

Original Research Article

Prevalence of septal deviation in newborns: an institutional based cross sectional study

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ABSTRACT

Background: Deviated nasal septum (DNS) is a common condition with various factors affecting its occurrence. The study was aimed to find the prevalence of DNS in newborns.

Methods: The present study was a cross sectional study conducted in the SMGS hospital, GMC Jammu. A sample size of 200 newborns, less than 7 days of age were included in the study. 200 newborns in the postnatal wards were examined in the present cross-section observational study including the age ranging from 1 day to 5 days.

Results: Prevalence of DNS in the present study was 29%. 103 babies were born to the primipara mothers out of which 39 (37.86%) had DNS while only 19 (19.58%) out of 97 babies born to the multipara mothers had the DNS. The newborns with higher birth weight had higher incidence of having DNS. 41.17% of the newborns with weight of >3 kg had DNS as compared to those in 2 to 2.5 kg group (17.28%) and <2 kg group (11.76%).

Conclusions: DNS is a common finding since birth which may persist in later life. Routine examination of the newborns specifically regarding the nose should be done to detect the septal deviations at earliest so that active intervention can be done when required.

Keywords: Deviated nasal septum, Newborn, Nasal obstruction, Septal cartilage

INTRODUCTION

Nose is the most projecting part of the face. It is usually subjected to compressional and rotational forces in the intrauterine life as well as during parturition.¹ Nasal deviation develop due to many intrauterine and parturition insults. 2 types of septal deformities are noted in newborns i.e. anterior septal dislocation and combined septal deformity. In the former, septal cartilage is dislocated from the maxillary groove and in the later type moulding forces cause deformity of the septal cartilage.² Podoshin et al proposed that most of the dislocations in their study occurred during intrauterine life.³ Bhattacharji et al observed definite correlation between the type of delivery and nasal deformity.⁴

Recognising the newborns with septal deviation is important because they are obligatorily nose breathers.

Septal deviation causing nasal obstruction can lead to poor feeding and pulmonary resistance. Persistent septal deviation predisposes to sinusitis, epistaxis, Eustachian tube dysfunction, respiratory tract infection and poor general health.¹ Incidence of nasal septal deviation has been reported between 2.9%⁵ and 25%⁶ in the literature.

The present cross sectional study was done to observe the point prevalence of septal deviation in the newborns in SMGS hospital.

METHODS

The present study is a cross sectional study conducted in the SMGS hospital, GMC Jammu. A sample size of 200 newborns, less than 7 days of age were included in the study. Ethical clearance was obtained from the institutional ethical committee. The study was done over

a period of one month in the month of December, 2019. Newborns having craniofacial deformity, cleft lip, cleft palate was excluded. ENT examination was performed according to the preformed proforma.

Workup of the newborn included informed consent from the mother, history and examination. Points noted on history were the age, sex, weight of each of the newborn. History was also extracted regarding parity of the mother, mode of delivery, birth trauma, breathing difficulty, noisy breathing, nasal discharge and feeding difficulty. Nose examination was done to look for external nasal deformity by pinching the nose. Cold spatula test was done to look for patency of bilateral nasal cavities and the mist area of both the sides were compared. Anterior septal deviation was identified by lifting the tip of nose. Anterior rhinoscopy was done using a well illuminated otoscope to look for deviation of septum proper.

Statistical analysis

Statistical analysis was done using SPSS 17.

RESULTS

200 newborns in the postnatal wards were examined in the present cross-section observational study including the age ranging from 1 day to 5 days. Prevalence of DNS in the present study was 29%. Prevalence of DNS among male subjects was 29.09% and 28.89% among female subjects indicating equal chances of getting congenital DNS as shown in Table 1. 103 babies were born to the primipara mothers out of which 39 (37.86%) had DNS while only 19 (19.58%) out of 97 babies born to the multipara mothers had DNS. The results were statistically significant with $p < 0.05$. When compared to the mode of delivery, occurrence of DNS was less common in the caesarean sections as shown in the Table 3. However, the results were not statistically significant. Since, only 2 instrumental deliveries were encountered in the study period, so the results could not be compared.

Table 1: Sex distribution of the total no of subjects and those with DNS.

	Males	Females	Total
Total no.	110	90	200
DNS	32	26	58
Percentage (%)	29.09	28.89	29

$P > 0.05$.

Table 2: Distribution of primipara and multipara in the groups.

	Primipara	Multipara	Total
Total no	103	97	200
DNS	39	19	58
Percentage (%)	37.86	19.58	

$P < 0.05$.

Table 3: Distribution of the subjects and presence of DNS in relation to the various modes of delivery.

	Normal vaginal delivery	Caesarean section	Instrumental delivery
No of subjects	115	83	2
DNS	35	23	-
Percentage (%)	30.43	27.71	

$P > 0.05$.

Table 4: Distribution of the subjects and presence of DNS in relation to the birth weight.

	<2.5 kg	2.5-3 kg	>3 kg
Total no	17	81	102
DNS	2	14	42
Percentage (%)	11.76	17.28	41.17

$P > 0.05$.

In the present study, the newborns with higher birth weight had higher incidence of having DNS with $p > 0.05$. 41.17% of the newborns with weight of > 3 kg had DNS as compared to those in 2-2.5 kg group (17.28%) and < 2 kg group (11.76%).

Table 5: Distribution of the subjects with DNS with regard to the type and side of the deviation.

Septal deviation	Side	Total	Percentage (%)
ASD only	R- 8	18	31
	L- 10		
DNS	R- 13	24	41.37
	L-12		
DNS with ASD	16	16	27.58
Total		58	100

ASD=anterior septal dislocation.

