

CASE REPORT

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# Sphenchoanal polyp in a child presented with recurrent middle ear effusion: a case report

Talal Aljeraisi<sup>1\*</sup>

## Abstract

**Background** Sphenchoanal is a rare benign sinu-nasal lesion. It arises from the sphenoid sinus and passes to the choana then to the nasopharynx. It usually presents with nasal obstruction, discharge, snoring, and headache. It has been reported—only once in the English literature—to cause Eustachian tube dysfunction and middle ear effusion (MEE) in an adult male. In this report, we described an 8-year-old child with a sphenchoanal polyp presented with MEE.

**Case presentation** An 8-year-old boy was referred to us by his family physician with recurrent earache. Otoloscopic examination showed MEE on the left side. Anterior rhinoscopy showed a thick grayish discharge in the left nasal cavity. Nasal endoscopic examination showed a polyp in the posterior part of the left nasal cavity obstructing the choana. Computed tomography revealed soft tissue density on the left sphenoid sinus extended to the choana and nasopharynx. Diagnosis of sphenchoanal polyp was established. Endoscopic sinus surgery with removal of the lesion and ventilation tube insertion in the left ear was performed. Histopathologic examination confirmed that the polyp was inflammatory. Follow-up for 1 year showed no recurrence.

**Conclusions** Sphenchoanal which is a rare lesion in children could be a cause of Eustachian tube dysfunction and MEE. Nasal endoscopy and computed tomography are important for diagnosis. We recommend to list sphenchoanal polyp as a cause of Eustachian tube dysfunction and recurrent MEE in children.

**Keywords** Sphenchoanal polyp, Middle ear effusion, Nasal polyps, Endoscopic sinus surgery, Case report

## Background

Sphenchoanal polyp is a rare form of sinu-nasal polyps. It is a benign solitary lesion that originates from the edematous mucosa of the sphenoid sinus; it passes through the sphenothmoidal recess to the nasal cavity and extends to the nasopharynx. Its incidence is unknown, and it is difficult to be diagnosed [1]. This polyp is unlike its more common and well-known counterpart—antrochoanal polyp—which originates from the maxillary sinus mucosa, exits through the maxillary ostium to the nasal cavity, and extends posteriorly to the

choana and nasopharynx. Antrochoanal polyp represents about 10% of all nasal polyps in adults and about 33% in children [2, 3].

Sphenchoanal polyp usually presents with nasal obstruction, discharge, snoring, and headache. However, it has been reported—only once in the English literature—to cause Eustachian tube dysfunction and middle ear effusion (MEE) in an adult male [4]. As endoscopic nasal examination is not a routine procedure in the pediatric population, computed tomography is the ideal method for the diagnosis of sphenchoanal polyp [5]. In this report, we described an 8-year-old child with a sphenchoanal polyp presented with MEE.

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### Case presentation

An 8-year-old boy was referred to us by his family physician with recurrent earache. Otoloscopic examination showed a retracted tympanic membrane with MEE on the left side, while the right tympanic membrane was normal. Oropharyngeal examination showed no abnormality. However, anterior rhinoscopy showed a thick grayish discharge in the left nasal cavity. The parents gave a history of nasal obstruction with discharge and intermittent snoring of their child. The audiological evaluation demonstrated mild conductive hearing loss with a type B tympanogram on the left ear denoted MEE. Nasal endoscopic examination under local anesthesia was performed, and after suction of discharge, we detected a polypoid nasal mass on the left nasal cavity which completely obstructing the choana (Fig. 1). Computed tomography (CT) was requested, and it showed opacification of the sphenoid sinus on the left side with a soft tissue mass obstructing the left choana and extended to the nasopharynx (Fig. 2). There was no bone erosion. So, a sphenochanal polyp was suspected. After a discussion with the parents with a full explanation of the case, a decision for surgical intervention was taken.

Under general anesthesia with oral endotracheal intubation, the patient was placed supine with the head up 45°. The nasal cavity was decongested with pieces of gauze soaked with saline in adrenaline (1/100,000) for few minutes. With the use of a nasal endoscope of 0° angle and 4 mm in diameter, the polyp was seen to emerge from the sphenothmoidal recess above the



**Fig. 1** Nasal endoscopic view of the sphenochanal polyp on the left side



**Fig. 2** Computed tomography (coronal cut) shows soft tissue density in the left sphenoid sinus and left choana which denotes a sphenochanal polyp

superior turbinate. The nasal polyp was removed totally with its stalk (Fig. 3). The sphenothmoidal recess which is the ostium of the sphenoid sinus was seen naturally dilated. However, we performed sphenoidotomy to facilitate endoscopic exploration of the sphenoid sinus cavity and detection of the polyp origin. The pedicle of the polyp was detected on the posterior wall of the sinus, and it was removed easily. No bony dehiscence for the optic nerve or internal carotid artery was detected. The left



**Fig. 3** The sphenochanal polyp after its removal; the upper small sphenoid part and the lower nasopharyngeal part with the stalk in-between

nasal cavity was packed with merocele (Medtronic, Minneapolis, MN, USA). The operating table was straightened by turning the head on the right side, myringotomy was done, and ventilation tube was placed on the left tympanic membrane.

