



ORIGINAL RESEARCH ARTICLE

CLINICAL PRESENTATIONS OF DEVIATED NASAL SEPTUM AND MLADINA'S CLASSIFICATION

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Received: 29 Jan, 2019

Accepted: 9 June, 2019

Published: 15 June, 2019

Key words: Classification; Endoscopy; Nasal obstruction; Nasal septum.

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DOI: <http://doi.org/10.3126/jcmc.v9i2.24536>

Citation

Thakur SK, Yadav B, Bedajit RK, Anwar A. Clinical presentations of deviated nasal septum and Mladina's classification. Journal of Chitwan Medical College. 2019; 9(28):60-64.



ABSTRACT

Background: Nasal Septal deviation is a frequently found entity in ENT OPD. The objective of the study was to describe the clinical presentations of deviated nasal septum, classify them according to the Mladina's system and find out the relation of trauma with the type of septal deviation.

Methods: One hundred fifty cases of septal deviation were classified according to Mladina's classification, after thorough interview, nasal examination and nasal endoscopy. Data were analyzed with SPSS version 21, after tabulation. Chi-square test was applied as the test of significance.

Results: Out of 150 cases of septal deviation, Male 82 (54.6%) outnumbered the female patients 68 (45.3%). Most of these patients were of second and third decade (20-40 years age group). The most common presenting complaint was that of nasal obstruction 121(80.6%), headache 68 (45.3%) and nasal discharge 52(34.6%). 78(52%) of patients revealed history of trauma. Type II 32 (21.3%) and Type V 31 (20.6%) were the commonest followed by Type III 24(16%).

Conclusions: Nasal septal deviation is a common presentation in ENT OPD. Mladina's classification found Type II and Type V to be quite common. Nasal obstruction, headache and rhinorrhea are frequent associated complaints. Nasal endoscopy is very important for the diagnosis, especially of posterior deflections.

INTRODUCTION

Unilateral or bilateral nasal obstruction is a very common presentation in ENT outpatient department.¹ Many of the cases of nasal obstruction are diagnosed as to have been suffering of deviated nasal septum (DNS). Nasal septal deformities (NSD) are one of the most common disorders in humans. The incidence of NSD in adult humans has been shown to be very high, to the order of more than 90%.² It is usually associated with varied symptoms described by patients as nasal obstruction,

headache or hyposmia etc. Nasal septum, divides the nasal cavity into two halves. It consists anteriorly of cartilaginous part and posteriorly bony part (consisting of perpendicular plate of ethmoid and vomer). Along the floor there is crest of maxilla and crest of palatine bones.² Nasal septum also supports the external osseocartilaginous structures. The etiology of the nasal septal deformity is varied. It may be congenital, developmental, traumatic etc.²⁻⁵ Also, it has been reported that nasal septal deformity has an important effect on the facial growth and development, especially in the first decade of life.⁶

The septal deviation is very diverse in presentation and this has prompted many attempts to establish a classification system. Cottle classified septal deviation in to three types- simple, obstructive and impacted type, according to the degree of deviation. However, asystematic classification that described the deformity precisely and helped surgeon take clinical decisions were still lacking. Mladina (1987) described seven different types of septal deformities, which is widely accepted around the globe.³An efficient classification system relieves of communication difficulty and assist in documentation and choices of surgical techniques.⁷

DNS- Mladina's Classification (1987) ³	
Types	Manifestations
Type I	Presence of a unilateral crest which does not disturb the function of the nasal valve. It is situated in the area of the valve.
Type II	Disturbance of the valve function is caused by the unilateral crest. Positive Cottle's symptom can be observed after raising of the nostril, which gives a subjective and objective improvement in the nose patency.
Type III	One unilateral crest at the level of the head of the middle nasal concha
Type IV	Defines two crests – one at the level of the head of the middle nasal concha, and the other on the opposite side in the valve area, disturbing the valve functions.
Type V	A unilateral ridge on the base of the septum, while on the other side the septum is straight.
Type VI	A unilateral sulcus running through the caudal-ventral part of the septum, while on the other side there is a ridge and accompanying asymmetry of the nasal cavity
Type VII	A mix of types from I to VI.

METHODS

This cross-sectional study was conducted between

January 2018 to January 2019 at Nobel Medical College in ENT OPD among 150 patients. Ethical clearance was obtained from Institutional Ethical Review Board. Convenient sampling technique was done. Inclusion criteria for the study was those patients who presented to ENT OPD, with nasal symptoms, and who gave informed consent. Exclusion criteria was patients with acute nasal infection, patients with other nasal pathologies such as nasal polyp, benign or malignant nasal growths, history of previous septal surgery or systemic disease.

Symptoms, age, gender, history of previous nasal surgery and query regarding the etiology of the nasal symptoms were recorded. Nasal problem especially nasal obstruction, nasal discharge, sneezing, sense of smell, headache and epistaxis etc. were recorded. General ENT examination, along with nasal examination (including patency, sense of smell) was performed. Assessment of nasal septum was done by anterior and posterior rhinoscopy and Nasal Endoscopy, without and with topical spray of vasoconstrictive agent (xylometazoline nasal spray) and topical anaesthetic (lignocaine 10% spray). The deviation of septum was classified according to Mladina's classification.³ The results were tabulated and analyzed with SPSS version 21. Chi Square test was applied to find out the relation of trauma with the type of Septal deviation.

