Section: Otorhinolaryngology

Original Research Article

EVALUATION OF ROLE OF CONCHA BULLOSA IN CHRONIC RHINOSINUSITIS: A PROSPECTIVE ANALYSIS AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Chronic rhinosinusitis is a complex disease that has previously been used to describe conditions ranging from unilateral single sinus disease, odontogenic sinusitis, fungal sinusitis to widespread airway inflammation. The present study was conducted to evaluate the role of concha bullosa in chronic rhinosinusitis.

Materials and Methods: The prospective cross-sectional study was carried out in the Department of Otorhinolaryngology, Parul Sevashram Hospital, Parul Institute of Medical Sciences and Research, Vadodara, Gujarat (India) from April 2024 to March 2025 among 120 patients who were clinically and radiologically diagnosed as having chronic rhinosinusitis. Patients were evaluated with the help of CT scan paranasal sinuses and by nasal endoscopy. The collected data were evaluated and analysed statistically.

Results: Maximum patients (25%) with chronic rhinosinusitis and with concha bullosa belong to age group 21-30years followed by 11-20 years (15%). Maximum patients (15%) with chronic rhinosinusitis and without concha bullosa belong to age group 21-30years followed by 11-20years (12.5%). Out of 120 patients 72.5% were male and 27.5% were female. 45% male patients were with chronic rhinosinusitis and with concha bullosa and 15% female patients were with chronic rhinosinusitis and with concha bullosa.

Conclusion: The present study concluded that 60% patients were with chronic rhinosinusitis and with concha bullosa.

Keywords: Chronic Rhinosinusitis, Concha Bullosa, Airway Inflammation

INTRODUCTION

Concha bullosa is the presence of pneumatisation in the middle turbinate of the nose.[1] According to Bolger et al., the pneumatisation of the middle turbinate (concha bullosa) is of three types: lamellar type is the pneumatisation of the vertical lamella of the concha; bulbous type is the pneumatisation of the bulbous segment; pneumatisation of both the lamellar and bulbous parts is called extensive concha bullosa.[2] Rhinosinusitis refers to a group of diseases, mainly inflammatory and infectious, which affect the mucosa of paranasal sinuses.[3]

Chronic rhinosinusitis is a complex disease that has previously been used to describe conditions ranging from unilateral single sinus disease, odontogenic sinusitis, fungal sinusitis to widespread airway inflammation. The currently recognized definition of primary CRS is represented by chronic inflammation of the paranasal sinuses. In this discussion, primary CRS refers to a sinus condition in which no obvious secondary pathoetiologic event is occurring (ie fungal ball, neoplasia, odontogenic or immunodeficiency). Classically, primary CRS has been separated into two major subtypes based upon phenotypic appearance; CRS with nasal polyps (CRSwNP) and CRS without nasal polyps (CRSsNP).[4,5] Chronic headache is one of the

common symptoms which is distressing to both the patient as well as the physician. It becomes difficult to ascertain the nature of headache owing to multiple factors such as self- administered medications by the patient, vague nature of the headache etc. The investigative modalities for evaluation of headache available to an ENT surgeon are many, such as plain X-ray, CT scan of nose and paranasal sinuses (PNS) and diagnostic nasal endoscopy.[6] The present study was conducted to evaluate role of concha bullosa in chronic rhinosinusitis.

MATERIALS AND METHODS

The prospective cross-sectional study was carried out in the Department of Otorhinolaryngology, Parul Sevashram Hospital, Parul Institute of Medical Sciences and Research, Vadodara, Gujarat (India) from April 2024 to March 2025 among 120 patients who were clinically and radiologically diagnosed as having chronic rhinosinusitis.

Before the commencement of the study, ethical clearance was taken from the Ethical Committee of the institute and informed consent was taken from the patients after explaining them about the study. The study included patients over 10 years old with chronic rhinosinusitis symptoms lasting 12 weeks or more. These patients had either 2 major factors or 1 major and multiple minor factors. Patients with complications of sinusitis, patients with acute sinusitis or malignant disease or those who had previously undergone nasal or sinus surgery, either open or endoscopic, were excluded from the study. The 1997 Task Force on Rhinosinusitis of the American Academy of Otolaryngology–Head and Neck Surgery recommended diagnosing rhinosinusitis based on major and minor criteria.

