

PREVALENCE AND ETIOLOGICAL CAUSES OF SINUS HEADACHE IN PATIENTS WITH CHRONIC RHINOSINUSITIS

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Abstract

Background: Sinusitis is defined as inflammation of the mucosa of the paranasal sinuses, and rhinosinusitis is defined as inflammation of the nose and paranasal sinuses. A patient with a headache and facial pain presents with a diagnostic challenge. Rhinitis, rhinosinusitis, and migraines share symptoms (nasal congestion, rhinorrhea, facial pressure-pain-fullness, headache) and precipitating triggers (weather changes, inhaled irritants, allergies), making diagnosis difficult. **Materials and Methods:** The present study includes 52 patients with sinus headache among 226 patients that have been operated on due to chronic sinusitis. Endoscopic examination and PCT data for these 26 patients with chronic rhinosinusitis (CRS), who underwent sinus surgery and attended regular check-ups until the conclusion of the study, were examined. **Result:** The mean age of all the patients was 41 years (range, 23–63 years); 69.2% (n=36) were male and 30.7% (n=16) female. Additional nasal pathology was present in 42 (80.7%) of the patients with headache, and 44 (84.6%) had headache accompanied by nasal obstruction. The most common nasal pathology was septal deviation (65.3%). Purulent nasal discharge was present in 34 (65.3%) patients, mucocele in 8 (15.3%), fungal sinusitis in 4 (7.6%) and nasal polyposis in 14(26.9%). The most commonly blocked sinus was the maxillary sinus (80.7%). **Conclusion:** Sinonasal surgery may be beneficial in patients with CRC and headaches, however sometimes primary headache, most often migraine, accompany sinonasal pathology. Therefore treatment for patients diagnosed with chronic sinusitis and complaining of headache must be determined in consultation with the neurology clinic.

INTRODUCTION

Sinusitis is defined as inflammation of the mucosa of the paranasal sinuses, and rhinosinusitis is defined as inflammation of the nose and paranasal sinuses. A patient with a headache and facial pain presents with a diagnostic challenge. Rhinitis, rhinosinusitis, and migraines share symptoms (nasal congestion, rhinorrhea, facial pressure-pain-fullness, headache) and precipitating triggers (weather changes, inhaled irritants, allergies), making diagnosis difficult.^[1]

According to the National Institute of Allergy and Infectious Diseases, sinusitis is a condition that involves the inflammation of sinuses (the air cavities in the nasal passage) in your nose (NIAID). Chronic sinusitis affects an estimated 134 million Indians, with symptoms including but not limited to debilitating headaches, fever, and nasal congestion

and obstruction.^[2] This disease is more common among Indians than diabetes, asthma, or coronary heart disease. One in every eight Indians suffers from chronic sinusitis, which is caused by inflammation of the nasal and throat linings, resulting in mucus accumulation in the sinus cavity and pressure buildup in the face, eyes, and brain.^[3] Headache associated with acute sinusitis is possible, but it is considered uncommon. Other clinical manifestations of sinusitis, such as purulent nasal discharge and pathologic radiographic findings, are most commonly seen in patients with this presentation.^[4] The International Headache Society (IHS) recognises acute sinus headache (IHS 11.5.1), but only when combined with acute sinusitis and includes fever and purulent discharge as diagnostic criteria. Chronic sinusitis (IHS 11.5.2) is also not validated as a cause of headache or facial pain

unless it relapses into an acute phase, according to the IHS.^[5]

MATERIALS AND METHODS

Study Location: In a tertiary care hospital.

Study Duration: February 2015 to January 2016.

The present study includes 52 patients with sinus headache among 226 patients that have been operated on due to chronic sinusitis. Endoscopic examination and PCT data for these 26 patients with chronic rhinosinusitis (CRS), who underwent sinus surgery and attended regular check-ups until the conclusion of the study, were examined.

Exclusion criteria were atypical infection, malignancy, acute rhinosinusitis exacerbation and ciliary dysmotility.

