available at http://ajws.elsevier.com/tcmj

Tzu Chi Medical Journal

Case Report

Sphenochoanal Polyp

Chia-Hsun Tsai[1], Ming-Che Hsu[1,2], Chia-Ming Liu[2]*

[1]Department of Otolaryngology, Lotung Poh-Ai Hospital, Ilan, Taiwan
[2]Department of Otolaryngology, National Taiwan University Hospital, Taipei, Taiwan

Article info

Article history:
Received: November 6, 2007
Revised: December 3, 2007
Accepted: December 26, 2007

Keywords:
Choanal polyp
Endoscopic sinus surgery
Sphenoid sinus

Abstract

A sphenochoanal polyp is a soft tissue mass originating from the sphenoid sinus and extending to the posterior choanae via the sphenoethmoidal recess. Compared with common nasal polyposis and antrochoanal polyps, reports of sphenochoanal polyps in the English literature are relatively rare. In this report, a 12-year-old boy who presented with persistent left nasal obstruction and rhinorrhea was diagnosed with left sphenochoanal polyp using computed tomography. The patient underwent powered instrument-assisted endoscopic sinus surgery and was symptom-free at the 1-year follow-up. We present this uncommon case to highlight that sphenochoanal polyps may occasionally be encountered and need careful evaluation before operation. (*Tzu Chi Med J* 2008;20(3):223–226)

*Corresponding author. Department of Otolaryngology, Lotung Poh-Ai Hospital, 83, Nan-Chang Street, Ilan, Taiwan.
E-mail address: drmc.hsu@msa.hinet.net

1. Introduction

Choanal polyps are benign soft tissue masses arising from isolated paranasal sinuses, emerging through the ostia and extending to the posterior choanae. They can be classified as antrochoanal, sphenochoanal or ethmochoanal polyps, depending on the site of origin (1,2). Clinically, the glistening and pale masses are identical to typical nasal polyps; careful inspection using endoscopy can disclose a stalk leading to the sinus of origin. Herniation of choanal polyps into the nasopharynx may take years to occur and due to the nonspecific presentations, clinicians often confuse this uncommon clinical entity with other sinonasal diseases. Here, we report a new case of a left sphenochoanal polyp that was managed successfully by powered instrument-assisted endoscopic sinus surgery. The clinical features and pathophysiology of sphenochoanal polyps are also reviewed.

2. Case report

A 12-year-old boy was referred to this institution due to progressive left-side nasal obstruction, accompanied by watery, sometimes purulent, rhinorrhea of 6 months' duration. He denied any history of allergic rhinitis and other symptoms such as retro-orbital headache and snoring during this period. On examination, anterior rhinoscopy revealed a polypoid mass filling his left nasal cavity. Coronal computed tomography (CT) of the paranasal sinuses demonstrated a low density mass in the left common meatus extending to the nasopharynx. Opacification of the left sphenoid sinus without bony destruction was also noted (Fig. 1A). The other paranasal sinuses were clear (Fig. 1B).

The patient underwent endoscopic resection under general anesthesia. During the operation, nasal endoscopy revealed a whitish smooth polyp occupying the left common meatus and a connected pedicle

