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ENT

AN ISOLATED SPHENOCHOANAL POLYP: A CASE REVISITED WITH REVIEW OF LITERATURE

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ABSTRACT Nasal polyps are the end result of chronic inflammatory disease of mucosa of the nose and mucosa of paranasal sinuses. According to the paranasal sinus of origin, those arising in the maxillary sinus are known as antrochoanal, those emerging from the sphenoid sinus as sphenochoanal, and those from the ethmoid sinus as ethmochoanal polyps. (1)(2) Sphenoid polyp though rare is often confused with Antrochoanal polyp because both are single, pedunculated and usually unilateral. (3) Nasal mass in sphenoethmoidal recess can be sometimes neoplastic like inverted papilloma.

KEYWORDS : Functional Endoscopic Sinus Surgery, Nasal obstruction, Sphenochoanal polyp.

Review Of Literature

Nasal polyps are non-neoplastic masses arising from the mucosa of the nasal sinuses or from the mucosa of the nasal cavity. The exact etiology of nasal polyps is unclear. They are associated with Asthma, Aspirin-exacerbated respiratory disease (Samter's Triad), Cystic fibrosis, Primary ciliary dyskinesia and Allergic fungal rhinosinusitis.

Some Nasal polyps can be managed medically with topical and systemic steroids. Surgical treatments are reserved for cases refractory to medical treatment. Management of nasal polyps often poses a challenge to the rhinologist due to their uncertain etiology, chronic course and a tendency to recur. We report the case of a patient who presented to ENT clinic with blocked sensation in the left nostril since last 9 months and difficulty in breathing through left nostril. CT Scan of paranasal sinuses revealed a large well defined lobulated isodense non enhancing polypoidal soft tissue seen in the left posterior nasal cavity and extending into the nasopharynx with obliteration of the nasopharyngeal lumen. Polypoidal soft tissues in the left half of sphenoid sinus. Upward convexity of the opacity of the sphenoid sinus rules out diagnosis of fluid and confirms the presence of mass in the sphenoid sinus. The patient was managed surgically. Polypectomy with Functional Endoscopic Sinus Surgery was done. Polyp was found arising from left side sphenoid. The specimen was sent for histopathological examination polypoidal tissue lined by respiratory epithelium. The patient's eye movements, vision and ophthalmic examination were normal postoperatively. Today the patient is symptom free.

Case Presentation

A 29-year-old male presented to ENT clinic with nasal obstruction, headache, snoring and mouth breathing for a duration of about 9 months. He complained of throbbing headache in the vertex radiating to the occipital area. There was no history of epistaxis, clear fluid nasal discharge, anosmia or diminution of vision. On examination of the nose, a polypoidal mass was seen in the left nostril, which was insensitive to touch and did not bleed on probing. Posterior rhinoscopy showed the extension of the nasal mass into the left posterior choana. There was no maxillary, frontal and ethmoidal sinus tenderness bilaterally.

A contrast CT scan of the paranasal sinuses was done.

CT Scan of paranasal sinuses revealed a large well defined lobulated isodense non enhancing polypoidal soft tissue seen in the left posterior nasal cavity and extending into the nasopharynx with obliteration of the nasopharyngeal lumen. It measures 4.3x2.4x2cm in size s/o polyp. Polypoidal soft tissue was noted in the left half of sphenoid sinus.

Figure 1: Paranasal sinus computed tomography (coronal view) shows homogeneously opacified right maxillary sinus wall and partially opacified left sphenoid sinus

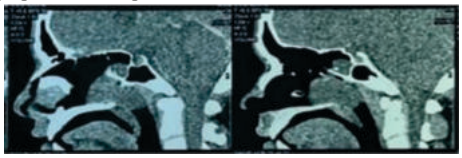

Figure 2: Paranasal sinus computed tomography (sagittal view) shows homogeneously opacified mass arising from sphenoid sinus obliterating the nasopharyngeal lumen

