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SPHENOID SINUS MUCOCELES – OUR EXPERIENCE IN DIAGNOSING AND MANAGING THIS ENIGMA

Otorhinolaryngology

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ABSTRACT

Background: Mucoceles of the sphenoid sinus act as benign lesions and can result in bony erosion from within its continuity of the sinus to the intracranial and orbital spaces. Disease restricted to the sphenoid sinus is rare and often manifests with nonspecific or subtle signs and symptoms. Early and accurate diagnosis of sphenoid sinus disease may thus be difficult. Otolaryngologists must have a thorough knowledge of the spectrum of sphenoid sinus disease and the radiologic characteristics to manage these patients properly. The increased use of endoscopy in routineexamination and advances in techniques of imaging, this area will result in the more frequent diagnosis of these lesions. **Methods:** We herewith report 10 cases of chronic rhinosinusitis with sphenoidal mucocele with or without polyposis. All patients underwent detailed history taking, and a thorough examination followed by DNE and CECT of the Nose and PNS. All patients underwent functional endoscopic sinus surgery and swab was sent for KOH and HPE was done for biopsy. With regular follow up on 1st month , 6th month and 12th month showing no evidence of recurrence to date. **Conclusion:** Variable nonspecific symptoms and the complex anatomy of the sphenoid sinus tend to delay the diagnosis resulting in a poor prognosis.

KEYWORDS

Mucocele, sphenoid, polyposis.

INTRODUCTION

The paranasal sinuses mucoceles are expansive benign cystic lesions that occur rarely in the sphenoid sinus, lined by pseudostratified epithelium. The sphenoid sinus has been referred to as the neglected sinus because of its isolated position and complexity inaccessibility.[1] Sphenoid sinus mucocele is the rarely afflicted sinus and comprises 1–2% of all paranasal sinuses mucoceles[2]. Mucocelesare the most common sequelae following allergic fungal rhinosinusitis[3].The pathophysiology of this lesion is still uncertain, but it is generally thought to be caused by obstruction of the sinus ostium. Other hypotheses include cystic dilatation of glandular structures and cystic development from embryonic epithelial residues[4].Patients may present with a myriad of symptoms, due to the presence of important contiguous neurological and vascular structures[5]. They may also be asymptomatic[6].Sphenoid or posterior ethmoid mucoceles produce more subtle symptoms including visual disturbance, generalized headache, diplopia, and orbital displacement[7, 8].Radiological imaging techniques and the use of endoscopes have assisted in the diagnosis of a sphenoid sinus mucocele. The treatment of choice is endoscopic sphenoidotomy and drainage of the mucocele[4,9].

Thus,a thorough preoperative workup, endoscopic evaluation, and imaging techniques allow safe management of this type of lesions[10].

CASE SERIES

CASE:1 A 60 year male patient presented with headache for 6 months with recent onset nasal discharge and with type 2 DM as co morbidities. On DNE there was mucopurulent non-fowl smelling discharge from sphenoethmoidal recess and multiple polypoidal mass noted and on CT NOSE PNS showed sphenoid mucocele with sphenoid sinusitis underwent FESS, on regular follow up no evidence of recurrence.

CASE: 2 A 41 year female patient presented with headache for 2 months with decreased smell sensation and with no Co morbidities. On DNE there was mucopurulent non-fowl smelling discharge from sphenoethmoidal recess and mucopurulent discharge from middle meatus,multiple polypoidal mass notedand on CT NOSE PNS showed sphenoid mucocele with pan sinusitis, underwent FESS. On regular follow up no evidence of recurrence.

CASE:3 A 55 year male patient was referred from physician on incidental finding in CT BRAIN which was done for giddiness and with type 2 DM as co morbidity.OnDNE there was no evidence of discharge or mass and heunderwent FESS , post surgery uneventful.

CASE: 4 A35 year female patient presented with nasal obstruction for 10 months with occasional headacheand with type 2 DM as co morbidity.OnDNE there was mucopurulent fowl smelling discharge from sphenoethmoidal recess and on CT NOSE PNS showed sphenoid mucocele with pan sinusitis underwent FESS , on regular follow with no fresh complaints.

CASE:5 A28 year female patient presented with headache for 5 months with orbital pain, on DNE there was mucopurulent fowl smelling discharge from sphenoethmoidal recess and middle meatus with multiple polypoidal mass noted andon CT NOSE PNS showed sphenoid mucocele pushing orbit with sinusitis underwent FESS , on regular follow up and post surgery uneventful.

