

## A New Approach Using the “Transseptal Access with Crossing Multiple Incisions” Method for Tumours Occupying the Nasal Cavity: A Case of Intraosseous Haemangioma

Takeda T, Omura K\*, Kajiwara R, Tanaka Y and Wada K

Department of Otorhinolaryngology, Tokyo Jikeikai Ika Daigaku Fuzoku Byoin Honin, Nishishinbashi, Minatoku, Tokyo, Japan

### Abstract

External incision for *en bloc* resection of tumours formed at the anterior portion of the nasal cavity and occupying the cavity is an extremely invasive procedure that can result in nerve damage and facial deformation. With advancements in devices such as endoscopes and debriders, piecemeal excision methods are now feasible. However, in piecemeal excision, tumour bleeding may cause deterioration of the visual field and make identification of the tumour pedicle difficult, which could result in recurrence. In 2017, a novel endoscopic approach, termed “transseptal access with crossing multiple incisions” (TACMI), was reported; this technique makes a direct approach to the tumour origin possible by tumour transposition across the midline. This method provides a good field of view and working space and allows surgeons to approach the tumour pedicle directly by moving the tumour beyond the midline. Here, we report a case of intraosseous haemangioma, which occupied the nasal cavity, and which was removed *en bloc* using an endoscopic approach, with good visibility, by implementing the TACMI method.

**Keywords:** *En bloc* resection; Intraosseous haemangioma; Nasoseptal reconstruction; Quality of life; Septal perforation; Transseptal approach

### Introduction

External incision for *en bloc* resection of tumours formed at the anterior portion of the nasal cavity and occupying the cavity is an extremely invasive procedure [1,2] that can result in nerve damage and facial deformation [3]. With advancements in devices such as endoscopes and debriders, piecemeal excision methods are now feasible [4]. However, in piecemeal excision, tumour bleeding may cause deterioration of the visual field and make identification of the tumour pedicle difficult, which could result in recurrence [5]. In 2017, a novel endoscopic approach, termed “transseptal access with crossing multiple incisions” (TACMI), was reported; this technique makes a direct approach to the tumour origin possible by tumour transposition across the midline [6]. This method provides a good field of view and working space and allows surgeons to approach the tumour pedicle directly by moving the tumour beyond the midline [6]. Here, we report a case of intraosseous haemangioma, which occupied the nasal cavity, and which was removed *en bloc* using an endoscopic approach, with good visibility, by implementing the TACMI method.

### Case Report

The patient was a 46-year-old man who had been experiencing right nasal obstruction for 2 years prior to consultation at our hospital. An anterior rhinoscopic examination revealed a tumour, arising from the inferior turbinate, which occupied the right nasal cavity; thus, the posterior part could not be viewed. The tumour was bony and covered with intact mucosa that was not hypervascularised (Figure 1A).

Unenhanced paranasal computed tomography (CT) in the bone window revealed that the bony tumour arose from the anterior portion of the right inferior turbinate. The surrounding tissues were intact, without erosion or bone destruction (Figures 2A and 2B). Computed tomography imaging led to a clinical diagnosis of intraosseous haemangioma.

All procedures were performed using an endoscopic approach, with the patient under general anaesthesia. A vertical incision was made on the side contralateral to the tumour (left side), based on the Killian method, and a nasal deviatomy was performed and preserved with

an L-strut. Next, a vertical incision was made on the right side, 5 mm posterior to the point corresponding to the contralateral (left) incision. A horizontal incision was then made from these vertical incisions, such that the inferior end of the left incision did not align with the superior end of the right incision (Figure 1B), to allow passage between both



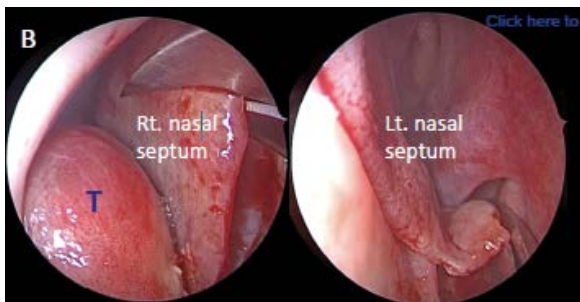
**Figure 1A:** Preoperative endoscopic observations: (A) A 33 × 31 mm intraosseous haemangioma arising from the inferior turbinate that occupies the right nasal cavity (T).