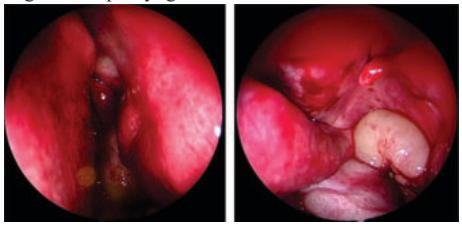

Figure 3: Intraoperative image demonstrating the sphenochoanal polyp

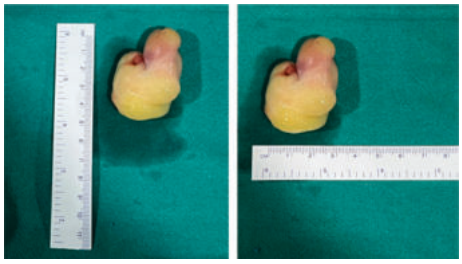

Figure 4: The sphenochoanal polyp specimen after surgery.

The patient was posted for a Functional Endoscopic Sinus Surgery

under general anesthesia. Intraoperatively, a polypoidal mass was seen in the left nasal cavity extending into the left sphenoid sinus which was then removed in toto and sent for histopathological examination.

HPE Report

Specimen consists of single polypoidal yellow white soft gelatinous tissue mass measuring 5x3.2x2cm. Cut surface is homogenous and gelatinous.

Microscopy

Sections studied show polypoidal tissue lined by respiratory epithelium. Underlying stroma is loose, edematous with mucoid areas, displaying multiple thin-walled capillaries and mixed inflammatory cell infiltrate comprising of lymphocytes, plasma cells, neutrophils and few eosinophils. No evidence of granuloma/ fungus/ atypia/ malignancy in the sections studied.

DISCUSSION

Choanal polyps are benign mucosal tumors, originating from the inflamed mucosa of the paranasal sinuses and protruding into the choana with a pedicle. [4] The annual incidence of nasal polyps is between 1 and 20 per 1000 population. [5] This incidence declines after 60 years of age. In the normal population the prevalence is between 1 and 4% in adults and 0.1% in children. Nasal polyps are more common in males (2–4:1). There is no racial predilection. [6] Antrochoanal polyp is more common compared to other types of polyps.

Nasal polyps which originate from the anterior wall of the sphenoid sinus and reach the nasopharynx are called sphenochoanal polyps. Chronic rhinosinusitis with nasal polyps is characterized by type-2 inflammation, is often severe and recurrent, and presents with comorbidities such as N-ERD (NSAID-exacerbated respiratory disease) and asthma. [23] T2 endotype of chronic rhinosinusitis is characterized by the type-2 immune response and nasal polyps are associated with eosinophilic dominant infiltration. In the T2 endotype, there is an increase in the production of Th2 cytokines, including interleukin-4, interleukin-5, and interleukin-13, high levels of immunoglobulin-E in polyp tissue, and eosinophilia. Stimulation of Th2 cells, type-2 innate lymphoid cells, epithelial cell damage, Staphylococcus aureus enterotoxins, and autoimmune antibodies have important roles in the enhancement of Th2 cytokines and pathogenesis of chronic rhinosinusitis with nasal polyp. [24]

Sphenochoanal polyps have been reported for the first time by Zuckerkandl. [7] More than 50% of Sphenochoanal polyps are observed in children. [8] and sometimes reaches nasopharynx pushing inferior soft palate. The etiology of SCP is not clearly defined, but chronic obstruction of the sinus ostia, as well intramural cysts originating from sinuses are blamed as causative factors. [9] The presence of accessory ostium, the role of the urokinase enzyme, and arachidonic acid metabolism are also thought to cause sphenochoanal polyps. [21] Some clinicians have reported that small sphenochoanal polyps show spontaneous regression and only polyps which significantly expand as a result of recurrent secondary infections, are symptomatic. [10]

A sphenochoanal polyp has intrasinusoidal, ostial, and extra-sinusoidal components. They originate from the sphenoid sinus wall, exiting the sinus via the sphenoid ostium, passing through the sphenoethmoidal recess, and reaching the choana. [11] A sphenochoanal polyp reaches the choana by advancing between the septum in the sphenoethmoid recess and the middle turbinate after emerging from the sphenoid sinus ostium while an antrochoanal polyp reaches the choana by progressing between the middle nasal turbinate and the lateral nasal wall after emerging from the maxillary sinus ostium. [1,16]

