

Intra-orbital involvement in fungal sino-nasal polyps

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Objective: To appraise the intra-orbital involvement in fungal sino-nasal polyps

Methodology: This cross-sectional study was conducted at Institute of Ophthalmology and Department of ENT in tertiary care hospital from December 2018 to November 2019. A total of 98 cases presenting with fungal sino-nasal polyps were included in the study, of all ages and gender. Data were collected from clinical assessment files and admission records. All data were analyzed using statistical software SPSS version 20.

Results: Out of 98 patients, 50 (51%) were male and 48 (49%) female with a mean age of 34.6 ± 10.94 years. Thirty-eight patients were diagnosed as an intraorbital extension and

presented with headaches (24%), fevers (20%) during nasal blockage, nasal discharge in 6%, and 11% had facial pain. Duration of symptoms ranged from 3 months to more than 10 years, with most patients lying in less than one year. Regarding comorbid, 26% were diabetic, 16% were hypertensive, and 37% were asthmatic.

Conclusion: Fungal nasal polyposis got a significant rate of serious complications relating to orbit like permanent blindness. Therefore, it must be clinically assessed. (Rawal Med J 202;46:323-326).

Keywords: Fungal sino-nasal polyps, intra-orbital involvement, comorbidities.

INTRODUCTION

Nasal polyposis is a benign outgrowth developed at the lining of the nasal passage. About 1-4% is affected worldwide and may be related to allergy, asthma, aspirin sensitivity, and infection.¹ Evidence of fungi in cultures has been noted.² About 1.5 million fungal species exist on the earth, and a lot is considered to be undiscovered; therefore, our environment offers multiple risks to humans. Multiple statistics show that these fungi can lead to sinonasal diseases with symptoms as mild as cough, congestion, anosmia, intra-orbital or intracranial invasion to as severe as blindness or death.³⁻⁶ This establishes that fungal nasal polyposis can obstruct the nasal cavity causing rhinosinusitis and polyp growth in surrounding areas like orbit and cranial space; however, fungal invasion of local tissues may vary about the immune response.

While orbital involvement can occur in invasive and non-invasive fungal sinusitis, the orbital complications are most common in immunocompromised individuals.⁷ In some studies, invasive fungal sinusitis showed a

prevalence of 100% orbital involvement, and allergic fungal sinusitis showed 14.7% to 60% prevalence.⁸ People with fungal sino-nasal polyposis present with fever, visual loss, headaches, diplopia, facial pain, sinusitis, nasal discomfort, orbital pain, or nasal mucosal ulcers crusting and necrosis.^{9,10} The intra-orbital complication may include preseptal cellulitis, orbital cellulitis, subperiosteal abscess, orbital abscess, and cavernous sinus thrombosis.

Intracranial complications include epidural or subdural abscess, brain abscess, meningitis, encephalitis, and cavernous sinus thrombosis.⁸ For diagnosis, a detailed clinical examination, sino-nasal endoscopy, and histopathologic evidence of fungi nasal tissue is needed. The primary rationale of this study was to appraise the effect and frequency of complications of intra-orbital involvement in fungal nasal polyps so that we can provide knowledge on management and therapeutic interventions for early diagnosis and treatment.

METHODOLOGY

This detailed case-series was carried out in the otorhinolaryngology and head and neck surgery department in tertiary care hospital from December 2018 to November 2019. All patients suffering from fungal sino-nasal polyposis (new only) of all ages and gender were included in the study. We included patients with nasal polyps showing two or more symptoms of either nasal blockage, headaches, rhinorrhea, nasal discharge, anosmia, or facial pain. We excluded, patients with malignant conditions of the nose and paranasal sinuses, patients with immune-compromised problems and those with diabetes mellitus.

Alongside endoscopic and clinical findings CT Scan mucosal changes within sinuses were noted. The patient's visual acuity was confirmed by the ophthalmologist. Orbital complications were classified according to Chandler's classification, as follows.¹¹ Class 1-Preseptal cellulitis, Class 2-Orbital cellulitis, Class 3- Subperiosteal abscess, Class 4-Orbital abscess and Class 5-Cavernous sinus thrombosis.

The diagnosis of fungal sino-nasal polyps was confirmed on histopathological evidence and fungal culture of fungal elements on the mucosa, blood vessels, soft tissues, or bones. Further signs were examined using Rigid Hopkins endoscopy of nasal and orbital area. Radiological evaluation was done using CT scan of the paranasal sinuses, including intra-orbital involvement and sinus wall erosion. We gathered data from Patients' sino-nasal forms, clinical assessment files, and admission records.

Statistical Analysis: Statistical analysis was performed using SPSS version 20.