\*Corresponding author: Omura K, Department of Otorhinolaryngology, Tokyo Jikeikai Ika Daigaku Fuzoku Byoin Honin, Nishishinbashi, Minatoku, Tokyo, Japan, Tel: 105-8471; E-mail: [kazuhiro.omura@jikei.ac.jp](mailto:kazuhiro.omura@jikei.ac.jp)

Received July 28, 2018; Accepted August 14, 2018; Published August 17, 2018

**Citation:** Takeda T, Omura K, Kajiwara R, Tanaka Y, Wada K (2018) A New Approach Using the “Transseptal Access with Crossing Multiple Incisions” Method for Tumours Occupying the Nasal Cavity: A Case of Intraosseous Haemangioma. J Clin Case Rep 8: 1156. doi: [10.4172/2165-7920.10001156](https://doi.org/10.4172/2165-7920.10001156)

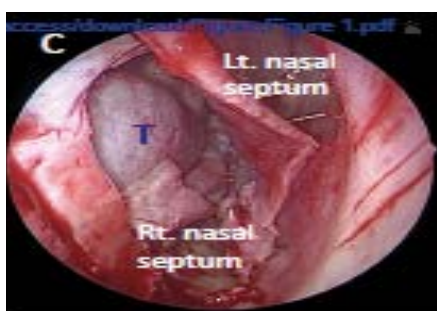
**Copyright:** © 2018 Takeda T, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



**Figure 1B:** Intraoperative view: (B) The vertical incision on the right was made 5 mm behind the left vertical incision and a further horizontal incision was made as shown. Rt, Right. Lt, Left.



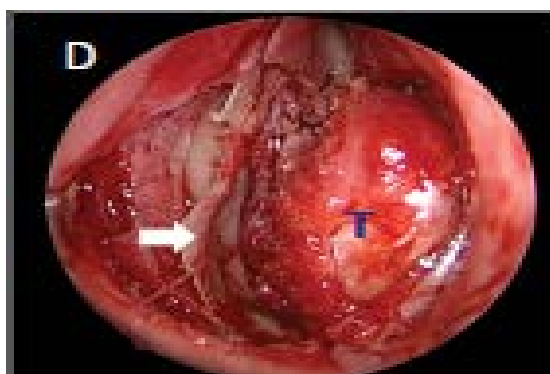
**Figure 1G:** Intraoperative view: (G) The tumour was resected en bloc.



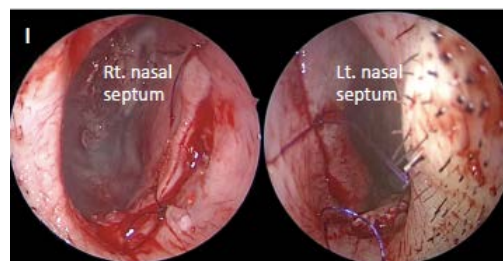
**Figure 1C:** Intraoperative view: (C) A passage was created across both nasal cavities, making it possible to observe the tumour from the left nasal cavity.



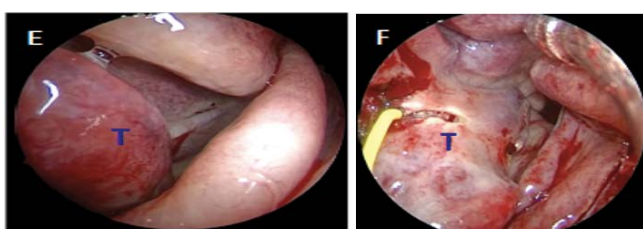
**Figure 1H:** Intraoperative view: (H) We were able to preserve the posterior portion of the right inferior turbinate. ⇒□, Piriform aperture; IT, Inferior turbinate.



**Figure 1D:** Intraoperative view: (D) When resecting the tumour, it is possible to transpose the tumour to the contralateral nasal cavity (on the left), beyond the midline. ⇒□, Piriform aperture.



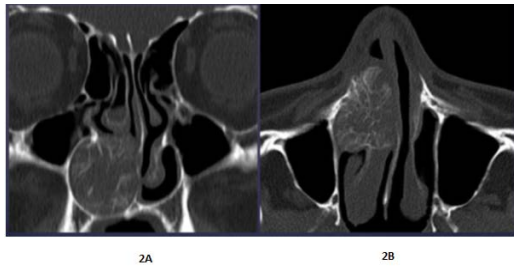
**Figure 1I:** Intraoperative view: (I) The two left and right vertical incisions were sutured using two stitches, and the upper right horizontal incision was also closed using two sutures to reconstruct the nasal septum.



**Figure 1E and 1F:** Intraoperative view: (E, F) Using a 70° endoscope, the posterior part of the tumour was viewed through the left nasal cavity, and the resection range was determined after securing an adequate resection margin.



**Figure 1J:** Postoperative endoscopic observations: (J) There has been no recurrence after a 7-month follow-up period; no nasoseptal perforation was observed.



**Figure 2: (A and B)** Preoperative computed tomography images: (A) Coronal view in the bone window. (B) Axial view in the bone window.

nasal cavities (Figure 1C). The tumour was laterally displaced to the midline, along with the bones of the inferior turbinate, by endoscopic modified medial maxillectomy (EMMM) [7]. The passage between the two nasal cavities allowed transposition of the tumour beyond the midline (Figure 1D).