Among the group of newborns having septal deviation, 41.37% newborns had DNS, 31% had anterior septal dislocation (ASD) and 27.50% has DNS with ASD.

DISCUSSION

Incidence of nasal septal deviation varies widely. In our study, the incidence of septal deviation was 29%. Other similar studies reported the incidence of septal deviation as 25% by Sookhmandan et al and 21.8% by Saim and Said.^{6,7} However, some other studies found incidence of septal deviation less than 4%.^{8,9}

In the present study, incidence of septal deviation was seen more commonly in babies born to the primipara mothers (37.86%), those delivered with normal vaginal delivery (30.43%). Jeppensen and Abhinandan et al also

reported high incidence of septal deviation in the primipara as compared to the multipara while Asterios found no statistical difference between the primiparas and multiparas for the occurrence of septal deviations.^{8,10,11} The reason for high incidence of septal deviation in the neonates born to primipara mothers may be due to more pressure effect on the growing foetus as compared to the multiparas who has lax uterus.

There is high incidence of the DNS in the vaginal deliveries as the baby has to pass through the narrow canal. There is definitive relation between the type of delivery and septal deviation.³ Septal deviation has been suggested to occur during internal rotation of head during normal vaginal delivery.^{2,9} The amount of pressure exerted on nose also depends on the duration of labour and position of head during the delivery. In prolonged labour, breech delivery and in occipito-anterior position baby is exposed to more amount of pressure. More is the amount of birth trauma higher will be the incidence of DNS.^{10,12} This lead to bending of the cartilage without dislocation and most of the times gets autocorrected by itself in a few days.⁹ In the present study, incidence of deviation was high in the vaginally delivered babies (30.43%) compared to the caesarean sections. These findings are correlated to the other studies reporting high incidence in vaginal deliveries as compared to caesarean sections.^{4,13}

In the present study, DNS was observed more commonly in high birth weight newborns in the group of >3 kg. Bhattacharji also reported increased incidence of the septal deviation with the increased weight of the baby.⁴ However, Satheesh et al found more DNS in low birth weight babies.¹³ There is no statistically significant correlation between the birth weight of the baby and DNS.³

Many studies report DNS towards the left as common finding.^{13,14} There has also been a relation between the presentation of during delivery and the side to which the septal deviation occur.

The septal deviations observed in the newborns usually self-correct themselves. A simple digital manipulation can also correct such septal deviations. Gross deviations causing breathing and feeding difficulty need manipulation. Gray, described reduction of septal dislocation using modified Walsham's forceps as simple and well tolerated procedure and approved by others.^{5,8,14}

CONCLUSION

Neonatal DNS is common finding with incidence of 29%. Incidence of deviation is dependent upon the risk factors like parity of the mother, mode of delivery and birth weight of the newborn. These factors should be considered in newborns having feeding or breathing difficulty. Routine examination of the newborns

specifically regarding the nose should be done to detect the septal deviations at earliest so that active intervention can be done when required.

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REFERENCES

1. Harugop AS, Mudhol RS, Hajare PS, Nargund AI, Metgudmath VV, Chakrabarti. Prevalence of Nasal Septal Deviation in New-borns and its Precipitating Factors: A Cross Sectional Study. *Indian J Otolaryngol Head Neck Surg.* 2012;64(3):248-51.
2. Gray LP. Deviated nasal septum. Incidence and etiology. *Ann Otol Laryngol.* 1978;87:3-20.
3. Podoshin L, Gertner R, Fradis M, Berger. Incidence and treatment of deviation of nasal septum in newborns. *Ear Nose Throat J.* 1991;70:485-7.
4. Bhattacharjee A, Uddin S, Purkaystha P. Deviated nasal septum in the newborn- A 1-year study. *Indian J Otolaryngol Head Neck Surg.* 2005;57:304-8.
5. Kent SE, Reid AP, Nairn ER, Brain DJ. Neonatal septal deviation. *J R Soc Med.* 1988;81:132-5.
6. Sookhmandan M, Deka RC, Kacker SK, Verma IC. Nasal septal deviation at birth and its diagnosis. *Indian J Paediatr.* 1986;53:105-8.
7. Saim L, Said H. Birth trauma and nasal septal deformity in neonates. *J Sing Paediatr Soc Otorhinolaryngol.* 1992;34:199-204.
8. Jappenesen F, Windfield I. Dislocation of the nasal septal cartilage in the newborn. *Acta Obstet Gynecol Scan.* 1972;51:15.
9. Jazbi B. Subluxation of the nasal septum in the newborn. Etiology, diagnosis and treatment. *Otolaryngol Clin North Am.* 1977;10:125-39.
10. Korantzis A, Cardamakis E, Emmanouel, Papamihalis T. Nasal septum deformity in the new born infant during labour. *Eur J Obstet Gyn.* 1992;44:41-6.
11. Abhinandan B, Uddin S, Purkaystha P. Deviated nasal septum in newborn – a 1- year study. *Indian J Otolaryngol.* 2005;57(4):304-8.
12. Chitrapatla S, Kudva YC, Nayar RC, Raghuvveer TS, Prasad D. Septal deviation in neonates. *Indian Pediatr.* 1989;26:678- 82.
13. Satheesh S, Rajina K. Prevalence of Deviated nasal septum and its association with birth moulding among neonates- A hospital based study. *J of Evolution of Med and Dental Sci.* 2015;4(61):10624-30.
14. Gray LP. The deviated nasal. Prevention and treatment. *J Laryngol.* 1965;79:806-16.

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