Major factors:

- Headache
- Nasal obstruction
- Nasal discharge
- Post nasal drip
- Smell disturbances

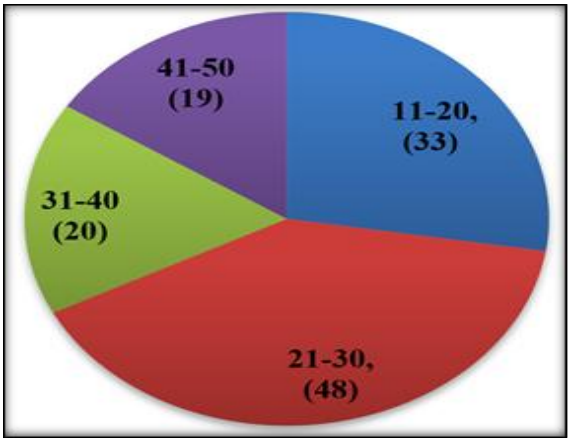
Minor factors

- Fever
- Halitosis
- Fatigue
- Dental pain
- Cough

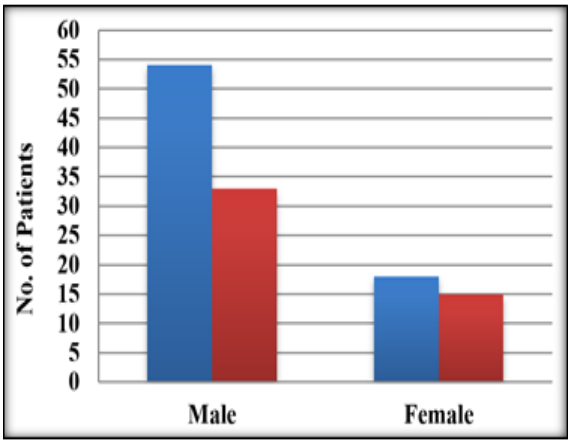
Patients were evaluated with the help of CT scan paranasal sinuses and by nasal endoscopy. The collected data were evaluated and analysed statistically.

RESULTS

Maximum patients (25%) with chronic rhinosinusitis and with concha bullosa belong to age group 21-30years followed by 11-20years (15%). Maximum patients (15%) with chronic rhinosinusitis and without concha bullosa belong to age group 21-30years followed by 11-20years (12.5%). Out of 120 patients 72.5% were male and 27.5% were female. 45% male patients were with chronic rhinosinusitis and with concha bullosa and 15% female patients were with chronic rhinosinusitis and with concha bullosa.



Graph 1: Age wise distribution of study subjects



Graph 2: Association between Concha bullosa with Gender

Table 1: Association between Concha bullosa with Age

Age group (yrs)	Patients with chronic rhinosinusitis and with concha bullosa	Patients with chronic rhinosinusitis and without concha bullosa	Total
11-20	18 (15%)	15 (12.5%)	33(27.5%)
21-30	30 (25%)	18 (15%)	48(40%)
31-40	12 (10%)	8 (6.66%)	20(16.6%)
41-50	12 (10%)	7 (5.8%)	19(15.8%)
Total	72 (60%)	48 (40%)	120(100%)

Table 2: Association between Concha bullosa with Gender

Gender	Patients with chronic rhinosinusitis and with concha bullosa	Patients with chronic rhinosinusitis and without concha bullosa	Total
Male	54(45%)	33(27.5%)	87(72.5%)
Female	18(15%)	15(12.5%)	33(27.5%)
Total	72(60%)	48(40%)	120(100%)

DISCUSSION

Nasal endoscopy in association with computed tomography of nose and PNS provides a more specific and accurate approach to sino nasal diseases.[7,8]

Maximum patients (25%) with chronic rhinosinusitis and with concha bullosa belong to age group 21-30years followed by 11-20years (15%). Maximum patients (15%) with chronic rhinosinusitis and without concha bullosa belong to age group 21-30years followed by 11-20years (12.5%). Out of 120 patients 72.5% were male and 27.5% were female. 45% male patients were with chronic rhinosinusitis and with concha bullosa and 15% female patients were with chronic rhinosinusitis and with concha bullosa. A study by Dr. Atiur Rahman et al found that out of 100 patients with chronic rhinosinusitis, the proportion of female patients 60% was higher than male patients. The most common age group in study was 21-30 years which included 22% patients.[9]

In a similar study conducted by Tuli et al., on 50 patients, the most commonly affected age group was between 21-35 years 30%.[10]

Tiwari R et al concluded that concha bullosa plays major role in development of chronic rhinosinusitis.[11] Prinja S et al concluded that the relation between Concha Bullosa and Chronic Rhniosinusitis is significant. 35 patients had concha bullosa out of 50 patients of chronic rhinosinusitis.[3] Shrikrishna BH, et al found that although rhinosinusitis was more predominant in the extensive type of concha bullosa compared to other types, it was statistically not significant and there was no statistically significant association between any type of concha bullosa with ipsilateral rhinosinusitis either in right side or left side.[12]

CONCLUSION

The present study concluded that 60% patients were with chronic rhinosinusitis and with concha bullosa. The presence of concha bullosa plays a significant role in the development of chronic rhinosinusitis.

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