

## Original Research

### Prevalence of Nasal Septum Deviation among known population

<sup>1</sup>Sumit Walia, <sup>2</sup>Vikrant Singh Ghiyali

<sup>1</sup>Medical Officer (ENT), Regional Hospital, Kullu, Himachal Pradesh, India;

<sup>2</sup>Medical Officer (ENT), Civil Hospital Rohru, Shimla, Himachal Pradesh, India

#### ABSTRACT:

**Background:** Diseases of the paranasal sinuses are very prevalent in East Azerbaijan Province, Iran, which is attributed to various reasons, including environmental and anatomical factors. This study investigated the prevalence of anatomical variations of nasal septum deviation and evaluated the effect of this factor on increasing the mucosal thickness of the sinuses. **Material and methods:** The samples included all the patients having nasal septum deviation in the sample population. The samples were re-examined to select the samples with a thickened mucosa of the maxillary sinus. The results were reported using descriptive statistical methods. **Results:** Out of 100 subjects, the prevalence of septal deviation was 81.25% in males and 77.77% in females. The prevalence of septal deviation in the whole population was 80%. Among males, 23.4% of the deviations were type I, 21.8% were type II, 14% were type IV, 18.7% were type V, 6.25% were type VI, and 3.1% were type VII. In females, 50% were type I, 11.1% were type II, 0% were type III, 5.5% were type IV, 33.3% were type V, 2.7% were type VI, and 5.55% were type VII. The evaluation of the pathological increase in the thickness of the maxillary sinus mucosa showed that the thickness of the mucosa had increased by 33.45% and 58.37% in males and females, respectively. In males, 24% of the increase was normal mucosa, 37% was sinusitis, and 39% was mucositis. In females, 35% of the increase was normal, 16% was sinusitis, and 49% was mucositis. **Conclusion:** There was a significant relationship between nasal septum deviation and thickening of the maxillary sinus mucosa.

**Keywords:** CBCT, maxillary sinuses, mucous thickness, septum deviation

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**Corresponding author:** Vikrant Singh Ghiyali, Medical Officer (ENT), Civil Hospital Rohru, Shimla, Himachal Pradesh, India

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#### INTRODUCTION

The nasal septum is a complex osseocartilaginous structure that divides the nose into two nasal passages.<sup>1</sup> Generally, it is rare to have a symmetrical nasal cavity, and some degree of deviation is considered a normal anatomical variation.<sup>2</sup> However, nasal septum deviation (NSD) can be either developmental which is generally a smooth “C-shaped or S-shaped” deformity, or a result of trauma which is usually more dislocated and irregular.

Septal deviation is categorized as follows:

Type I: A slight deviation in the vertical or horizontal plane that does not stretch through the vertical dimension of the septum.

Type II: Vertical anterior deviation

Type III: Vertical posterior deviation

Type IV: S-shaped septum

Type V: Horizontal spores on one side with or without huge distortion on the opposite side

Type VI: Type V with a deep groove on the concave surface

Type VII: Any combination of Types II to VI.

On each side of the nasal cavity, there exists a superior, middle, and inferior concha. The middle concha may begin to get pneumatized at this point by the posterior ethmoid air cells. Partial or total pneumatization of the middle concha is termed as concha bullosa. On CT scan, it appears as an air space of the middle turbinate surrounded by an oval bony rim<sup>3-6</sup>.

CT scan is the technique of choice for the study of nasal septum. Unlike the routine radiography, CT scores both bone and cartilage portion and offers detailed anatomical information of bony nasal structures. Septal deformities are the prime causative factor in patients suffering from chronic sinusitis.

The aim of our study is to assess the side of nasal septum deviation, its relationship with concha bullosa and type of naso-septal deviation angle.

