

# Study of association of deviated nasal pathology and paranasal sinuses at tertiary health care centre

Anshu Kumar<sup>1</sup>, Pramod Kumar<sup>2\*</sup>

<sup>1</sup>Senior Resident, Department of ENT, Vardhmaan Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, INDIA.

<sup>2</sup>Senior Resident, Department of ENT, Anugrah Narayan Magadh Medical College, Gaya, Bihar, INDIA.

Email: [anshu19802202@gmail.com](mailto:anshu19802202@gmail.com)

## Abstract

**Background:** Deviated nasal septum is a frequently occurring condition that can cause nasal obstruction in an individual. It may result in permanent changes in the nasal and sinus mucosa because of altered ventilation of the nasal cavity. **Objectives:** Study was aimed to see association between deviated nasal pathology and paranasalsinuses. **Material and Methods:** This was a cross sectional study done at ENT department. 100 cases present to OPD with symptoms associated with DNS were selected and **Results:** Out of 100, there were 58 males and 42 females in this study. Most common age group 21-30 with 33% cases, next was 31-40 with 28% cases. Total of 61% cases belonged to 21-40 age group. C shaped deviation 72% was seem to be most common finding. Least common was caudal with 10% cases. Headache 92% was most common presenting symptom. Nasal obstruction 90%, post nasal drip 68% were next common symptoms. On CT PNS most common sinusitis seen was B/L maxillary sinusitis 49% and there was no any case of U/L sphenoid sinusitis. Spur type was seems to be associated with most verities of sinusitis in present study. Caudal deviation was associated with least number of sinusitis. **Conclusions:** According to finding of this study, there was no significant association between deviated nasal and paranasal sinusitis. corelating sinuses disease to deviated nasal septum may lead to mis/over treatment and also unwanted surgery.

**Key Word:** Deviated Nasal Septum, Sinusitis, paranasal sinuses

## \*Address for Correspondence:

Dr. Pramod Kumar, Senior Resident, Department of ENT, Anugrah Narayan Magadh Medical College, Gaya, Bihar, INDIA.

Email: [pramodmc@yahoo.com](mailto:pramodmc@yahoo.com)

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## INTRODUCTION

Sinusitis affects 1 in 7 adults with annual incidence of about 50 million individuals. It is the fifth most common diagnosis for which antibiotics are prescribed.<sup>1</sup> The nasal septum comprising of bony and cartilaginous parts separates the nasal cavity into right and left sides both anatomically and physiologically. It is an accepted fact that some amount of deviation of nasal septum is common and having a perfectly straight septum is a

rarity.<sup>2</sup> Various reasons have been attributed to occurrence of deviated nasal septum (DNS) including racial factors, birth molding of septum during parturition, trauma and developmental deformities of septum.<sup>3</sup> In the literature, some authors stated that there is no definite role or contribution of deviated nasal septum in the pathogenesis of sinusitis, and no significant difference between sinusitis in those who has DNS and those who does not.<sup>4,5</sup> Other authors reported almost the reverse, stating that deviated nasal septum can be associated with significant sinonasal disease, especially a C-shaped DNS which showed statistically significant correlation with sinus disease.<sup>6,9</sup> Evaluation of the location, extent of sino nasal diseases by radiologic evaluation of the paranasal sinuses is essential in planning surgical intervention. Plain radiography, computed tomography and magnetic resonance imaging are applied in evaluating the sinuses.<sup>10</sup> Deviated nasal septum (DNS) can be asymptomatic in an individual or may cause nasal obstruction and symptoms of rhino sinusitis like nasal discharge, facial pain, epistaxis, disturbance of smell. The pathology in

sinonasal cavity can also affect the functioning of throat and ear and surgery of septum and sinuses is indicated in such a situation.<sup>3</sup> In present study we tried to evaluate the association of various types of deviated nasal septum pathologies and paranasal sinuses.