Histopathologic examination of the specimen revealed that the polyp was inflammatory which contained lymphocytes, plasma cells, fibroblasts, and collagen bundles and lined by pseudostratified columnar ciliated epithelium. Oral antibiotic and paracetamol were given for 1 week, and the nasal pack was removed after 48 h. Nasal saline irrigation was used for 2 weeks, and the patient was followed up for 1 year at a monthly visit schedule. The ventilation tube was extruded after 6 months. At the end of the follow-up period, computed tomography for the paranasal sinuses and nasopharynx was done, and it revealed no abnormality (Fig. 4).

### Discussion

Sphenoidal polyp is a special rare type of sinu-nasal polyps. It originates from the sphenoid sinus as a solitary mass of edematous mucosa, then passes to the nasal cavity, posterior nasal aperture (choana), and nasopharynx. Its diagnosis is usually difficult as it may not be seen on anterior rhinoscopy. However, improvement in imaging techniques and introduction of rigid nasal endoscopes may facilitate the diagnosis of this lesion. A patient with a sphenoidal polyp usually presents with nasal obstruction, nasal discharge, headache, and snoring. However, our patient was presented with recurrent MEE as the main complaint despite parental witness of nasal obstruction and discharge of their child. MEE is a

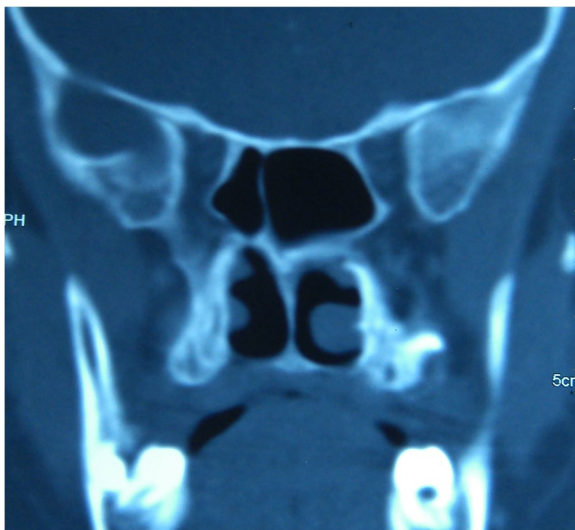
rare presentation for sphenoidal polyp, Weissman et al. [4] reported the same finding in a 58-year-old man who did not have any nasal complaint; however, CT was requested to exclude a nasopharyngeal mass that could obstruct the Eustachian tube, and it showed a sphenoidal polyp. To the best of our knowledge, our case is the second one to present with MEE and the first in children. Anyway, sphenoidal polyp may be asymptomatic as described by Lim and Sdralis [6] who detected it incidentally in a young child during adenotonsillectomy and it regressed spontaneously.

Sphenoidal polyps in children can be misdiagnosed as antrochoanal polyp, hypertrophied inferior turbinate, hypertrophied adenoid, sinusitis, and nasal polyps [1, 7]. In some cases, endoscopic nasal examination alone may not be enough for diagnosis especially if the polyp was large and in children who may not tolerate nasal endoscopy in the clinic. So, CT of the nose and sinuses is a mandatory procedure for accurate diagnosis [5]. It shows homogenous soft tissue density involving the sphenoid sinus, which extends to the nasal cavity, choana, and nasopharynx with no evidence of bone erosion. Also, it could show a bony dehiscence and the relation of the lesion to the surrounding important structures. However, magnetic resonance imaging should be requested if congenital or neoplastic lesions were suspected especially with intracranial extension [1, 5].

Recently, endoscopic sinus surgery (ESS) became the standard surgical treatment for sinu-nasal polyps. We treated our patient with ESS, the lesion was removed successfully with no recurrence for 1 year of follow-up. To avoid recurrence, the sphenoidal polyp should be removed completely especially its pedicle within the sinus, with the widening of the sinus ostium. The pedicle of the polyp has been described to originate from the sphenoid ostium [8, 9], the sphenoid floor [5], lateral sinus wall [1], or posterior sinus wall [10]. In our case, the pedicle was seen in the posterior sinus wall. Variability of polyp origin should alert the surgeon to explore the entire sinus cavity for the detection and removal of the pedicle. However, care should be taken during the procedure to avoid injury of the important structures related to the sphenoid sinus such as the optic nerve and the carotid artery [5, 10]. Simple polypectomy is prohibited and dangerous, as it may avulse the surrounding vital structures, and it may also leave the polyp pedicle which carries a high risk of recurrence [8].

### Conclusion

Sphenoidal polyp which is a rare lesion in children can present with middle ear effusion. The lesion should be listed as a cause of Eustachian tube



**Fig. 4** Computed tomography (coronal cut, 1 year postoperatively) shows no abnormality

dysfunction and recurrent middle ear effusion, and nasal examination both endoscopic and radiologic is very important for diagnosis. Endoscopic sinus surgery for the removal of the entire polyp with its pedicle is an effective treatment.

#### Abbreviations

MEE	Middle ear effusion
CT	Computed tomography
ESS	Endoscopic sinus surgery

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#### Author's contributions

The study was done completely by a single author (TA).

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#### Availability of data and materials

The datasets used during the current study are available from the corresponding author upon reasonable request.

#### Declarations

#### Ethics approval and consent to participate

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by Taibah University, College of Medical Rehabilitation Sciences Research Ethics committee (TUCMRS- REC), on 23 January 2023 under number (CMR-RT-M-2023-06).

#### Consent for publication

Written informed consent was obtained from the parents of the patient for the publication of this case report and accompanying images.

#### Competing interests

The authors declare that they have no competing interests.

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