International Journal of Otorhinolaryngology and Head and Neck Surgery
Sreenivas C et al. Int J Otorhinolaryngol Head Neck Surg. 2017 Oct;3(4):948-951
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20174312

Original Research Article

Perceptive analysis of nasal surgery outcomes for headache

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Received: 20 December 2016
Revised: 13 July 2017
Accepted: 14 July 2017

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ABSTRACT

Background: Headache is the most common symptom requiring visit to a medical practitioner, sinus headache is one of the sub types of headache. Sinus related headaches are curable by surgical methods with a view to restore the functions of the maxilla-ethmo-turbinal ventilation. In this background we conducted a prospective study to investigate the perceptive relief of symptom of proven rhinosinugenic headache in patients undergoing functional endoscopic sinus surgery with septoplasty.
Methods: Prospective study, done at a command hospital, Bangalore, a tertiary PG Teaching Hospital during 2010-2011. Even though 200 patients enrolled for the study, only 98 subjects could be assessed at the end of 1 year duration. A patient centric subjective perceptional questionnaire was given preoperatively and then postoperatively on definitive intervals and the patient's subjective score was tabulated.
Results: Rhinosinugenic headache is common amongst 36.73% of the population in the age group of 20 to 30 years age group, followed by 25.5% in the 41 to 50 years age group. Gender distribution- 56% of females in the age group of 31 to 50 years are suffering from headache, and 28% of women in the age group of 31 to 40 years. The most common endoscopic findings were bulla ethmoidalis with a prevalence of 37.75%, followed by middle turbinate anomalies of 31.63%.
Conclusions: Endoscopy could not pick up any finding in 8.16% of the study group which was picked up by the non-contrast computerized tomography, perceptive analysis– there was an overall improvement of patient centric headache symptom alleviation of 98% after FESS with septoplasty.

Keywords: Sinugenic headache, Diagnostic nasal endoscopy, Ethmoturbinal, Functional endoscopic sinus surgery, Septoplasty

INTRODUCTION

Headache is the most common symptom requiring visit to a medical practitioner. Approximately 64-77% of people have had headache at some point in their lives.[1] Headache is of multiple etiologies. Sinus headache is one of the sub types of headache.[2] Sinus headache refers to episodes of pain over the sinus area or around the eyes often associated with nasal congestion, rhinorrhea, facial pressure, lacrimation and nausea.

Sinus headache is caused by various intranasal abnormalities and anatomical variations such as enlarged bulla, septal deviation, septal spur and Middle turbinate anomalies.[3] Apart from these variations alteration of structures in the middle meatus may further narrow the stenotic cleft and predispose to contact of the opposing

mucosal surfaces causing referred pain manifesting as headache.[4] Whatever might be the underlying etiology the end effect remains the same and is headache.

Sinus related headaches are curable by surgical methods with a view to restore the functions of the maxilla-ethmo-turbinal ventilation. This is the basis of the Functional Endoscopic Sinus Surgery. This functional surgery is accepted worldwide for its functional restoration of ventilation.[5]

In this background we conducted a prospective study to investigate the perceptive relief of symptom of proven rhinosinugenic headache in patients undergoing Functional Endoscopic Sinus Surgery with septoplasty.

For objective assessment of the patient symptoms a self-developed subjective symptom perceptive score chart was developed. The scoring before the patient underwent surgery and also periodically after the surgery at regular interval for the longest period of 1 year.

METHODS

Study design

Prospective study, we started the studies with two hundred patients enrolled, and were incorporated into the sample during their consultation to ENT OPD in Command hospital, Bangalore, a tertiary PG Teaching Hospital in the year 2010-2011. All the patients were taken to confidence and informed written consent was taken explaining the need, methodology, procedures, risks involved, utility of the study. Institutional ethics committee clearance was obtained. But during the course of the study due to various reasons and attrition only 98 subjects could be assessed at the end of 1 year duration. So the data of only these 98 patients are presented here.

Study method

Inclusion criteria

All patients aged between 20 yrs and above of both sexes with complaints of chronic headache of more than 3 months duration in patients who have failed to respond to conservative medical treatment.

Exclusion criteria

Patients less than 20 yrs who present with headache of less than 3 months duration previously evaluated cases of chronic headache by ENT examination with other established systemic causes of headache like neuro-logical, ophthalmologic, systemic causes.

Patients who satisfy the criteria of selection were taken as subjects of the study. All the patients are subjected initially to Diagnostic nasal endoscopy and then subsequently to non-contrast CT of nose and PNS and the results were noted. The patients with findings in diagnostic nasal endoscopy and CT were advised surgical option in the form of functional endoscopic sinus surgery with septoplasty and those who agreed where taken into the study group.

On entering the study they were given a questionnaire on the perception of their symptoms and their scores were individually tabulated. The same questionnaire was given to the entire study group and individually documented. Subsequent to undergoing the nasal surgery they were given the same assessment questionnaire at post-operative durations of 2 weeks, 6 weeks, 6 months and 1 year.

RESULTS

only 98 patients out of 200 initially enrolled could complete the mandated 1 year follow up.

