

PREVALENCE OF DEVIATED NASAL SEPTUM AND ITS ASSOCIATION WITH BIRTH MOULDING AMONG NEONATES–A HOSPITAL BASED STUDYSatheesh S¹, Rajina K²**HOW TO CITE THIS ARTICLE:**

Satheesh S, Rajina K. "Prevalence of Deviated Nasal Septum and Its Association with Birth Moulding Among Neonates–A Hospital Based Study". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 61, July 30; Page: 10624-10630, DOI: 10.14260/jemds/2015/1534

ABSTRACT: About 75% adults have Deviated Nasal Septum (DNS). It was believed that most cases of DNS are due to birth moulding. But prevalence of deviated nasal septum in newborns were found to be different in different studies varying from <4% to 60%. This study was conducted at Government Medical College, Thiruvananthapuram to find out the prevalence of DNS in new born babies and to find whether there is any significant association between DNS and birth moulding. 400 newborn babies were examined. The prevalence of DNS was found to be 44.3%. Association of DNS with mode of delivery, intrauterine position, parity and duration of second stage of labour were studied.

KEYWORDS: Deviated nasal septum (DNS), Birth moulding.

INTRODUCTION: Deviation of nasal septum is very common in adults. Morrel Mc Kenzie⁽¹⁾ studied over 2000 skulls and found that 75% of adults had deviated septum. Gray⁽²⁾ reported that septal deformities are very common in the neonate, occurring in 48 to 60%. He stated that most cases are due to the effect of skull compression as a result of moulding pressure during pregnancy and parturition. Many authors have been unable to confirm the high incidence found by Gray. Many studies (Jeppensen and Windfield,⁽³⁾ Jazbi,⁽⁴⁾ Alpini⁽⁵⁾ etc.) showed less than 4% incidence of deviated nasal septum.

Birth trauma was first reported by Metzenbaum⁽⁶⁾ in 1936 as being a causative factor in nasal septal deformities. It has been reported by other authors since then.

Aim of the study was to find the prevalence of DNS among new born, which varies in different studies from <4%–60%, and to find whether there is any statistically significant association between deviated nasal septum & birth moulding. If a good percentage of nasal septal deformity originate at the gestational period, early detection in the neonatal period is vital. It helps in management and prevents sequelae in adult life.

MATERIALS AND METHODS: This study was conducted at the Labour Room and Post natal wards of SAT Hospital (Government Medical College), Thiruvananthapuram, over a period of 6 months from February 2013.

STUDY POPULATION: A total of 400 full term newborn babies aged less than or equal to 3days were included in the study; of which 247 were vaginal deliveries and 153 caesarian sections. Twin/multiple pregnancy, premature babies, neonates with congenital anomalies and those who were not willing to participate in the study were excluded.

METHODS: A written informed consent was taken from parents for the planned examination in proforma approved by our institutional ethical committee. A detailed prenatal and natal history was

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taken. Details about duration of labour, cephalo pelvic disproportion (CPD) and birth weight were obtained from hospital records. Babies were examined under strict aseptic precautions which included cold spatula test and anterior rhinoscopy using a bright light (Otoscope).

STATISTICAL ANALYSIS: A standardized set of data was abstracted for each case and statistical analysis done according to the data collected. Descriptive statistics including frequency distribution, diagrams and proportions were constructed for the prevalence of DNS. 95 percent confidence limits computed. To study the association, Chi-square test and Odd's Ratio computed.

RESULTS AND OBSERVATION: In this study, 400 new born babies aged less than or equal to 3 days were examined for Deviated nasal septum (DNS). 177 cases were found to have DNS. Association of DNS with mode of delivery, intra uterine position, parity & duration of second stage of labour were studied.

