SEPTOPLASTY AND BLOOD PRESSURE REDUCTION IN HYPERTENSIVE PATIENTS
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Conflict of interest: No conflict of interest.

Abstract
INTRODUCTION: Nasal septum is the bone and cartilage of the nose that separates the nasal cavity into two passages the space between the septum and the lateral walls of the nasal cavity regulates airflow and respiration. Nasal septum deviation is one of the most frequent reasons for nasal obstruction presented with a reduction in nasal airflow and chronic mucosal irritation. Abnormal upper airway resistance can play a role in the development of hypertension. Effective management of hypertension decreases the risk of, myocardial infarction, stroke, chronic kidney disease and heart failure.

MATERIAL AND METHODS: Adults of both sexes with age range from 20–40 years, suffering from symptomatic nasal septal deviation and newly detected hypertension (mean BP ≥140/90 mm Hg), undergoing submucosal resection (SMR) of the deviated septum, were included in the study. Preoperative evaluation was done and detailed history was taken. Nasal septal deformities were classified according to the Dreher scale (0 = none i.e. no deviation, 1 = mild deviation i.e. deviation less than half of the total distance to the lateral wall, 2 = moderate deviation i.e. deviation greater than half of the total distance to the lateral wall but not touching it, 3 = severe deviation i.e. deviation touching the lateral wall). Compensatory inferior turbinate hypertrophy, when present, was noted. Hypertension was considered as controlled in patients who had a mean SBP <140 mm Hg and mean DBP <90 mm Hg on follow up, Patients in whom SBP was ≥140 mm Hg and/or DBP ≥90 mm Hg, were considered as uncontrolled hypertensive and they were started on medical treatment for hypertension. Postoperatively, patients were followed up after 1 month, 3 months and at the end of 1 year.

RESULTS: Of the 50 patients included in the study 40 (80%) were male and 10(20%) were female. Mean age was 34 ± 4.56. Mild septal deviation was seen in 10(20%), moderate septal deviation was observed in 31 (62%) and severe septal deviation was seen in 9 (18%). Compensatory hypertrophy was observed in 11(22%) of cases. Mean preoperative SBP was 143.76 ± 2.78 mm Hg and mean DBP was 93 ± 1.55 mm Hg. Hypertension was controlled in 70% of patients who showed a strongly significant (P < 0.001) decrease in BP about 10–12 mm Hg decrease in SBP and 4–5 mm Hg decrease in DBP.

CONCLUSION: Patients with hypertension and deviated nasal septum, surgical correction is always indicated as it helps in reducing the blood pressure and thereby prevent cardio-pulmonary and cardio vascular complications secondary to hypertension.
Introduction:
Cardiac complications due to upper airway obstruction (UAO) have been previously studied and revealed a strong association between upper airway obstruction and heart rhythm disorders. Factors that contribute to cardiovascular morbidity in individuals with UAO are enhanced oxidative stress, sympathetic nervous system activation, and exaggerated negative intrathoracic pressure swings. One of the most common causes of upper airway obstruction is nasal septum deviation.

Nasal septum is the bone and cartilage of the nose that separates the nasal cavity into two passages. The space between the septum and the lateral walls of the nasal cavity regulates airflow and respiration. Nasal septum deviation is one of the frequent reasons for nasal obstruction presented with a reduction in nasal airflow and chronic mucosal irritation. Abnormal upper airway resistance can play a role in the development of hypertension.

Hypertension is one of the major contributing factors to the current epidemic of cardiovascular disease in India and many other low- and middle-income countries. Definition and classification of hypertension, specifies the threshold for defining high blood pressure (BP) as \( \geq 140/90 \) mmHg. Effective management of hypertension decreases the risk of, myocardial infarction, stroke, chronic kidney disease and heart failure.

MATERIAL AND METHODS
This prospective study was conducted in the Dept. of ENT at Krishna Mohan Medical College and Hospital, Mathura (UP) in collaboration with Saraswathi Institute of Medical Sciences Hapur (UP). Approval of the Institute ethics committee was taken.