Written informed consent was obtained from each patient upon inclusion in the study. Detailed medical history was recorded and physical as well as endoscopic nasal examination was performed for each patient. PCT images (screening coronal views, 5-mm sections at 8-mm intervals) were assessed for nasal cavity and paranasal sinus region. Patients

who complained of sinus headache were identified and their presenting symptoms were analyzed in the light of the final diagnosis, after treatment and follow-up. The mean followup time for patients with sinus headache was 3.2 months (range, 4-16 weeks). Patients' responses to treatment were classified under three categories: complete improvement, partial improvement and no response to treatment.

RESULTS

The mean age of all the patients was 41 years (range, 23–63 years); 69.2% (n=36) were male and 30.7% (n=16) female. Additional nasal pathology was present in 42 (80.7%) of the patients with headache, and 44 (84.6%) had headache accompanied by nasal obstruction. The most common nasal pathology was septal deviation (65.3%). Purulent nasal discharge was present in 34 (65.3%) patients, mucocele in 8 (15.3%), fungal sinusitis in 4 (7.6%) and nasal polyposis in 14(26.9%). The most commonly blocked sinus was the maxillary sinus (80.7%).

Table 1: Involved in sinus headache

Involved in sinus	Number of patients	Percentage
Maxillary sinus	42	80.7
Frontal Sinus	22	42.3
Ethmoid sinus	32	61.5
Sphenoid sinus	14	26.9

Table 2: Localization of headache

Localization	Number of patients	Percentage
Maxillary region	8	15.3
Frontal region	14	26.9
Temporal region	12	23.0
Occipital region	10	19.2
Periorbital region	14	26.9

All patients had previously undergone one or more medical treatments with a diagnosis of sinusitis. Headache resolved completely in 18 (34.6%) out of 52 patients diagnosed with chronic sinusitis and complaining of headache, while partial resolution was seen in 10(19.2%) and no change in pain in 24 (46.1%) after endoscopic sinus surgery with/without septoplasty. 10 patients with partial improvement and the 24 patients with no improvement were re-evaluated through consultation with the neurology clinic. 22 patients were diagnosed with migraine (14 female, 8 male) and 10 with tension type headache 6 (female, 4 male). No additional disease to sinusitis was determined in one patient.

DISCUSSION

Neurovascular event-based headaches, which develop due to diseases other than sinonasal pathologies but which exhibit similar symptoms (such as rhinorrhea, nasal obstruction and tearing) are often interpreted as rhinosinusitis.^[6] Migraine and tension-type headache are often confused with

headache attributed to rhinosinusitis because of a similarity in pain location.^[7] Diagnostic criteria in sinusitis-related headache have been set out by the IHS.^[7] Other conditions that are often considered to induce headache have not been confirmed as causes of headache. These include deviation of the nasal septum, hypertrophy of turbinates, atrophy of sinus membranes and mucosal contact.^[8]

Additional nasal pathology was present in 80.7% (n=42) of the patients with facial pain in our study, and surgery directed toward the anatomical pathology in the nasal cavity was performed in addition to ESS. On the other hand, there was no pathology other than CRS in 19.3% (n=10) of patients, and ESS only was performed on them.^[9] Some authors suggest that sinonasal contact points may evoke sinus headaches in some patients and that those patients may benefit from surgical interventions. It has been suggested that these endonasal contact points provoke miscellaneous forms of headaches via the trigeminovascular system, as well as the release of substance P.^[10]

Cook et al. reported that 12 out of 18 patients who underwent sinus surgery for facial pain with no CT or endoscopic evidence of sinus disease reported had a significant reduction in their symptoms. Parsons and Batra retrospectively described 34 patients with headaches who had contact points surgically excised and they found that, post-operatively, there was a 91 per cent reduction in intensity and an 84 per cent decrease in frequency.

CONCLUSION

Sinonasal surgery may be beneficial in patients with CRC and headaches, however sometimes primary headache, most often migraine, accompany sinonasal pathology. Therefore treatment for patients diagnosed with chronic sinusitis and complaining of headache must be determined in consultation with the neurology clinic.

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