CASE: 6 A42 year male patient presented with cacosmia for1 year with headache and with type 2 DM as co morbidity.OnDNE there was mucoid non-fowl smelling discharge from sphenoethmoidal recess with multiple polypoidal mass noted and on CT NOSE PNS showed sphenoid mucocele with sinusitis underwent FESS, on regular follow up no evidence of recurrence.

CASE:7 A39 year male patient presented with excessive sneezing for 6 months with headacheand with type 2 DM as co morbidity.OnDNE there was mucopurulent fowl smelling discharge from sphenoethmoidal recess multiple polypoidal mass noted and on CT NOSE PNS showed sphenoid mucocele with sinusitis underwent FESS he is on regular follow up.

CASE: 8 A56 year male patient presented with headache for 2years with nasal obstruction, and with type 2 DM as co morbidity.On DNE there was mucopurulent non-fowl smelling discharge from sphenoethmoidal recess with polypoidal mass noted and on CT NOSE PNS showed sphenoid mucocele with sinusitis underwent FESS , on regular follow up no evidence of recurrence.

CASE: 9 A43 year female patient presented with sneezing for 1 month with nasal obstruction, and with type 2 DM as co morbidity.OnDNE there was mucoid non-fowl smelling discharge from sphenoethmoidal

recess with multiple polypoidal mass noted andand on CT NOSE PNS showed sphenoid mucocele with sinusitis underwent FESS,post surgery uneventful.

CASE: 10 A30 year male patient presented with headache for 3 months with cacosmia, and with type 2 DM as co morbidity.On DNE there was mucopurulent non-fowl smelling discharge from sphenoethmoidal recess with multiple polypoidal mass noted and on CT NOSE PNS showed sphenoid mucocele with sinusitis underwent FESS, on regular follow up no evidence of recurrence**.**

MATERIALS AND METHODS

This is a case series of about 10 patients presented with various symptoms suggestive of sphenoid sinus mucoceles who were evaluated and managed surgically at the department of Otorhinolaryngology and head and neck surgery, Basaveshwara Medical College and Hospital, Chitradurga. This study was conducted over a period of two years from September – 2020 to August – 2022.

All the patients included in our study were subjected to a detailed history taking regarding the presenting complaints and other co-morbidities. This was followed up by thorough ear, nose, throat, head and neck examination which were also followed by a thorough systemic examination. Patients were then subjected to a diagnostic nasal endoscopy, swabs were collected for KOH mount, gram staining and culture and sensitivity whenever it was required. These patients then underwent radiological evaluation with Non-contrast Computed tomography of the nose and a paranasal sinus (NCCT Nose & PNS), diagnosis of sphenoid mucocele was confirmed and any other co-existing pathologywas also looked for. These patients then underwent routine pre-operative investigations, pre-anaesthetic evaluations and ophthalmologist evaluation. All the patients then underwent Functional endoscopic sinus surgery (FESS) with sphenoidotomy under general anaesthesia; sufficient removal of the anterior and inferior walls of the sphenoid sinuses was made to allow adequate drainage into sphenoethmoidal recess and to avoid recurrence, any other co-existing nasal pathologies were also tackled at the same sitting. Specimens of polyp was sent for histopathological evaluation, fungal debris and pus collected were sent for KOH mount, gram staining and culture & sensitivity. All the patients tolerated the procedure well with no complications. Post-operative period of all the patients were uneventful. Anterior nasal packing was removed on 2nd post-operative day and patients were discharged. Postoperative treatment consisted of nasal lavage, and the use of topical corticosteroid spray (in each nostril bid), for a period of 1 month. At the time of first postoperative consultation a clinical and endoscopic examination was done to remove secretions, crusting, or synechiae. Patients were asked to come for routine follow ups, for 1 year 1st month, 6th month and at 12th month to look for recurrence.