Adults of both sexes with age range from 20–40 years, suffering from symptomatic nasal septal deviation and newly detected hypertension (mean BP \( \geq 140/90 \) mm Hg), undergoing submucosal resection (SMR) of the deviated septum, were included in the study.

Written informed consent from all the participants was obtained.

Patients having metabolic diseases, pregnant women, other nasal conditions, endocrine disorders, adenoid hypertrophy or enlarged tonsils, Body mass index \( \geq 25 \), central obesity i.e. waist circumference greater than 90 cm in men and 80 cm in women, high dietary salt intake, low fruit and vegetable intake and sedentary lifestyle were excluded from the study.

Preoperative evaluation was done and detailed history was taken. Nasal septal deformities were classified according to the Dreher scale (0 = none i.e. no deviation, 1 = mild deviation i.e. deviation less than half of the total distance to the lateral wall, 2 = moderate deviation i.e. deviation greater than half of the total distance to the lateral wall but not touching it, 3 = severe deviation i.e. deviation touching the lateral wall). Compensatory inferior turbinate hypertrophy, when present, was noted.

Blood pressure (BP) was monitored while patient was in a rest using a standard mercury sphygmomanometer. Three readings of BP were taken at the interval of 10 minutes. SMR of the deviated nasal septum was performed in all cases.

Hypertension was considered as controlled in patients who had a mean SBP <140 mm Hg and mean DBP <90 mm Hg on follow up. Patients in whom SBP was \( \geq 140 \) mm Hg and/or DBP \( \geq 90 \) mm Hg, were considered as uncontrolled hypertensive and they were started on medical treatment for hypertension.

Postoperatively, patients were followed up after 1 month, 3 months and at the end of 1 year. On each of these visits, general and ENT examination were carried out and BP was recorded on three occasions.

RESULTS
Of the 50 patients included in the study 40 (80%) were male and 10 (20%) were female. Mean age was 34 ± 4.56
Table 1: Characteristics of the study group

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n=50</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40</td>
<td>80%</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Mean age</td>
<td>34 ± 4.56</td>
<td></td>
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</tbody>
</table>

Table 2: septal deviation gradation

<table>
<thead>
<tr>
<th>Grade</th>
<th>N=50</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>Moderate</td>
<td>31</td>
<td>62%</td>
</tr>
<tr>
<td>Severe</td>
<td>9</td>
<td>18%</td>
</tr>
<tr>
<td>Compensatory hypertrophy</td>
<td>11</td>
<td>22%</td>
</tr>
</tbody>
</table>

Mild septal deviation was seen in 10(20%), moderate septal deviation was observed in 31 (62%) and severe septal deviation was seen in 9 (18%). Compensatory hypertrophy was observed in 11(22%) of cases.

Mean preoperative SBP was 143.76 ± 2.78 mm Hg and mean DBP was 93 ± 1.55 mm Hg. Hypertension was controlled in 70% of patients who showed a strongly significant (P < 0.001) decrease in BP about 10–12 mm Hg decrease in SBP and 4–5 mm Hg decrease in DBP. Mean SBP on first follow up after one month was 141.36 ±3.45 mm Hg and mean DBP was 92.4 ± 1.09 mm Hg. Mean SBP after three month was 135.36 ±2.78 mm Hg and mean DBP was 85.4 ± 1.11 mm Hg. Mean SBP after one year of follow up was 128.74 ± 2.71 mm Hg and mean DBP was 83.2 ± 1.23 mm Hg. Yurit as et al. observed that Autonomic dysfunction that occurred due to nasal septal deviation was found to decrease after surgical correction of the deviated septum. Garcia et al. observed that the posterior nasal cavity can accommodate significant septal deviations without a substantial increase in airway resistance. Stamler et al. demonstrated a positive relationship between age and systolic pressure and concluded that increase in BP was seen in older subjects.

CONCLUSION

Patients with hypertension and deviated nasal septum, surgical correction is always indicated as it can reduce the blood pressure and thereby prevent cardio-pulmonary and cardiovascular complications secondary to hypertension.

REFERENCES

2. Gozal D, Kheirandish-Gozal L. Cardiovascular morbidity in obstructive sleep apnea: oxidative stress, inflammation, and much


