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A prospective study of headache and facial pain due to rhinogenic origin and its management

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Abstract

Objective: This prospective study aimed to investigate the occurrence, characteristics, and management of headache and facial pain of rhinogenic origin in a patient population, with a focus on determining the efficacy of various treatment modalities.

Methods: A total of 150 patients (age group 16-50 years) presenting with headache and facial pain of suspected rhinogenic origin were enrolled in the study. Detailed clinical evaluations, including history, physical examination, radiological investigations, and diagnostic nasal endoscopy, were performed. Patients were followed up for a minimum of six months to assess treatment outcomes.

Results: Among the 150 patients enrolled, [insert percentage] were found to have headache and facial pain attributed to rhinogenic causes. The majority of patients presented with symptoms such as frontal headache, facial pain, nasal congestion, and rhinorrhea. Diagnostic nasal endoscopy revealed various rhinogenic pathologies, including nasal septal deviation, chronic rhinosinusitis, nasal polyps, and allergic rhinitis. Treatment strategies employed included medical management, endoscopic sinus surgery, septoplasty, and turbinate reduction. The outcomes were assessed based on symptom improvement, patient satisfaction, and reduction in the frequency and severity of symptoms.

Conclusion: This prospective study provides valuable insights into the occurrence, clinical features, and management of headache and facial pain originating from rhinogenic causes. The findings highlight the significance of a comprehensive approach involving accurate diagnosis, multimodal treatment, and long-term follow-up to achieve optimal outcomes. A multidisciplinary team, comprising otolaryngologists, neurologists, and pain specialists, is essential in the management of such cases. Further research is warranted to explore novel therapeutic options and establish evidence-based guidelines for the management of rhinogenic headache and facial pain.

Keywords: Rhinogenic headache, facial pain, rhinosinusitis, nasal septal deviation, nasal polyps, allergic rhinitis, diagnostic nasal endoscopy, medical management, endoscopic sinus surgery, septoplasty, turbinate reduction

Introduction

Headache and facial pain are common complaints encountered in clinical practice, often causing significant morbidity and impaired quality of life for patients. While various etiologies contribute to these symptoms, rhinogenic causes constitute a considerable proportion. Rhinogenic headache and facial pain can result from inflammatory processes, anatomical abnormalities, or allergic conditions affecting the nasal cavity and paranasal sinuses. These conditions include chronic rhinosinusitis, nasal septal deviation, nasal polyps, and allergic rhinitis.

Understanding the characteristics and effective management of headache and facial pain of rhinogenic origin is crucial for providing appropriate care to affected individuals. This prospective study aimed to assess the prevalence, clinical features, and treatment outcomes of patients with headache and facial pain attributed to rhinogenic causes.

Methods

Study Design

This study was designed as a prospective observational study to evaluate patients with headache and facial pain suspected to be of rhinogenic origin.

Participants

A total of 150 patients both male and female age group 15-50 years, presenting to the Otorhinolaryngology outpatient department with complaints of headache and facial pain were screened for eligibility. Patients with clinical features suggestive of rhinogenic etiology were included in the study after obtaining informed consent.

Data Collection: Detailed clinical histories were obtained, focusing on the nature, duration, and aggravating factors of headache and facial pain. Physical examinations, including nasal endoscopy, were performed to identify rhinogenic pathologies. Additional investigations such as radiological imaging (CT or MRI) were carried out to confirm the diagnosis.

Treatment: Patients were managed using a multimodal approach tailored to their specific diagnoses. Medical management consisted of analgesics, nasal corticosteroids, antihistamines, and decongestants, depending on the underlying condition. Endoscopic sinus surgery was performed in cases of chronic rhinosinusitis or nasal polyps resistant to medical treatment. Septoplasty and turbinate reduction procedures were undertaken for patients with nasal septal deviation or hypertrophic turbinates causing symptoms.

Follow-up: Patients were followed up at regular intervals for a minimum of three months after initiation of treatment. During follow-up visits, the frequency and severity of headache and facial pain were assessed using validated scoring systems. Patient satisfaction and improvement in quality of life were also evaluated.

Data Analysis

Statistical analysis was performed using appropriate methods to determine the efficacy of various treatment modalities in relieving symptoms. The results were presented as means, standard deviations, and percentages, as applicable.

Observations

Table 1: Gender distribution among the study subjects

Gender	N	%
Male	83	55.33
Female	67	44.67
Total	150	100

Table 2: Age distribution among the study subjects

Age Group (in years)	N	%
16-20	3	2.00
21-30	74	49.33
31-40	47	31.33
41-50	26	17.33
Total	150	100
Mean ± SD	28.27±6.16	

Table 3: Distribution of patients with sinusitis and facial pain

Parameters	N	%
Facial Pain and Headache with Sinusitis	80	53.33
Facial Pain and Headache Without Sinusitis	70	46.67

Table 4: Diagnosis among the study subjects

Diagnosis	N	%
Allergic rhinitis	5	3.33
Acute rhinosinusitis	22	14.67
Concha bullosa	4	2.67
Chronic rhinosinusitis	46	30.67
Deviated nasal septum	61	40.67
Nasal polyposis	12	8.00
Total	150	100

Table 5: Nature of headache among the study subjects

Nature of Headache	N	%
Stabbing	49	32.67%
Squeezing	47	31.33%
Pulsating	38	25.33%
Dull	16	10.67%

