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ORIGINAL ARTICLE

Symptomatic septal nasal deviation and its association with sinusitis: A clinical study.

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ABSTRACT… Objective: To determine the frequency of symptomatic nasal septal deviation in patients with sinusitis. **Study Design:** Cross-Sectional Study. **Setting:** Department of Otolaryngology and Plastic Surgery, Jinnah Hospital & Burn Center Lahore. **Period:** 1st January, 2019 to 31st December, 2019. **Material & Methods:** A total of 165 cases who fulfill the inclusion criteria were enrolled from ENT & Plastic Surgery OPD of Jinnah Hospital & Burn Center, Lahore. After the informed consent, clinical and CT scan examination was done with 16-slice MDCT scanner in all the cases. The images were retrieved in external hard drives. The nasal septum was evaluated for presence of deviated nasal septum. Data was entered and analyzed using SPSS v23.0 and was stratified for age and gender. Chi-square test was applied for post stratification. A p-value ≤0.05 was considered as significant. **Results:** Among 165 patients there were 109(66.1 percent) males and 56 (33.9%) females. The average mean age was 37.3± 12.3 years.121 (73.3%) patients out of 165 had deviated nasal septum (DNS) associated with sinusitis. **Conclusion:** Nasal septal deviation is a very common condition in our country and is significantly associated with sinusitis. This study highlights the prevalence of deviated nasal septum and its accompanying symptoms that need to be considered during the clinical and radiological evaluation of patient.

Key words: CT Scan, Deviated Nasal Septum, Sinusitis.

INTRODUCTION

One of the very common conditions of nose and para-nasal sinuses is sinusitis. Worldwide, every year around fifty million peoples are affected with this problem. In adults, frequent use of antibiotics for sinusitis has resulted in one of the five common problems for which antibiotics are advised. Duration of disease is important as it can have a impact to diagnose it as acute or chronic sinusitis and when symptoms are persisting for more than 3 months or 12 weeks consecutively, it is labeled as chronic sinusitis.[1]

Obstruction in free drainage from sinuses whether by any congenital, physiological, anatomical or pathological problem can predispose to infection due to stasis of secretions. Different etiological factors are involved in chronic sinusitis development. Those factors include medications asthma, allergy, nasal polyps and others associated problems like surgery, trauma, and congenital anatomic abnormalities such as nasal septal deviation etc.[2]

Deviated nasal septum is one of the major factors that has significant pathological role to develop chronic sinusitis. Nasal septal deviation is present either congenitally due to anatomical abnormality or has resulted after the nasal trauma and accounts for sixty two percent of population suffering from chronic sinusitis. This deviation in nasal septum can cause interference in airflow or obstruction in bony or meatal areas that result in development of acute and later on chronic sinusitis if this problem persists for longer period of time.[3] In 5th century B.C, Hippocrates described the sinusitis as “In a person having a painful spot in head with intense headache, pus or fluid running from the nose removes the disease”.[4]

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In a study in 2017, eighty one percent of the case had nasal septal deviation associated with sinusitis.[5] In another study deviated nasal septum was reported in 85.3 percent of patients with sinusitis.[6] As no local data is available in Pakistan so this study will set a baseline about the prevalence of nasal septal deviation associated with sinusitis.

OBJECTIVE

To determine the frequency of symptomatic nasal septal deviation in patients with sinusitis

MATERIAL & METHODS

A descriptive cross sectional study was conducted at Otolaryngology (ENT) and Plastic Surgery Department Jinnah Hospital & Burn Center Lahore from 1st January 2019 to 31st December 2019 after approval from ethical committee (21784/EC-I/JH). A sample size of 165 patients was calculated by using 95% confidence level with 6% margin of error and taking an expected percentage of 81% of deviated nasal septum with sinusitis through non-probability consecutive sampling. Patients of both genders, age range 15-60 years and clinically diagnosed cases of sinusitis were enrolled. Patients with malignancy, motion artifacts, polyps, bleeding disorders and already operated cases were excluded. Demographic data of all the patients including name, gender and age was obtained. After the informed consent, CT scan was obtained with 16-slice MDCT scanner and images were retrieved in external hard drives. CT scans were evaluated by experienced Radiologist, Consultant Plastic Surgeon and ENT consultant with > 5 years post fellowship experience. The nasal septum and associated bones were evaluated and DNS was noted. Data were collected and entered on a proforma.