Symptoms of nasal polyps are nasal obstruction, snoring, blocked sensation of the nostril, headache, nasal discharge, facial pain, anosmia, post nasal drip and occasionally mouth breathing. Most common presenting symptom of isolated sphenoid sinus disease is headache which is atypical and unresponsive to analgesics and exacerbates by head movements. [12]

Differential diagnosis of Sphenochoanal Polyp is Antro-choanal polyp, Adenoid Hypertrophy, Inverted Papilloma, Nasopharyngeal Carcinoma, Thornwaldt's cyst, Lymphoma, Glioma, Hypophyseal tumour, Angiofibroma and Meningoencephalocele. [13,14] Space-occupying lesions such as tumors and mucoceles are more likely to present with visual changes than with inflammatory disease. [19] Heterogenous or vascular appearance of the lesion, rapid growth and rapid development of symptoms, atypical signs and symptoms such as bleeding, bone erosions, and anterior cranial base defects detected on computed tomography scan should be considered among warning signs. [22]

Clinical examination reveals single or multiple grey polypoid masses in the nasal cavity. The presentation of a sphenochoanal polyp is similar to that of the antrochoanal polyp. Histologically, choanal polyps are formed by a cystic center surrounded by oedema stroma which presents a kind of infiltration of inflammatory cells. Its surface is covered by respiratory epithelium [13] where areas of metaplasia can be found. [18]

Diagnostic Nasal Endoscopy and Computed Tomography of Paranasal Sinuses are used to evaluate and diagnose the extent of polyps. The features of the mass like size, origin, relation to bony structures, bony erosion, invasion into surrounding tissues and contrast dye enhancement is used for diagnosis of nasal polyps. MRI is done when diagnosis of nasal polyp is unclear and in suspicious cases of malignancy. Histopathological examination of the polyp further confirms the diagnosis.

Until the 1980s, the most widely used sphenoid approach was an external approach, through a Lynch incision and ethmoidectomy. The application of the rigid nasal endoscopes and mucosa preserving "functional" principles modernized the treatment of paranasal sinus diseases. [20] Nowadays, Functional Endoscopic Sinus Surgery is used for surgical management of nasal polyps. Surgical treatment of the sphenochoanal polyps is complete excision of the polyp along with the pedicle and the portion inside the sphenoid sinus. When the polyp is not completely removed, the part left within the sphenoid sinus can cause recurrence. [2,17] Therefore, it is necessary to completely remove the mucosa from where the polyp originates.

According to the study done by Hiremath et. al, the pneumatization of sphenoid sinus has a very important role in planning the surgery. Sphenoid sinus is surrounded by important vital structures like optic nerve, internal carotid artery, etc. Extensive pneumatization even lateral extension of sphenoid sinus can result in injury to the vital structures resulting in devastating complications. [15]

The atypical location of sphenochoanal polyps leads to misdiagnosis. Surgical management of the sphenochoanal polyp carries risk of injuring the surrounding structures, such as the optic nerve, carotid artery, and brain.

Nasal polyps can be removed via endoscopic sinus surgery, but the site of origin is very important, especially for polyps originating from the sphenoid sinus because the carotid artery and optic nerve are located near the sphenoid sinus. Any uncontrolled maneuver in endoscopic sinus surgery can damage these essential structures, so a preoperative diagnosis of the polyp origin is essential. [11] Unchecked and unrestrained handling of the sphenoidal nasal polyp during surgery can be dangerous due to the proximity of the carotid artery and optic nerve, which can be damaged. Misdiagnosis of sphenochoanal polyp can also lead to recurrence due to inadequate treatment.

CONCLUSION

Sphenochoanal polyp is very rare. A correct diagnosis is required for treatment of sphenochoanal polyp as inadequate treatment may lead to persistence of symptoms and recurrence of the disease. Therefore, an otorhinolaryngologist should be alert while treating a case of nasal polyp. The combination of history, nasal endoscopic examination and radiology leads us to diagnosis. Sufficient preoperative evaluation is necessary to reach a correct diagnosis.

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