© 2008 Buddhist Compassion Relief Tzu Chi Foundation

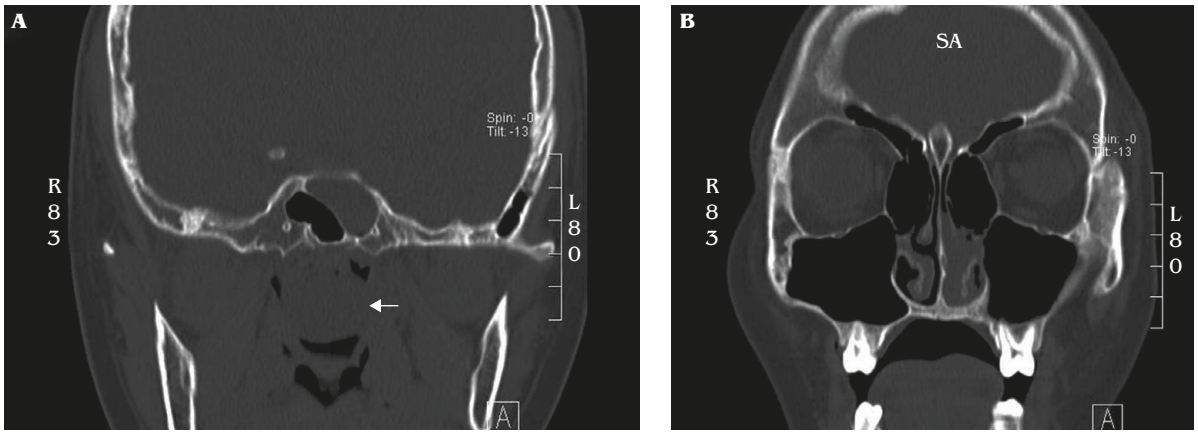

Fig. 1 — Coronal computed tomography: (A) view of the paranasal sinuses demonstrates the soft tissue mass filling the left sphenoid sinus and the nasopharynx; (B) normal appearance of bilateral maxillary and ethmoid sinuses.

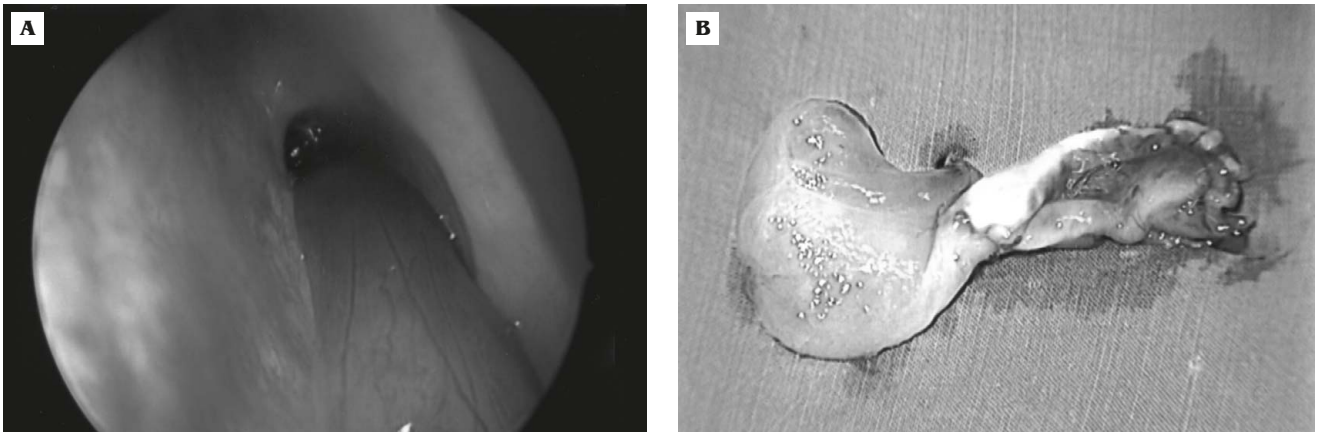

Fig. 2 — (A) Endoscopy shows the stalk of the polyp passing through the left sphenoid sinus ostium. (B) The main polyp excised.

protruding through the left sphenoid sinus in the sphenoethmoidal recess (Fig. 2A). The middle meatus showed normal mucosal appearance. Resection of the sphenochoanal polyp began with amputation of the choanal portion of the polyp near the left sphenoid ostium. The main polyp, measuring 7.0×3.5×2.0 cm, was removed from the oropharynx using grasping cup forceps (Fig. 2B). The ostium was then widened in a medial and inferior direction for better visualization and instrumentation. The cystic portion attached to the lateral wall of the left sphenoid sinus was completely removed using a microdebrider. The patient was well after the operation and was symptom-free at the 1-year follow-up.

Histopathologic examination showed a polyp covered by columnar epithelium with areas of squamous metaplasia. Abundant inflammatory cells and scanty mucous glands within the stroma were also noted (Fig. 3).