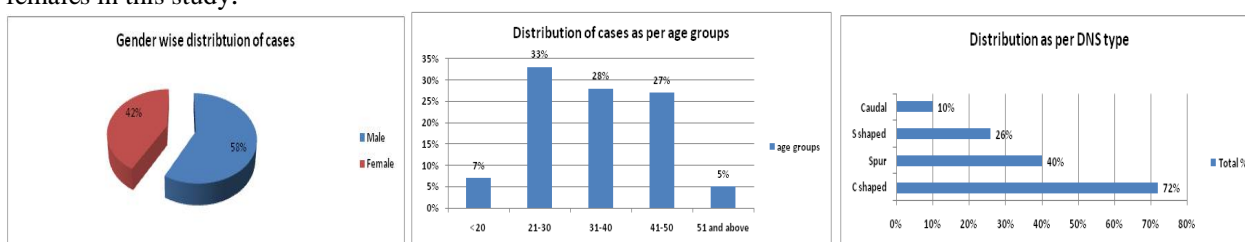
### MATERIAL AND METHODS

A cross sectional study done on 100 cases presenting with symptoms of DNS to ENT OPD at Department of ENT, Vardhmaan Institute of Medical Sciences, Pawapuri,

Nalanda, Bihar during a period of January 2018 to June 2018. Written informed consent was taken prior to the study. Detailed history was taken with the help of predesigned questionnaire. All the cases done through appropriate laboratory work up and investigated with computed tomography (CT). The Lund-Mackay staging system was used to examining the osteomeatal complex (OMC) and all paranasal sinuses disease staging. Data was entered into and evaluated by using SPSS.v22.

### RESULTS

A total of 100 patients who met our inclusion criteria were formed study sample. Out of 100, there were 58 males and 42 females in this study.



**Figure 1:** Genderwise distribution of cases **Figure 2:** Age groupwise distribution of cases **Figure 3:** Distribution of cases as per type of DNS in cases

Most common age group 21-30 with 33% cases, next was 31-40 with 28% cases. Total of 61% cases belonged to 21-40 age group.

**Table 1:** Distribution of cases as per clinical presentation

Symptoms*	Total (%)
Headache	92 (92%)
Nasal obstruction	90 (90%)
Post nasal drip	68 (68%)
Facial pain	48 (48%)
Fever	25 (25%)
Halitosis	8 (8%)
Cough	6 (6%)
Hyposmia	2 (2%)

\*Multiple responses

Headache 92% was most common presenting symptom. Nasal obstruction 90%, post nasal drip 68% were next common symptoms.

**Table 2:** Distribution of cases as per CT PNS findings

CT PANS	Total (Percentage)
Frontal sinusitis-Unilateral	12
Frontal sinusitis-Bilateral	35
Maxillary sinusitis- Unilateral	40
Maxillary sinusitis-Bilateral	49
Ethmoid sinusitis- Unilateral	13
Ethmoid sinusitis-Bilateral	27
Sphenoid sinusitis- Unilateral	0
Sphenoid sinusitis-Bilateral	3
Pan sinusitis	6

On CT PNS most common sinusitis seen was B/L maxillary sinusitis 49% and there was no any case of U/L sphenoid sinusitis.

**Table3:** Association of DNS and CT PNS findings

CT PNS*	Type of DNS			
	C shaped	Spur	S shaped	Caudal
Frontal sinusitis-Unilateral	10	11	2	1
Frontal sinusitis-Bilateral	20	29	15	1
Maxillary sinusitis- Unilateral	35	38	3	2
Maxillary sinusitis-Bilateral	25	39	21	1
Ethmoid sinusitis- Unilateral	6	11	2	1
Ethmoid sinusitis-Bilateral	21	26	1	2
Sphenoid sinusitis- Unilateral	0	0	0	0
Sphenoid sinusitis-Bilateral	0	0	3	0

\*Multiple responses

Spur type was seems to be associated with most verities of sinusitis in present study. Caudal deviation was associated with least number of sinusitis. Maxillary sinusitis was most common among all types of sinusitis.