RESULTS

The 10 patients included in the study comprised of four women and six men, with a mean age of 40 years (range 21–60 years) (Figure-1). The common presenting symptoms of the patients were headache, nasal obstruction, cacosmia, nasal discharge, excessive sneezing, and diplopia which are shown in Figure- 2 with head ache being the most common presenting complaint. One of the patients was asymptomatic and was diagnosed incidentally. Most of the patients came out to have fungal elements in the KOH mount sent intra-operatively from the fungal debris collected from the sphenoid sinus, which is about 70% (7 out 10 patients) ,as shown in Figure 3. Out of 10 patients, 8 patients presented with sinonasal polyposis and two patients without polyposis (figure-4) also 7 patients had diabetes type 2 as a co-morbidity (figure - 5). Among these 9 patients had pan sinusitis and 1 patient had only sphenoid sinusitis with mucocele.

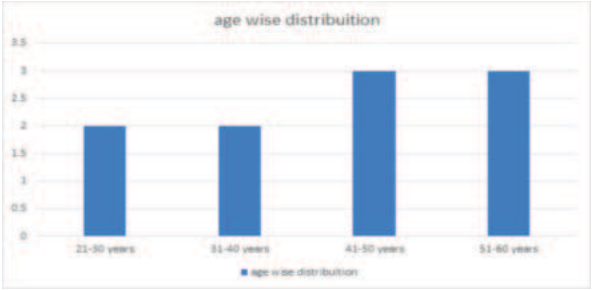
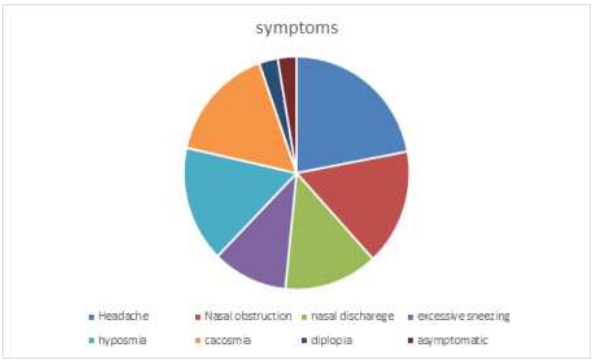


Figure- 1



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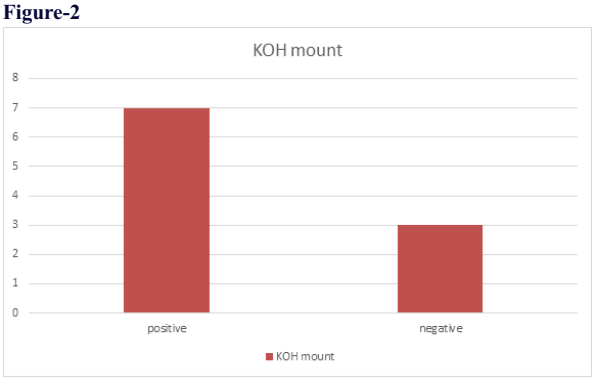

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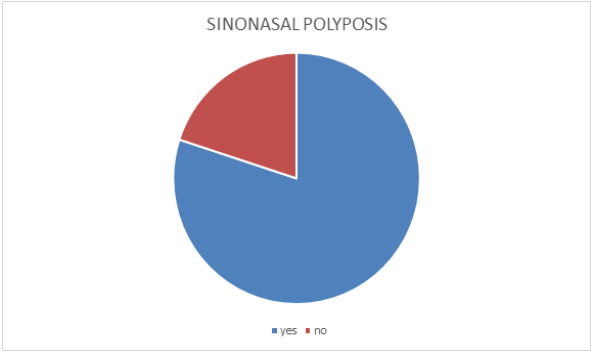