**MATERIAL AND METHODS**

The goal of the research was to look at how the maxillary sinuses' increased mucosal thickness correlated with the nasal septum's deviation. For a more thorough analysis of mucosal thickening, the participants with increased mucosal thickness were divided into two groups: sinusitis and mucositis. Mucositis, which refers to a localised increase in mucosal thickness, and sinusitis, which refers to an overall increase in mucosal thickness. Patients with asthma, cystic fibrosis, sinus cysts, metabolic abnormalities, malignant diseases, those who had a

history of nose or sinus surgery, traumatic cases, and children under the age of eight were excluded from the study. The septal deviation prevalence in the study population was evaluated after the instances with septal deviation were chosen. The samples were next examined in the coronal and axial sections for increased maxillary sinus thickness.

**RESULTS**

Out of 100 subjects, the prevalence of septal deviation was 81.25% in males and 77.77% in females. The prevalence of septal deviation in the whole population was 80%. Chi-squared test showed no significant difference between males and females in the prevalence of nasal septum deviation.

Nasal septum deviation	No. of males	No. of females	Total
Present	52(81.25%)	28(77.77%)	80(80%)
Absent	12(18.75%)	08(22.23%)	20(20%)
Total	64(100%)	36(100%)	100(100%)
P value	0.807		

Among males, 23.4% of the deviations were type I, 21.8% were type II, 14% were type IV, 18.7% were type V, 6.25% were type VI, and 3.1% were type VII. In females, 50% were type I, 11.1% were type II, 0% were type III, 5.5% were type IV, 33.3% were type V, 2.7% were type VI, and 5.55% were type VII.

Septum type	Number of males	Number of females
Type I	15(23.4%)	18(50%)
Type II	14(21.8%)	02(11.1%)
Type III	08(12.5%)	00(0%)
Type IV	09(14%)	01(5.5%)
Type V	12(18.7%)	12(33.3%)
Type VI	04(6.25%)	01(2.7%)
Type VII	02(3.1%)	02(5.55%)
P value	0.603	

Chi-squared test did not show any significant difference in the distribution of the frequency of nasal septum deviation between males and females.

The evaluation of the pathological increase in the thickness of the maxillary sinus mucosa showed that the thickness of the mucosa had increased by 33.45 % and 58.37% in males and females, respectively.

In males, 24% of the increase was normal mucosa, 37% was sinusitis, and 39% was mucositis. In females, 35% of the increase was normal, 16% was sinusitis, and 49% was mucositis.

Chi-squared test did not show any significant difference in the frequency of nasal septum deviation type based on the type of mucosal thickness increase.

**DISCUSSION**

Nasal septal deviations play a critical role in nasal obstruction symptoms, aesthetic appearance of the nose, increased nasal resistance, and sometimes snoring<sup>7</sup>. Consequently, a comprehensive assessment of the nasal septum serves an essential role in preoperative planning, re-establishing function, and overall cosmetic appeal.

In this study, out of 100 subjects, the prevalence of septal deviation was 81.25% in males and 77.77% in

females. The prevalence of septal deviation in the whole population was 80%. Among males, 23.4% of the deviations were type I, 21.8% were type II, 14% were type IV, 18.7% were type V, 6.25% were type VI, and 3.1% were type VII. In females, 50% were type I, 11.1% were type II, 0% were type III, 5.5% were type IV, 33.3% were type V, 2.7% were type VI, and 5.55% were type VII. The evaluation of the pathological increase in the thickness of the maxillary sinus mucosa showed that the thickness of the mucosa had increased by 33.45 % and 58.37% in males and females, respectively. In males, 24% of the increase was normal mucosa, 37% was sinusitis, and 39% was mucositis. In females, 35% of the increase was normal, 16% was sinusitis, and 49% was mucositis.

The population in the study by Stallman et al<sup>8</sup> included 60% males and 40% females. Deviation of the nasal septum was present in 65% of cases. In 44% of cases, at least one case of concha bullosa was seen. In a study by Tung-Lung et al<sup>9</sup>, it was reported that 4% of cases had nasal septum deviations.

**CONCLUSION**

It was concluded that nasal septum deviation was prevalent among males as compared to females. Type

I deviation was more prevalent among both males as well as females. There was discovered a significant relationship among nasal septum deviation as well as thickening of the maxillary sinus mucosa.

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