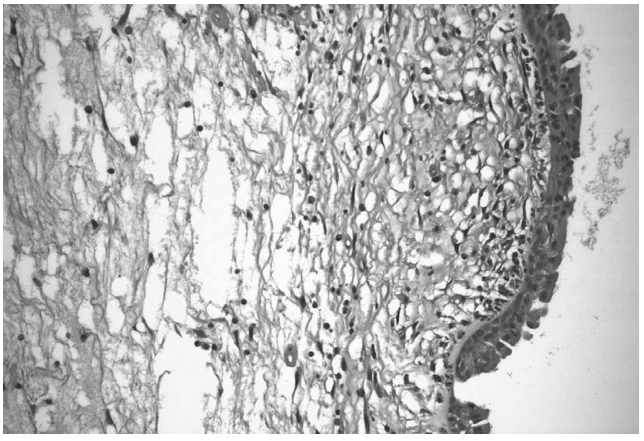

Fig. 3 — Microscopic examination shows that the sphenochoanal polyp has pseudostratified columnar epithelium and stromal inflammatory cell infiltration. The submucosal gland is absent (hematoxylin & eosin, 200×).

3. Discussion

The first description of sphenochoanal polyps was attributed to Zuckerkandl in 1892 [2,3]. Compared with common nasal polyposis and antrochoanal polyps, sphenochoanal polyps are relatively rare, with only 34 cases reported in the English literature to date. Among these sporadic reports, half of the patients were teenagers and young adults without any predilection for sex [1,3,4]. Unilateral nasal obstruction is the most common presenting symptom. Other manifestations including purulent nasal discharge, epistaxis, retro-orbital headache, Eustachian tube dysfunction, snoring and obstructive sleep apnea have been reported [1–3,5–8].

A choanal polyp usually has a cystic portion inside the sinus of origin and a solid portion in the nasal cavity. Histopathologically, the mucosal surface is covered by the respiratory epithelium. The polyp usually contains few mucous glands and has a myxoid stroma, with variable densities of inflammatory cells concentrated near the surface. Occasionally, choanal polyps may undergo angiomatous degeneration as a result of vascular compromise due to passage through a constrictive ostia and its dependent position in the nasal cavity [4–6]. Occlusion or compression of feeding vessels induces sequential processes involving dilatation and stasis of blood flow, edema, infarction, neovascularization, repeat occlusion and re-infarction. Because of the hypervascular state of these lesions, they should be differentiated from other vascular lesions such as angiofibroma.

The pathophysiology of choanal polyps remains unclear. It has been suggested that an antrochoanal polyp develops as a subsequent cyst formation caused by the rupture of an enlarged submucosal gland during the period of recovery from a chronic infection. Berg et al considered that antrochoanal polyps may arise from an expanding intramural cyst of the maxillary sinus, secondary to thrombosis of lymphatic vessels following sinus inflammation [1,3,6,7,9–11]. According to the histological characteristics, increased edematous changes and paucity of submucosal glands in the antrochoanal polyp support the intramural cyst theory of Berg et al rather than the simple secretory cyst theory [9]. Since sphenochoanal polyps and antrochoanal polyps are similar in histopathologic appearance, it seems that sphenochoanal polyps share the same pathogenesis [3,7]. In addition, there has been controversy about the link between allergic rhinitis and the formation of choanal polyps. However, the majority of investigators assume that the allergic process does not significantly contribute to the pathogenesis [1,6,10,11].

It is difficult to accurately identify the sinus of origin of a choanal polyp using plain radiography and anterior rhinoscopy [3,10,11]. In general, the diagnosis of choanal polyps is established by nasal endoscopic examination and CT [1–3,5,6,8,10]. CT is the ideal method for demonstration of the affected sinus communicating with the intranasal polyp. By the location of the polyp in the nasal cavity, we can easily distinguish between antrochoanal polyps and sphenochoanal polyps [2,6]. The former fills up the middle meatus and leaves the space between the middle turbinate and nasal septum clear. The latter usually occupies the sphenoethmoidal recess and passes between the middle turbinate and the nasal septum. Moreover, CT and magnetic resonance imaging are important in the evaluation of other sphenoid sinus pathologies that mimic sphenochoanal polyps. The differential diagnoses should include mucocele, inverted papilloma, juvenile angiofibroma, and meningoencephalocele [3–6,8]. Missed diagnosis may result in inadequate treatment and surgical complications.

