgiri RD (1968) Supernumerary tooth in the floor of the nose. J Laryngol Otol 82:845–848
8. Chopra SS, Joshi MR (1969) Mesiodens erupted in the nasal cavity. Report of a case. Oral Surg Oral Med Oral Pathol 28:856–858
9. Kohli GS, Verma PL (1970) Ectopic supernumerary tooth in the nasal cavity. J Laryngol Otol 84:537–538
10. Arora MM, Grewal BS, Coonar HS (1973) Dentigerous cyst from supernumerary tooth in the nasal cavity. J Indian Dent Assoc 45: 85–86
11. Sood VP, Kakar PK (1974) Intra-nasal tooth. Eye Ear Nose Throat Mon 54:343–345
12. Thawley SE, La Ferriere KA (1977) Supernumerary nasal tooth. Laryngoscope 87:1770–1773
13. Smith RA, Gordon NC, De Luchi SF (1979) Intranasal teeth. Report of two cases and review of the literature. Oral Surg Oral Med Oral Pathol 47:120–122
14. Murty PS, Hazarika P, Hebbar GK (1988) Supernumerary nasal teeth. Ear Nose Throat J 67:128–129
15. Pracy JP, Williams HO, Montgomery PQ (1992) Nasal teeth. J Laryngol Otol 106:366–367
16. Nastri AL, Smith AC (1996) The nasal tooth. Case report. Aust Dent J 41:176–177
17. Chen A, Huang JK, Cheng SJ, Sheu CY (2002) Nasal teeth: report of three cases. Am J Neuroradiol 23:671–673
18. Kim DH, Kim JM, Chae SW, Hwang SJ, Lee SH, Lee HM (2003) Endoscopic removal of an intranasal ectopic tooth. Int J Pediatr Otorhinolaryngol 67:79–81

19. Kuroda H, Tsutsumi K, Tomisawa H, Koizuka I (2003) A case of an inverted tooth in the nasal cavity. Auris Nasus Larynx 30:S127–S129
20. Lin IH, Hwang CF, Su CY, Kao YF, Peng JP (2004) Intranasal tooth: report of three cases. Chang Gung Med J 27:385–389
21. Sokolov M, Jecker P, Roth Y (2004) Nasal teeth associated with rhinosinusitis. Rhinology 42:167–170
22. Lee JH (2006) A nasal tooth associated with septal perforation: a rare occurrence. Eur Arch Otorhinolaryngol 263:1055–1056
23. Janardhan N, Kumar SR, Raghavendra Reddy R, Aruna Kumar C (2013) Rhinolithiasis due to supernumerary ectopic tooth: very rare case. Indian J Otolaryngol Head Neck Surg 65:383–384
24. Iwai T, Aoki N, Yamashita Y, Omura S, Matsui Y, Maegawa J, Tohnai I (2012) Endoscopic removal of bilateral supernumerary intranasal teeth. J Oral Maxillofac Surg 70:1030–1034
25. Mohebbi S, Salehi O, Ebrahimpoor S (2013) Ectopic supernumerary tooth in nasal septum: a case study. Iran J Otorhinolaryngol 25:72
26. Van Essen TA, Van Rijswijk JB (2013) 'Intranasal toothache': case report. J Laryngol Otol 127:321–322
27. Al Dhaferi HO, Kavarodi A, Al Shaikh K, Bukhari A, Al Hussain O, El Baramawy A (2014) Recurrent epistaxis caused by an intranasal supernumerary tooth in a young adult. Am J Case Rep 15:291–293
28. Sakat MSS, Kilic K, Gozeler MS, Ucuncu H, Kuduban O (2015) An incidentally discovered nasal supernumerary tooth. J Craniofac Surg 26:2024–2025
29. Clementini M, Morlupi A, Agrestini C, Di Girolamo S, Ottria L (2012) Endoscopic removal of supernumerary tooth from the nasal cavity of a child: a case report. Oral Implantol (Rome) 1:21–25
30. Sukegawa S, Kanno T, Kawakami K, Shibata A, Takahashi Y, Furuki Y (2015) Use of a piezosurgery technique to remove a deeply impacted supernumerary tooth in the anterior maxilla. Case Rep Dent 2015:974169
31. Ogane S, Watanabe A, Takano N, Shibahara T (2017) Case of inverted supernumerary tooth in nasal cavity. Bull Tokyo Dent Coll 58:255–258
32. Hauer L, Hrusak D, Jambura J, Gencur J, Hosticka L, Andrle P, Posta P (2018) Modified maxillary vestibular approach with subperiostal intranasal dissection for surgical extractions of mesiodentes impacted in the floor of the nasal cavity. J Cranio-Maxillofac Surg 47:1–5. https://doi.org/10.1016/j.jcms.2018.05.032
33. Sammartino G, Trosino O, Perillo L, Cioffi A, Marenzi G, Mortellaro C (2011) Alternative transoral approach for intranasal tooth extraction. J Craniofac Surg 22:1944–1946

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.