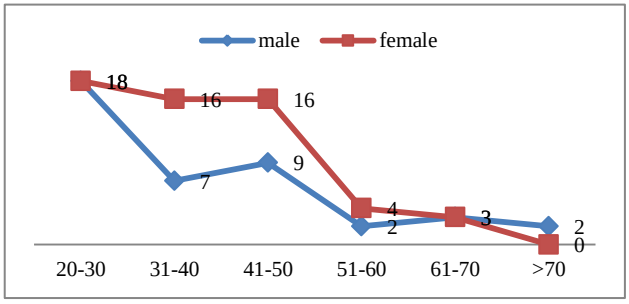

Figure 1: Age and group distribution.

Age group was enumerated in Figure 1. As can be seen in the above graph the maximum age group is in the 20-30 years and it can also be observed as age progresses the incidence of headache reduces. The highest incidence of rhinosinugenic headache was 36.73% in the age group of 20 to 30 years, followed by 25.5% in the 40 – 50 years group followed by 23.46% in 30-40 years age group. We had 58% of females in the study visa was 42% of males. Females are more affected with maximal women in 20 - 30 years age group.

Endoscopic abnormalities observed were depicted in Figure 2. The most common abnormality was enlarged bulla in 38% followed by abnormal middle turbinate in 32%.

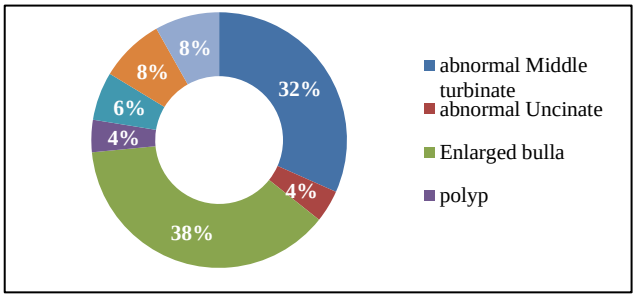

Figure 2: Endoscopic abnormalities.

Non contrast CT findings were shown in Figure 3. 92% had anatomical abnormality detected and 8% did not have any findings.

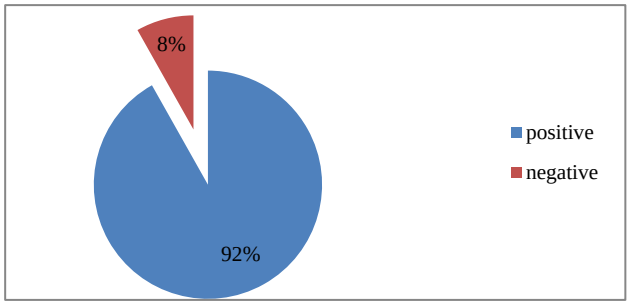

Figure 3: Non contrast CT findings.

Endoscopy vs. NCCT was given in Table 1. 8 patients had abnormal endoscopy but ncct was normal and 8 patients had abnormal ncct but normal endoscopic anatomy.

Table 1: Comparison of non contrast CT with endoscopic abnormalities.

	DNE – abnormal	DNE -nad
NCCT - abnormal	90	8
NCCT –nad	8	0

The questionnaire of perceptive score analysis was given in Table 2.

Table 2: Questionnaire of perceptive analysis.

Grade	Severity
0	No symptoms
1	Mild – Mild steady symptoms, but easily tolerable and not disturbing day to day activities
2	Moderate – Symptoms hard to tolerate, may interfere with activities of daily living and/or sleep
3	Severe – Symptoms are so bad, person cannot function all the time

Table 3: Post-operative perceptive score.

Grade	Pre op	Post op 2 weeks	Post op 6 weeks	Post op 6 months	Post op 12 months
0	0	0	36	88	98
1	7	54	30	6	2
2	30	26	24	4	0
3	54	20	10	0	0

The plotted analysis was shown in Table 3. As it can be observed we can infer that as time progresses the headache perceptive score decreases from 6 weeks post operatively to grade 0 in 98% of the patients as given in Figure 4 below.

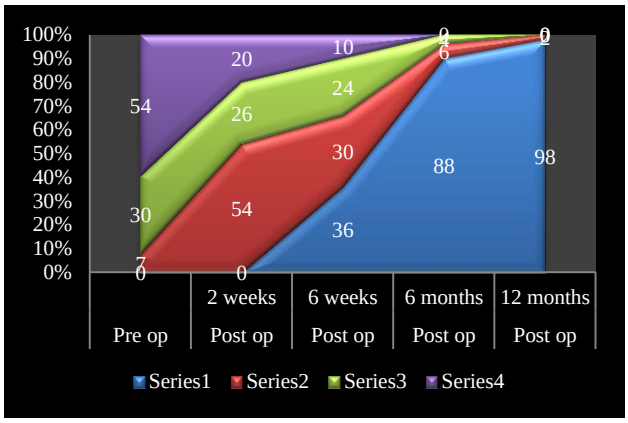

Figure 4: Plot series chart of the improvement of perceptive score.