RESULTS

Out of 98 patients, 50 (51%) were male and 48 (49%) female with a mean age of 34.6 ± 10.94 years (range 19-65). The age bracket 20-30 had the most number of patients with 49% while 31-40; 22, 41-50; 19% and above 50 age in 9% of patients. However, the male-to-female ratio is similar. We found that 26% patients were diabetic, 16% hypertensive, and 37% asthmatic.

Fig. 1. Frequency of orbital complications in fungal sino-nasal polyps.

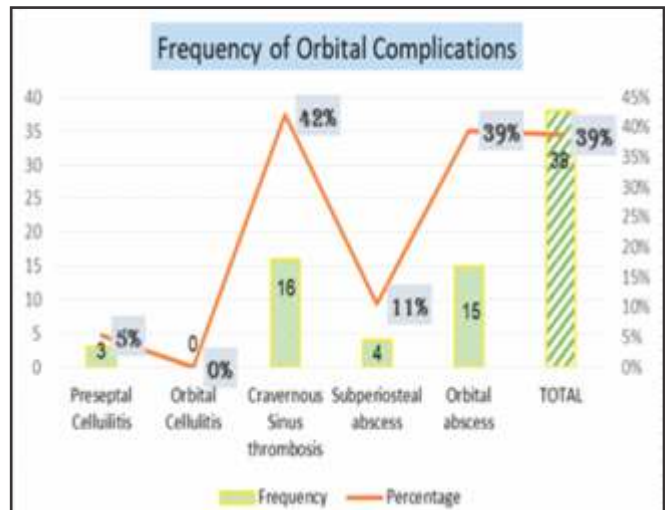
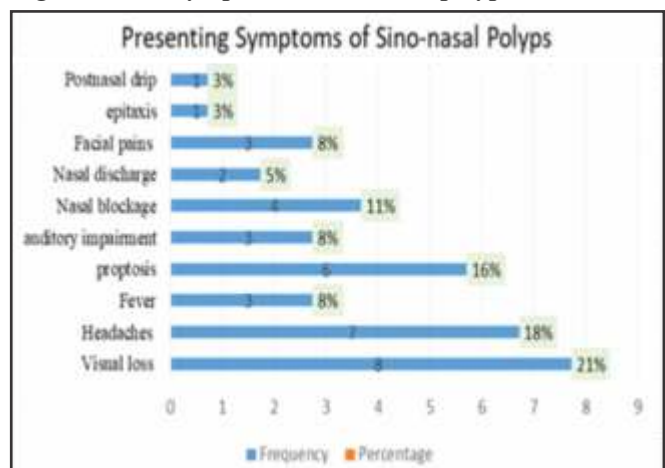


Fig. 2. Clinical symptoms of sino-nasal polyposis.



Out of the total orbital complications, 42% were cavernous sinus thrombosis, 39% orbital abscess, 11% subperiosteal abscess, and 5% pre-septal cellulitis (Fig 1). The noteworthy CT results showed that about 39% of patients had diplopia and 34% eye proptosis, 24% bone erosion, and 3% leaned to blindness, while 61% had no complication at all. Commonly the patients presented with visual loss, headaches, fevers and proptosis (Fig. 2).

DISCUSSION

The incidence of sino-nasal polyps has increased not only in immunodeficient but also in healthy people in Asian countries.^{13,14} Nasal polyps have been most regularly seen due to hypersensitivity and less

immunity towards an antigen.¹⁵ In this study, the mean age was 34.6 years and no significant difference was found between the genders. Positive fungal culture was found in all (100%) patients with only 38.8% having intra-orbital involvement and the most common organism was *Aspergillus*, as reported by Mian et al.¹⁵ and Jain et al.¹⁶

The clinical signs in the patients of fungal sino-nasal polyps were fever, facial pains, nasal blockage, postnasal drip, epistaxis, auditory impairment.^{10,17}

The most consistent symptoms in our study were visual loss, headache, and proptosis. Turel et al found fibro-oseous sino-nasal thickening of maxillofacial bones and proptosis.¹⁷ These symptoms ranged from 3 months to 10 years in our patients, while other studies showed a mean duration of 6 months ranging to 36 months.¹⁸ Our patients' underlying conditions were hypertension and diabetes; the most significant reported by other studies were asthma (49%) and hypertension (20%).¹⁹

Orbital complications noted were cavernous sinus thrombosis, orbital abscess, subperiosteal abscess, and pre-septal cellulitis, as reported by others.²⁰ It's significant to have differential analysis for understanding the sino-nasal polyps and their complications. And patients with orbital involvement should be timely assessed through clinical and radiological assessment.

CONCLUSION

Fungal Sino-nasal polyps showed significant diplopia complications and proptosis, and since early treatment can help the mortality rate, it should be thoroughly investigated and evaluated timely.

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Conception and Design: Arsalan Ahmed Shaikh
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