## DISCUSSION

Out of total 100 cases were 58% cases were male and rest 42% were females in present study. Similar male dominance was seen with Handi PS *et al*<sup>11</sup> with male forming 66% of study. Mohammed SSet *et al*<sup>12</sup> also had similar results with 56% male and 44% females in their study. In the contrary Sumaily I *et al*<sup>13</sup> found almost equal male and female proportion in their study. Halawar RS *et al*<sup>14</sup> study also had similar results with 67% males, 33% were females in their study. Fadda GL *et al*,<sup>15</sup> Kushwah APS *et al*,<sup>16</sup> Nayak DR *et al*<sup>17</sup> studies had similar male dominance in their study. In the present study the most common age group was 21-30 with 33% cases, next was 31-40 with 28% cases. Total of 61% cases belonged to 21-40 age group. Mean age was 31.5 years and age range was 11 to 68 years. In Halawar RS *et al*<sup>14</sup> study the age range was 8 to 75 years with a mean age of 33.5 years. This was in accordance with our study. Handi PS *et al*<sup>11</sup> study had 29% cases in age group of 21-30 and 21% cases in 31-40 age group. Halawar RS *et al*<sup>14</sup> and Moorthy PNS *et al*<sup>9</sup> also said majority of the patients belonged to 21 to 40 year age group. In present study C shaped deviation 72% was seem to be most common finding. Least common was caudal with 10% cases. Moorthy PNS *et al*<sup>9</sup> study the C shaped deviation was seen in 50-40%, which was most common finding as seen with our study, "S" shaped deviation in this study is 20- 30% ,caudal deviation was 10-16% all these findings were in support of our study. In this present study headache 92% was most common presenting symptom. Nasal obstruction 90%, post nasal drip 68% were next common symptoms. This finding was supported Mohammed SS *et al*<sup>12</sup> who found headache in 93%, nasal obstruction 89% cases. While Moorthy PNS *et al*<sup>9</sup> said obstruction as most and second most common symptom was nasal discharge and head ache was seen 20%. Singh I *et al*<sup>18</sup> found headache as the predominant symptom seen in 80% of patients, nasal blockage was seen in 76.66%. contrary to our results a study by Venkatachalam *et al*<sup>19</sup> found nasal

obstruction 87% as the commonest symptoms. On CT PNS most common sinusitis seen was B/L maxillary sinusitis 49%, U/L maxillary sinusitis in 40% and B/L frontal sinusitis in 35% cases. and there was no any case of U/L sphenoid sinusitis. This finding was supported by study done by Mohammed SSet *et al*<sup>12</sup> who found bilateral maxillary sinusitis 49% cases while unilateral maxillary sinusitis in 40%. They also found bilateral frontal sinusitis in 35.5% which was exactly was found with this study. Mohammed SSet *et al*<sup>12</sup> found unilateral frontal sinusitis in 12.5% and bilateral ethmoidal sinusitis in 27% similar was seen with our study. In present study we found pansinusitis in 6% cases , this was in accordance with Mohammed SSet *et al*<sup>12</sup> who concluded pansinusitis in 5.5% cases. Handi PS *et al*<sup>11</sup> concluded out of total frontal sinusitis, B/L frontal sinusitis was seen in 84% cases and in 16% U/L frontal sinusitis. They also found B/L maxillary sinusitis in 76% and U/L in 24% cases out of total maxillary cases. All these results were in accordance with our study findings. Present study found B/L maxillary sinusitis 49% as most common sinusitis. Similar conclusion was drawn by Halawar RS *et al*<sup>14</sup> with 59% cases showing maxillary sinusitis in their study. Schwartz RH *et al*<sup>20</sup> also concluded similar observation as our study. Other studies Kushwah APS *et al*<sup>16</sup>, Verma J *et al*<sup>21</sup> and Kanwar SS *et al*<sup>22</sup> also supported this finding.

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