Next, we attempted to re-sect the posterior part of the tumour. Using the TACMI method, we confirmed the posterior margin of the tumour from the left nasal cavity using a transseptal approach. Using a 70° endoscope, we achieved even better visualization of the posterior portion (Figure 1E). The working space was further expanded by the passage created between the nasal cavities and an adequate resection margin was secured even in the posterior region, where it is typically difficult to secure a field of view (Figure 1F). The tumour, anterior portion of the inferior turbinate, and mucous membrane were removed *en bloc* (Figure 1G), with partial preservation of the posterior portion of the inferior turbinate (Figure 1H). The nasoseptal mucosa was reconstructed using two sutures for each of the vertical incisions and the horizontal incision (Figure 1I). The intraoperative blood loss was less than 10 mL.

The excised tumour was 33 × 31 × 16 mm, generally bony, and covered with normal mucosa. Histological findings suggested that the tumour was an intraosseous haemangioma as it was composed of bony trabeculae and anastomosing vascular channels, in a cavernous pattern. The patient's post-operative progress was good, and the patient was discharged on the third day after surgery. There was no recurrence without nasoseptal perforation over the 7-month follow-up period (Figure 1J).

## Discussion

Curative treatment of intranasal haemangiomas involves total surgical removal, with enough resection margin [8]. However, enough resection margins cannot be secured in some cases in which the intraosseous haemangioma arises from the anterior portion of the nasal cavity, since the surrounding structures in the nasal cavity (the piriform aperture and the inferior turbinate in the exterior portion, and the nasal septum in the interior portion) may limit the operative field and working space.

Four cases of intraosseous haemangiomas arising from the inferior turbinate have been reported to date, two of which required highly invasive approaches, such as the Caldwell-Luc method and the midfacial degloving method, to secure enough field of view and working

space [1,2]. In the remaining two cases, an endoscopic approach was selected, and piecemeal resection was performed. In one of these two cases, complete removal required time and it was difficult to control tumour bleeding, which led to significant haemorrhage during surgery [9]. Moreover, piecemeal resection of haemangiomas in the nasal cavity using an endoscopic approach has been associated with recurrence [5]; thus, *en bloc* resection with an adequate resection margin is desirable. For a tumour with poor mobility, such as in our case, the tumour could be removed *en bloc* without cutting into it because the TACMI method facilitated access to the tumour from the contralateral nasal cavity via a transseptal approach.

Several techniques have been reported to allow a transseptal approach to nasal cavity tumours [8]. However, those approaches often lead to post-operative nasoseptal perforation, making it difficult to preserve the morphology of the nasal cavity. The TACMI method prevents post-operative nasoseptal perforation and preserves nasal cavity morphology by suturing the nasoseptal mucosa [6]. Nevertheless, despite being less invasive than external incision, there may still be a risk of septal perforation; hence, clinicians need to acquire the required technical skills to implement the TACMI method.

## Conclusion

The use of the TACMI method for nasal cavity-filling tumours with poor mobility facilitates preservation of tissue integrity, minimises blood loss, and enables identification and treatment of the tumour pedicle, with a clear field of view, thereby facilitating more accurate resection which finally means minimizing the area of the unnecessary resection. With nasoseptal reconstruction that allows preservation of the morphology of the nasal cavity, this method may also help to maintain the patient's quality of life post-operatively.

## References

1. Fahmy FF, Back G, Smith CE, Hosni A (2001) Osseous haemangioma of inferior turbinate. J Laryngol Otol 115: 417-418.
2. Takeda K, Takenaka Y, Hashimoto M (2010) Intraosseous hemangioma of the inferior turbinate. Case Rep Med 409429.
3. Bayramlar H, Miman MC, Demirel S (2004) Inferior oblique paresis, mydriasis, and accommodative palsy as temporary complications of sinus surgery. J Neuroophthalmol 24: 225-7.
4. Tang D, Lobo BC, D'Anza B, Woodard TD, Sindwani R (2017) Advances in microdebrider technology: improving functionally and expanding utility. Otolaryngol Clin North Am 50: 589-598.
5. Takaishi S, Asaka D, Nakayama T, Iimura J, Matsuwaki Y, et al. (2017) Features of sinonasal hemangioma: a retrospective study of 31 cases. Auris Nasus Larynx 44: 719-723.
6. Omura K, Asaka D, Nayak J, Tanaka Y (2017) Transseptal access with crossing multiple incisions for improved pedicle control and septum preservation: "How I do it". Am J Rhinol Allergy 31: 139-141.
7. Nakayama T, Asaka D, Okushi T, Yoshikawa M, Moriyama H, et al. (2012) Endoscopic medial maxillectomy with preservation of inferior turbinate and nasolacrimal duct. Am J Rhinol Allergy 26: 405-408.
8. Iwata N, Hattori K, Nakagawa T, Tsujimura T (2002) Hemangioma of the nasal cavity: a clinicopathologic study. Auris Nasus Larynx 29: 335-339.
9. Akiner MN, Akturk MT, Demirtas M, Atmis EO (2011) Intraosseous cavernous hemangioma of inferior turbinate: a rare case report. Case Rep Otolaryngol 43: 13-65.