Table 6: Location of headache among the study subjects

Location of Headache	N	%
Frontal	57	38.00
Temporal	44	29.33
Parietal	32	21.33
Occipital	13	8.67
Periorbital	4	2.67

Table 7: Time of attack of headache among the study subjects

Time of Attack	Headache (N)	Percentage (%)
Whole day	43	28.67
Morning (6-11am)	36	24.00
Afternoon (12-3pm)	39	26.00
Evening (4-8pm)	32	21.33
Sleep (9pm-Sleep)	0	0

Table 8: Aggravating Factors among the Study Subjects

Aggravating Factor	N	%
Stress	53	35.33
Routine daily activity	24	16.00
Allergy	15	10.00
Other	14	9.33
Light	7	4.67
Sound	1	0.67
None	36	24.00

Table 9: Accompanying symptom among the study subjects

Accompanying Symptom	N	%
Nasal obstruction	79	52.67
Rhinorrhea	62	41.33
Postnasal drip	43	28.67
Facial pain/pressure	40	26.67
Itching/sneezing	38	25.33
Hyposmia	29	19.33
Cough	16	10.67
Fever	4	2.67

Table 10: Infections among the study subjects

Infections	N	%
Viral Infection	141	94%
Bacterial Infection	9	6%

Table 11: Treatment strategies among the study subjects

Treatment	N	%
Conservative	36	24.00%
Surgery	114	76.00%
Total	150	100%

Table 12: Treatment outcome

Outcome	Conservative	Surgery	Total
Completely relieved	31 (86.11%)	112 (98.25%)	143 (96.33%)
No benefit	5 (13.89%)	2 (1.75%)	7 (4.67%)
Total	36 (100%)	114 (100%)	150 (100%)

Results

Among the patients examined, 150 were diagnosed with headache and facial pain attributed to rhinogenic causes. The most common presenting symptoms were frontal headache, facial pain (Often localized to the maxillary or frontal region), nasal congestion, and rhinorrhea. Diagnostic nasal endoscopy revealed a variety of rhinogenic pathologies, including nasal septal deviation, chronic rhinosinusitis, nasal polyps, and allergic rhinitis.

The study was conducted at the Department of Otorhinolaryngology, Mahatma Gandhi Medical College & Hospital, Jaipur (Rajasthan) from 4th March 2021 to 30th June 2022. A total of 150 patients diagnosed with headache and facial pain of rhinogenic origin were included. The objective of the study was to diagnose and evaluate the different clinical presentations of headache and facial pain of rhinogenic origin.

The findings of the study are summarized as follows:

- The majority of subjects in the study belonged to the age group of 21-30 years (49.33%), followed by 31-40 years (31.33%).
- Rhinogenic headache and facial pain with sinusitis were observed in 53.33% of the subjects.
- The most common diagnoses among the study subjects were deviated nasal septum (40.67%), chronic rhinosinusitis (30.67%), and acute rhinosinusitis (14.67%).
- Different nature of headaches was reported among the study subjects, including stabbing (32.67%), squeezing (31.33%), pulsating (25.33%), and dull (10.67%).
- Headache locations varied, with frontal (38%), temporal (29.33%), parietal (21.33%), occipital (8.67%), and periorbital (2.67%) regions being affected.
- In this study, 28.67% of patients experienced headaches throughout the day, while 26%, 24%, and 21.33% reported attacks of headache during the afternoon, morning, and evening, respectively.
- Aggravating factors such as stress (35.33%), routine daily activity (16%), allergy (10%), light (4.67%), and sound (0.67%) were reported by the subjects.
- Accompanying symptoms included nasal obstruction (52.67%), rhinorrhea (41.33%), postnasal drip (28.67%), facial pain/pressure (26.67%), itching/sneezing (25.33%), hyposmia (19.33%), cough (10.67%), and fever (2.67%).
- Viral and bacterial infections were identified in 94% and 6% of the subjects, respectively. Among viral infections, rhinovirus, adenovirus, and influenza virus were found in 117, 18, and 6 subjects, respectively, out of 141 cases.
- Treatment strategies consisted of conservative measures in 24% of the subjects and surgery in 76% of the subjects.
- Regardless of the treatment approach (conservative or surgical), 96.33% of the subjects experienced complete relief of symptoms.

- A lack of benefit or symptom relief was reported in 13.89% of the subjects who underwent conservative treatment and 1.75% of the subjects who underwent surgical treatment.

Conclusion

This prospective study provides important insights into the occurrence, clinical features, and management of headache and facial pain of rhinogenic origin. The findings highlight the importance of accurate diagnosis through comprehensive clinical evaluations, including diagnostic nasal endoscopy and radiological investigations. Multimodal treatment strategies, including medical management, endoscopic sinus surgery, septoplasty, and turbinate reduction, can effectively alleviate symptoms and improve patient outcomes.

The management of rhinogenic headache and facial pain requires a multidisciplinary approach, involving collaboration between otolaryngologists, neurologists, and pain specialists. Long-term follow-up is essential to monitor treatment efficacy and ensure patient satisfaction. Further research is needed to explore novel therapeutic options and establish evidence-based guidelines for the management of rhinogenic headache and facial pain.

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Conflict of Interest

The authors declare no conflicts of interest related to this study.

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Ethical Approval

The study protocol was approved by the Institutional Review Board (IRB) and conducted in accordance with ethical guidelines and regulations. Informed consent was obtained from all participants before enrolment in the study.

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