All the collected data were analyzed by using SPSS v23.0. Qualitative variables, deviated nasal septum (DNS) and gender were expressed as frequencies and percentages. Quantitative variable like age was expressed by Mean and standard deviation. To deal with effect modifiers, data were stratified for age and gender. Chi-square test was applied for post stratification. A p-value ≤0.05 was considered as significant.

RESULTS

A total of 165 patients were included in this study. There were 109(66.1%) males and 56(33.9%) females. The average mean age of patients was 37.3±12.3 years. Out of 165 patients, 54(32.7%) were in 15-30 years age group, while 60 patients (36.4%) and 51 patients (30.9%) were in 31-45 years and 45-60 years age groups respectively. Among 165 patients, 121(73.3%) had deviated nasal septum (DNS). With respect to stratification of deviated nasal septum for gender and age there was no association with DNS (P=0.980, 0.442 respectively).

Variables n=165	Frequency (%)
Gender	
Male	109 (66.1%)
Female	56 (33.9%)
Age	
15 - 30 years	54 (32.7%)
31 - 45 years	60 (36.4%)
46 - 60 years	51 (30.9%)
Deviated Nasal Septum	
Yes	121 (73.3%)
No	44 (26.7%)

Table-I. Socio-demographic and clinical characteristics of subjects

Variables n=165		Deviated Nasal Septum Frequency (%age)		P-Value
		Yes	No	
Age	15 - 30 years	43(73.4)	11 (26.6)	0.442
	31 - 45 years	42 (70.0)	118 (30.0)	
	46 - 60 years	36 (70.6)	15 (29.4)	
Gender	Male	80(73.4)	29 (26.6)	0.980
	Female	41(73.2)	51 (26.8)	

Table-II. Cross tabulation deviated nasal septum and age and sex among the groups.

DISCUSSION

Sinusitis being one of common problem in ear, nose throat (ENT) has developed a great interest in otorhinolaryngologists to explore about the anatomy of nose and para nasal sinuses and its correlation with sinusitis.[7] Severity of nasal septal deviation has resulted in more prevalence of sinusitis and accounts for 20-31% of the community suffering from sinusitis due to septal

deviation.[8,9,10] Literature shows variation with respect to association between sinusitis and deviated nasal septum with one study showed significant association while other study showed no significant relationship between these two problems.[11,12] Other associated factors of sinusitis are prevalent from literature that seventy three percent cases of sinusitis are associated with concha bullosa.[13] CT scan evaluation in a group of sixty three patients showed that 15.9% patients had deviated nasal septum while the other study showed no correlation between the sinusitis and anatomical variation between nose and para nasal sinuses on CT examination.[14,15] Contrary to above mentioned study, our study results reported the evidence of deviated nasal septum deviation in patients with sinusitis.

Geographically there is variation in degrees of deviated nasal septum both congenitally and after trauma as seen in children and young adults that results in difficulty in breathing and respiratory problems.[16,17] In a study by Arya et al, 68.4% of patients showed deviated nasal septum.[18] In another study by Oliveira et al, there was 60 percent prevalence of DNS.[19] The prevalence of DNS in our study was 73.3% with 79.6% patients were between 15-30 years of age having deviated nasal septum. While in different other studies, DNS was observed in 13.6 percent cases between age of fifteen to seventeen years and 41.8% in young adults and fifty five percent in early adults.[20-21,22]

With increase in age, severity of problem increases due to increase in rate of DNS and there was more prevalence noted in a study in older adults.[23] There is a variation in shape of nasal septal deviation with C shape deformity was more common followed by S shape. Moorthy et al in a study showed that prevalence of C shape deviation is more common and about eighty six percent cases suffered nasal obstruction as common problem.[24] Oliveira et al, in a study reported the rhinitis as most common symptom due to DNS.[19] Shoib et al showed that headache was more prevalent in patients with DNS.[25] Headache was also more common complaint in around eighty percent cases followed by nasal obstruction in 77 percent cases in a study by Singh.[26]

CONCLUSION

Nasal septal deviation is a very common condition in our country and is significantly associated with sinusitis. This study highlights the prevalence of deviated nasal septum and its accompanying symptoms that need to be considered during the clinical and radiological evaluation of patient.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Muhammad Umair Wahab	Data collection, Statistical analysis, Interpretation of data.	
3	Asma Bint e Saad	Writing of manuscript, Drafting, Literature search.	
4	Abdul Shakoor	Results analysis, Literature search, data collection, final review.	
5	Mahriq Fatima	Statistical analysis, revision of manuscript, interpretation of data.	
6	Muhammad Farhan Akhtar	Review of results and Literature search.	