Though there have been reports of regression of choanal polyps using medical treatment [7,11], it is generally agreed that surgical intervention is the current standard for management [1,6,10,11]. Most authors recommend total removal under endoscopic guidance, as simple polypectomy alone carries a higher risk of recurrence [1,3,5,6,10]. Ethmoidectomy for approaching the sphenoid sinus is deemed unnecessary unless coexistent diseased sinuses need to be managed. Preceding correction for deviated nasal septum and partial resection of the anteroinferior part of the superior turbinate affords sufficient exposure of the sphenoid sinus. After widening the sphenoid sinus ostium, any cystic component of the polyp attached to the sinus wall must be totally removed to prevent recurrence. A microdebrider can achieve this objective and preserve adjacent normal mucosa. As for the location of the polyp origin in the sinus, most cases have been found to originate from the floor [12] or the lateroinferior aspect [13], with only one case originating from the roof [8]. In our case, the origin of the pedicle was found to be from the lateral wall. Great attention should be exercised to avoid violating the vital structures such as the optic nerve, internal carotid artery and pituitary gland.

In summary, sphenochoanal polyps are rare. When present, the clinical manifestations are often subtle and nonspecific. Precise preoperative CT evaluation and using a powered instrument-assisted endoscopic approach can eliminate the risks of the wrong sinus being opened and minimize complications and recurrence.

References

1. Lessa MM, Voegels RL, Padua F, Wiikmann C, Romano FR, Butugan O. Sphenochoanal polyp: diagnosis and treatment. *Rhinology* 2002;40:215–6.

2. Weissman JL, Tabor EK, Curtin HD. Sphenochoanal polyps: evaluation with CT and MR imaging. *Radiology* 1991; 178:145–8.
3. Tosun F, Yetiser S, Akcam T, Ozkaptan Y. Sphenochoanal polyp: endoscopic surgery. *Int J Pediatr Otorhinolaryngol* 2001;58:87–90.
4. De Vuysere S, Hermans R, Marchal G. Sinochoanal polyp and its variant, the angiomatous polyp: MRI findings. *Eur Radiol* 2001;11:55–8.
5. Dadas B, Yilmaz O, Vural C, Calis AB, Turgut S. Choanal polyp of sphenoid origin. *Eur Arch Otorhinolaryngol* 2000;257:379–81.
6. Soh KB, Tan KK. Sphenochoanal polyps in Singapore: diagnosis and current management. *Singapore Med J* 2000;41:184–7.
7. Lim WK, Sdralis T. Regression of a sphenochoanal polyp in a child. *Laryngoscope* 2004;114:903–5.
8. Yanagisawa K, Ho SY, Yanagisawa E. Endoscopic view of a sphenochoanal polyp. *Ear Nose Throat J* 2000;79: 546–8.
9. Min YG, Chung JW, Shin JS, Chi JG. Histologic structure of antrochoanal polyps. *Acta Otolaryngol* 1995;115: 543–7.
10. Maldonado M, Martinez A, Alobid I, Mullol J. The antrochoanal polyp. *Rhinology* 2004;42:178–82.
11. Aktas D, Yetiser S, Gerek M, Kurnaz A, Can C, Kahramanyol M. Antrochoanal polyps: analysis of 16 cases. *Rhinology* 1998;36:81–5.
12. Ileri F, Köybaşioğlu A, Uslu S. Clinical presentation of a sphenochoanal polyp. *Eur Arch Otorhinolaryngol* 1998; 255:138–9.
13. Crampette L, Mondain M, Rombaux P. Sphenochoanal polyp in children. Diagnosis and treatment. *Rhinology* 1995;33:43–5.