RESULTS

A total of 150 patients fulfilled the criteria and they were included in the study and analyzed. Male 82 (54.6%) outnumbered the female patients 68 (45.3%). Most of these patients were of second and third decade (20-40 years age group), as shown in Table 1. The most common presenting complaint was that of nasal obstruction 121(80.6%), headache 68 (45.3%) and nasal discharge 52(34.6%) as shown in Table 2. 78(52%) of patients revealed history of trauma to nose at some point in their life, as shown in Table 3. Type II 32 (21.3%) and Type V 31 (20.6%) were the commonest followed by Type III 24(16%) according to the Mladina's class of septal deviation, as shown in Table 4. Mladina type 5 & 6 seems more common in non-traumatic group whereas type 1, 2 & 4 more common in traumatic group, which is significant (Chi square test, p-value=0.02) as found in our study.

Table 1: Age Distribution

Age Distribution	Number	Percentage
<20 years	14	9.33
20-30 years	58	38.66
30-40 years	43	28.66
40-50 years	18	12
>50 years	17	11.33

Table 2: Presenting Complaints

Presenting Complaints	Number	Percentage
Nasal obstruction	121	80.66
Headache	68	45.33
Nasal Discharge	52	34.66
Hyposmia/Anosmia	18	12
Epistaxis	8	5.33
Miscellaneous (eg. External nasal deformity)	24	16

Table 3: History of Trauma

History of Trauma	Number	Percentage
Yes	78	52
No	72	48

Table 4: Types of Septal Deformity (Mladina's Classification)

Mladina's Types of Septal Deformity (Deviation)	Number	%
Type I	12	8
Type II	32	21.33
Type III	24	16
Type IV	19	12.66
Type V	31	20.66
Type VI	21	14
Type VII	11	7.33

DISCUSSION

Nasal septum plays a vital role both for the function and external appearance of the nose. More

than 80% of humans harbor one or the other type of nasal septal deformity.^{8,9} Anterior and posterior rhinoscopy is the standard method of examination of nose and the cavity. One study found that nasal endoscopy is a very useful tool for the assessment of the nasal septal deformity.⁹ In the present study, we performed a complete clinical examination as well as endoscopic examination in all the cases. DNS was more prevalent in males than females as found in this study, which was in accordance to the observations made in other study.^{8,10} DNS most commonly presents during second and third decades of life, as reported by several studies.^{8,10} This finding is similar to that as in our study.

In one study, septal deformity was more common in children born by spontaneous vaginal delivery (22.2%) than in patients delivered by caesarean section (3.9%), identifying the traumatic etiology of deflected nasal septum.¹¹ Nasal trauma during the rapid development of the face and nose, gives rise to more severe deformities in the nasal septum.^{12,13} In facial injuries, the nose is the commonest structure injured.¹⁴ In present study, 78(52%) patients gave history of nasal trauma. Usually, trauma causes angulated deviation or septal dislocation, while developmental deformities that occur during puberty and result from asymmetrical fetal growth are usually curved deviations.^{3,15}

The most common complaint of patients was nasal obstruction, nasal discharge and headache in our study. This was in concordance with a study by Moorthy et al. where nasal obstruction was the most common symptom observed.¹⁶ In a study by Oliveira et al, rhinitis was found to be the most common symptom caused by NSD.¹⁷ 93% of the patients had headache as the predominant symptom in another study by Shoib et al, followed by nasal discharge (63%).¹⁸ In another study by Singh, headache, also, was a predominant symptom seen in over 80% of the cases, while 77% of them, had nasal obstruction.¹⁹

Cottle (1958) classified septal deviation in to three types- simple, obstructive and impacted type, according to the degree of deviation. Mladina (1987) described seven different types of septal deformities.³

According to Mladina's Classification, Type II 32(21.3%) and Type V 31(20.6%) were the commonest type of deviation found in our study. This finding

is similar to other studies conducted previously.^{8,9} Mladina type 5 & 6 seems more common in non-traumatic group whereas type 1, 2 & 4 more common in traumatic group, which is significant (Chi square test, p-value=0.02) as found in our study. Similar findings have been reported in other study also.²⁰

Significance of deviated nasal septum is that it is very diverse and is involved in almost all rhinological problems to some degree.⁷ However, non-specific subjective description do not reflect the precise morphology and location of the septal deviation (SD). Difficulty in communication and record keeping creates difficulty in clinical interpretation. Decision making on the type and approach to procedures on deviated septum can be very challenging even for experienced surgeons. This has prompted many authors to establish a classification system, but several has failed to acquire widespread acceptance.

In 1987, Mladina was the first to make user-friendly classification of septal deviation into six basic types.³ He also described a seventh type, named Passali deformity, which presents individually, but is always a well-defined combination of some of the previous six types.

Mladina types of septal deviation are divided into two main groups: so, called vertical deformities (types 1, 2, 3 and 4), and horizontal one (types 5 and 6). Vertical deformities have the longer axis in a vertical plane, i.e. they concern the unilateral crook(s) that can be imagined as a result of the force acting against the nasal septum in an antero-posterior direction. The horizontal deformities, however, have a longer axis in the horizontal plane, i.e. they are crooked as if the force against the septum has been acting from superior to inferior. This classification was immediately well accepted by rhinologists worldwide and was cited from the very beginning. The number of citations has been growing since then, and this has been the standard method at least 40 clinical researches in various countries all over the world.²¹

CONCLUSION

Nasal septal deviation is a common presentation in Otolaryngology outpatient department. Classifying

the deviation of septum according to Mladina's classification found Type II and Type V to be quite common. Nasal obstruction, headache and rhinorrhoea are frequent complaints associated with deviated nasal septum. Nasal endoscopy is very important for the diagnosis, especially of posterior deflections.

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