DISCUSSION

In the year 1988 the International Headache Society (IHS) constituted a headache classification committee, which has laid down broad diagnostic criteria for headache disorders and facial pain, this classification is used for research purposes to maintain uniformity in diagnostic criteria.[6] Some patients have chronic and intractable headache is present and where no overt cause is known even after maximum detailed systemic examination by general physician, ophthalmologist, dentist, neurophysician and even gynaecologist. Some of these cases may have their origin of headache in the intricate region of nose and PNS.[7]

With the help of CT scanning and DNE, it may be possible to have an access and visualization of the niches and narrow spaces in this region. The role of endoscopist in association with study of CT scan would be to locate the possible trigger area in sinonasal area which initiates the pain reflex.[8] Identification of such intranasal and sinus lesions leading to close contact of mucosal area or subclinical infections will help the endoscopist to reduce the trigger area.[4]

The hallmark of the nasal and paranasal physiology is (a) proper ventilation of PNS through natural ostium and (b) movement of mucus blanket by ciliary beating towards ostium. Osteo-meatal complex (OMC) is the key area in which maxillary sinus drains through its ostium inferiorly and frontal sinus through frontal recess superiorly. Any anatomical variation or pathology in the narrow area of infundibulum is likely to clog the sinuses and lead to mal-ventilation. The presence of narrow spaces also precludes establishing of close contact of opposing mucosal surfaces, which in turn hinder the normal flow of mucous acts as nidus for infection.[9] A vicious cycle of congestion,

mucosal oedema resultant mechanical pressure and/or narrowing of ostia and mal-ventilation may set in consequently.

In our study the endoscopic correlation to patients with headache was up to 92% in terms of picking out abnormalities, this is in accordance with Jareonchaesri et al carried out the nasal endoscopy to evaluate endoscopic anatomic variation and to find the correlation between symptoms of patients with headache and the endoscopic findings.[10] There was a significant correlation between sinus headache and all of the combined abnormal endoscopic findings ($p<0.05$).

In our study 98% of the patients themselves graded as suffering from grade '0' headache in their symptom perception score 1 year post surgery, this is in accordance with study by Clarico, all 10 selected patients with sinus abnormalities who received surgical or medical therapy reported headache relief.[11] In a study by Tosun, endoscopic endonasal surgery of 30 patients with headaches presumed to have secondary contact points found that approximately 45% of patients had relief of headache, only 10% had no improvement in headache intensity.[12]

CONCLUSION

Rhinosinugenic headache is common amongst 36.73% of the population in the age group of 20 to 30 years age group, followed by 25.5% in the 41 to 50 years age group. 56% of females in the age group of 31 to 50 years are suffering from headache, and 28% of women in the age group of 31 to 40 years.

The most common endoscopic findings were bulla ethmoidalis with a prevalence of 37.75%, followed by middle turbinate anomalies of 31.63%. Endoscopy could not pick up any finding in 8 patients that is 8.16% of the study group which was picked up by the NCCT. CT picked up findings in 90 patients and it could not pick up any finding in 8 patients which was pick up endoscopy. There was an overall improvement of patient centric headache symptom alleviation of 98% after FESS with septoplasty.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Manzoni GC, Stovner LJ. Epidemiology of Headache. Handbook Clin Neurol. 2010;97:3-22.
2. Silberstein SD, Wilcox TX. Nasal disease and sinus headache. 7th edition. New York Press: 2001: 494-508.
3. Kennedy DW. Functional endoscopic sinus surgery: technique. Arch Otolaryngol. 1985;111:643-9.
4. Stammberger H. Functional endoscopic sinus surgery: the Messerklinger Technique. Toronto: BC Decker; 1988.
5. Stammberger H, Posawetz W. Functional endoscopic sinus surgery: Indications, complications and results of the Messerklinger technique. Eur Arch Otorhinolaryngol. 1990;247(2):63-76.
6. The Headache Classification Committee of the International Headache Society: classification and diagnostic criteria for headache disorder, cranial neuralgia and facial pains. Cephalgia. 1988;8:1-96.
7. Low WK, Willatt DJ. Headaches associated with nasal obstruction due to deviated nasal septum. Headache. 1995;35:404-6.
8. Messerklinger W. Endoskopie des unteren Nosenganges Monalsschr ohrenheilkd. Laryngo Rhinol. 1972;106:569-72.
9. Stammberger H. Endoscopic endonasal surgery - new concepts in treatment of recurrent sinusitis. I: anatomical and pathophysiological considerations. Otolaryngol Head Neck Surg. 1986;94:143-7.
10. Jareonchassi P, Thitadilok V, Bunnag C et al. Nasal endoscopic findings in patients with sinus headache. Asian Pac J Sinus Headache. 1999;17(4):261-7.
11. Clerico DM. Sinus headaches reconsidered: referred cephalgia of rhinological origin masquerading refractory primary headache. Headache. 1995;35:185-92.
12. Tosun F, Gerek M, Ozkaptan Y. Nasal surgery for contact headaches. Headache. 2004;40:237-40.

Cite this article as: Sreenivas C, Awasthi SK. Perceptive analysis of nasal surgery outcomes for headache. Int J Otorhinolaryngol Head Neck Surg 2017;3:948-51.