Isolated Sphenoid Pyocele with Thornwaldt's Cyst of Nasopharynx

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Abstract Isolated sphenoid sinusitis (ISS) is a rare entity. ISS accounts for about 1–2% of all sinus infections. Isolated sphenoid sinus involvement may include mucocoeles, pyoceles and isolated mycotic infections. We report a case of isolated sphenoid pyocele in a 35 year-old female who presented in August 2007 with frontal and occipital headache, post nasal discharge and bilateral nasal obstruction for 6 years. CT scan showed isolated right sphenoid sinusitis. Diagnostic nasal endoscopy showed a streak of post nasal discharge on right side above the torus tubaris confirming right sphenoiditis. A cyst in the nasopharynx was incidentally detected which was confirmed by fluid aspiration to be Thornwaldt's cyst (TC). TCs have reported prevalence of 0.2–5% and though most are asymptomatic their location renders them vulnerable to infection. Sphenoidotomy was done and the cyst in the nasopharynx was removed and marsupialised. Postoperative course was uneventful.

Keywords Sphenoid pyocele · Thornwaldt's cyst · Nasopharyngeal bursa

Introduction

Isolated sphenoid sinus involvement in most patients is inflammatory in origin. Neoplastic diseases are rare. Isolated sphenoid sinusitis accounts for about 1–2% of all sinus infections. The disease is extremely rare in children but some cases have been reported [1].

Thornwaldt's cyst is an uncommon type of nasopharyngeal cyst that may cause clinically significant symptoms.

These develop as a result of abnormal embryologic development at the posterior wall of nasopharynx [2]. Most are small and asymptomatic whereas some cause nasal obstruction, postnasal drip, occipital headache or Eustachian tube dysfunction. Nasal endoscopy is the easiest way to visualise this during a routine ENT examination [3].

We present a rare case of isolated right sphenoid pyocele who was incidentally diagnosed to have Thornwaldt's cyst on CT scan and nasal endoscopy examination.

Case Report

A female patient, 35 years of age, presented with frontal and occipital headache since 6 years along with bilateral nasal obstruction, post nasal discharge off and on, intermittent low grade fever and occasional vertigo. All complaints were increasingly worsening. Physical examination of head and neck showed no significant abnormality except mild DNS to right side. X-ray PNS water's view was unremarkable. CT scan showed isolated right sphenoid sinusitis with intact bony septum. Roof of sphenoid sinus was also intact. No evidence of any intracranial extension was seen. Left sphenoid sinus was clear and well pneumatized. Nasal endoscopy showed thick purulent discharge coming from superior meatus, deviation of nasal septum to right and a cyst was seen in the nasopharynx which was incidentally diagnosed as Thornwaldt's cyst. All routine investigations of the patient were within normal limits (Fig. 1).

The patient underwent endonasal endoscopic sinus surgery under local anaesthesia and right sphenoid sinus was opened. A pyocele was found in the sinus. It was punctured and thick purulent discharge was drained. The wall of the pyocele was partially removed. The right sphenoid sinus

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Fig. 1 Closeup sphenoid

was thoroughly cleaned and bilateral anterior nasal packing was done. The Thornwaldt's cyst was aspirated with an 18 gauge needle and the fluid was sent for protein analysis which showed 2.5 g/dl of protein.

One week later the cyst on nasal endoscopy was seen to be refilled. So cyst excision and marsupialisation under general anaesthesia was done. The patient's post operative course was uneventful. The biopsy report of cyst wall sent for histopathological examination showed to be cystic lesion with inflammatory changes.

Discussion

According to studies of Zinreich, the sphenoid sinus is involved in about 16% of the patients with chronic sinusitis. Isolated involvement of sphenoid may include mucoceles, pyoceles and isolated mycotic infections. Clinically the most prominent findings are headache and a variable amount of secretion discharged through the sphenoid recess into the nasopharynx [4].

A sinus mucocele is defined as a mucous collection lined by the mucous secreting epithelium of a paranasal sinus. It occurs when a sinus ostium or a compartment of a septated sinus becomes obstructed, thus causing the sinus cavity to be mucous filled and airless. The obstruction is often inflammatory in nature, but may also be due to tumour, trauma or surgical manipulation. A pyocoele forms when a mucocele becomes secondarily infected [5].

The recommended treatment of most pyoceles is surgical excision and drainage through endonasal endoscopic surgery. This approach is minimally invasive and preserves sinus architecture. Thornwaldt's cysts (also called Tornwaldt's cysts) develop as a result of abnormal embryologic development at the posterior wall of nasopharynx. It was

established as a pathologic entity by Gustoff Thornwaldt in 1885 [6].

The nasopharyngeal bursa is a congenital remnant of notochord and pharyngeal ectoderm in the posterior nasopharynx. Trauma, inflammation or infection can lead to obstruction of the draining orifice of the nasopharyngeal bursa producing a Thornwaldt's cyst or nasopharyngeal cyst (TC). TCs have reported prevalence of 0.2–5%. There is no sex differentiation and the peak occurrence is in patients 15–30 years of age. Though most are asymptomatic, their location, and continuity with respiratory epithelium renders them vulnerable to infection. TCs are best observed by MRI, they are round and well circumscribed with sharp contours and are located in the posterior nasopharynx, usually in the midline between longus capitis muscles. Infection of TC can spontaneously resolve, but troublesome symptomatic TC can be readily treated through transpalatal excision, marsupialization and electrocoagulation. For small lesions endonasal approach is recommended which was done in our case [6,7].

Conclusion

Isolated pyocoele of sphenoid sinus (right) with Thornwaldt cyst is a very rare case which was diagnosed and treated satisfactorily by endoscopic nasal surgery; in two sittings only 1 week apart.

On follow-up the patient was very much satisfied and her complaints were resolved. She had no nasal obstruction, no headache and decreased nasal discharge after the surgery.

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