Figure - 4

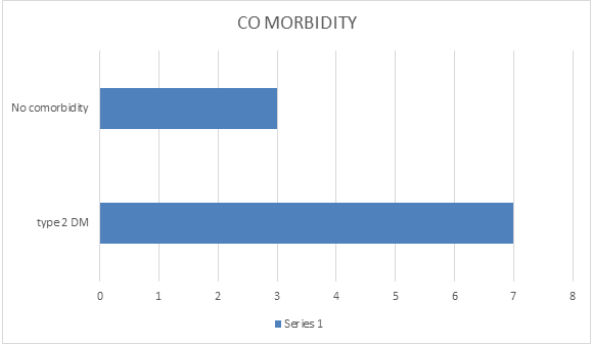

Figure - 5

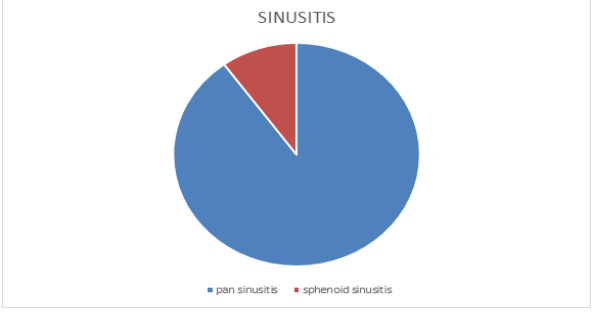

Figure - 6

Figure-7

Figure-1: Multiple pale polyps filling left nasal cavity arising lateral to middle turbinate

Figure 8

Figure-2: left pan sinusitis with? left sphenoidal mucocele showing heterogenous density within it

Figure 9

Figure 3: Fungal debris completely filling the sphenoid and polyps.

Figure -10

Figure.4 Showing post operative picture of maxillary ostium

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DISCUSSION

Sphenoid sinus mucocele is a rare entity, representing only 1-2% of all paranasal sinus mucoceles. It can present in any age group, but 30 to 60 years are more commonly affected with no gender predilection[2].In our study the patients of age group 20-60 were affected by sphenoid mucocele, with lowest age being 23 years and highest age being 59 years. There is no sex preponderance observed in sphenoid mucoceles, in our study it was observed more among males (06) when compared to females (04), but we will need a study with a larger sample size to deduce more regarding any sex preponderance.

The most common presenting complaints in sphenoid sinus disease are vague facial pain or headache with associated symptoms being nasal obstruction, smell, and visual disturbances. In our study the commonest presenting complaint was head ache, which was generalized type observed in about 80% of patients followed by nasal obstruction. One of our patients was asymptomatic, came for otological complaints and was incidentally diagnosed with sphenoid mucocele when NCCT nose & PNS was done to rule out nasal pathologies. Diplopia was observed in one of the patients who had bone thinning on the medial wall of orbit with pressure over the medial rectus muscle, the symptoms subsided post-operatively. A mandatory nasal endoscopy enables collection of cultural material, determining extension to the nasal cavity, and identifying nasal anatomical configuration relevant to surgery.[1,2]

Sino-nasal CT usually demonstrates mucoceles as being hypodense with a characteristic expanding propensity, unlike simple fluid retention. Surgical evacuation of the lesion for symptomatic relief and prevention of recurrence has been advocated. Early treatment confers the benefit of preventing visual damage and neurological deficits. Various approaches to sphenoid sinus include trans-nasal, transseptal and trans-ethmoid approaches. The endonasal endoscopic approach via the trans-nasal route is the current treatment modality of choice.[2,11]

Endoscopic trans-nasal sphenoidotomy with adequate removal of anterior and inferior sinus walls enables unimpeded sinus drainage into spheno-ethmoid recess and prevents recurrence.[3]

A long-term post-operative follow-up regime is recommended due to the possible recurrence even 2decades afterthe initial surgery. Certain tumor and tumor-like conditions like carcinoma, fibrous dysplasia, osteoma, and ossifying fibroma are likely to be found as concomitant lesions with sphenoid mucocele, thus mandating its systematic evaluation and management. [3,10]

Most of our patients were diagnosed early, evaluated and treated by surgical intervention which is the treatment of choice in case of Paranasal sinus mucoceles. This prevents extension of the mucocele causing various visual and neurological complications. Though this is a rare entity, it is better to thoroughly evaluate the patient clinically and radiologically to obtain an early diagnosis and effective management of this condition to prevent any complications and recurrence of the disease.

In our study most patients had history of rhinosinusitis which is almost similar to study conducted by soon s r, the same study showed history of nasopharyngeal carcinoma treated with radiotherapyas most common aetiological factor followed by chronic sinusitis.

Sphenoid sinus mucocele is a rare condition, radiation to the head and neck appeared to be a predisposing factor, and eye symptoms were the commonest presentation. Endoscopic sinus surgery is a safe and effective treatment modality[12].

CONCLUSION

Surgical treatment is indicated in the case of sphenoid mucocele and early treatment avoids visual damage that can be permanent. Endonasal endoscopic approach with drainage and marsupialization of sphenoid sinus along with ethmoidal polyposis using a transnasal corridor is a safe and effective treatment modality for less recurrence.

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