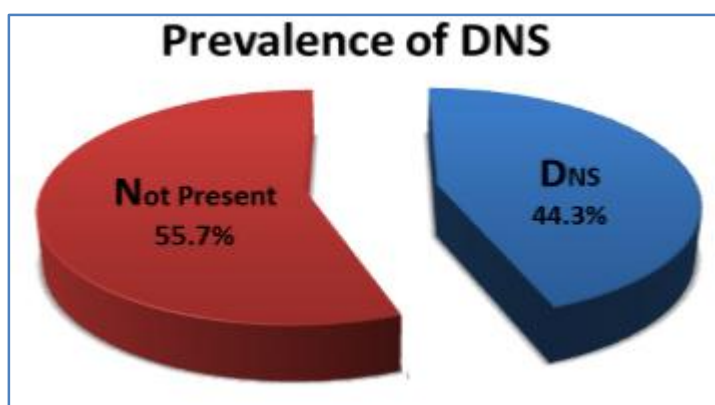


Fig. 1: Prevalence of Deviated nasal septum

Prevalence of DNS in new born was found to be 44.3% [Fig 1]. Out of the 247 normal deliveries 177 had DNS (47.4%); out of the 153 caesarean section, 60 had DNS (39.2%). DNS was found to be more common in normal labour even though the association was not statistically significant. DNS was slightly more common in female babies (45.1%) than male babies (43.6%). Left sided deviations were found to be more prevalent (62.7%) [Fig. 2].

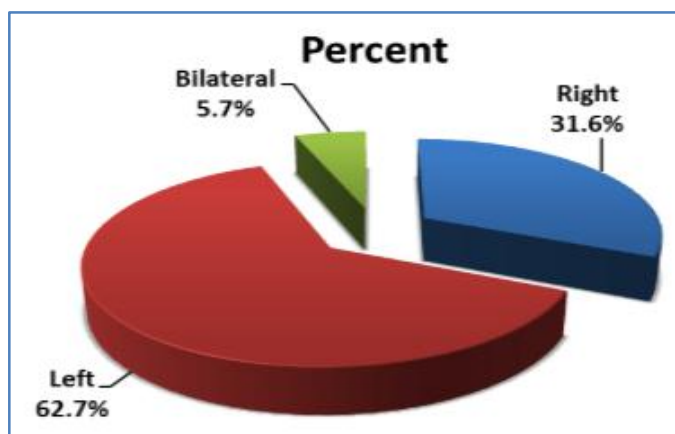


Fig. 2: Distribution according to side of deviation

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Position of baby	Present		Not Present		χ^2	P
	Count	Percentage	Count	Percentage		
Vertex	164	43.5	213	56.5	1.49	0.222
Breech	13	56.5	10	43.5		

Table 1: Association of DNS and position of baby

Out of 377 vertex presentation, 164 had DNS (43.5%) and out of 23 breech presentation, 13 had DNS (56.5%) [Table 1].

Order of birth of baby	Present		Not Present		χ^2	P
	Count	Percentage	Count	Percentage		
First	78	54.9	64	45.1	7.66**	0.006
>1	39	37.1	66	62.9		

Table 2: Association of DNS and order of birth of baby in normal labour

**significant at 0.01 level.

Prevalence of DNS was found to be more in first born babies and the association was statistically significant [Table 2].

Among the 4 vacuum deliveries 3 had DNS and the single case of forceps delivery also had DNS. Out of the 23 breech presentation 13 had DNS(56.5%) & out of 377 vertex presentation 164 had DNS(43.5%).Deviated nasal septum was found to be more common in vaginal deliveries with cephalo pelvic disproportion and in prolonged second stage of labour. Deviated nasal septum was more common in low birth weight babies but the association was not statistically significant.

TYPE OF DNS: Anterior deviation was found to be more frequent [Fig 3]. Anterior deviations were more common in normal labour (73.5%) than in caesarean section (56.7%) [Table 3, Fig 4]. External nasal deviation was found in 6 new born babies (1.5%). Septal dislocation was present in 36 newborn babies (9%), and found to be more in normal vaginal delivery (12.6%) than in caesarian section (3.3%). In normal vaginal deliveries septal dislocation was more common in first born babies (14.8%) when compared to the other group (9.5%).

Type of DNS	Normal		Caesarean Section		χ^2	P
	Count	Percent	Count	Percent		
Anterior	86	73.5	34	56.7	5.15*	0.023
Posterior	31	26.5	26	43.3		

Table 3: Association of type of DNS and type of delivery

* Significant at 0.05 levels.

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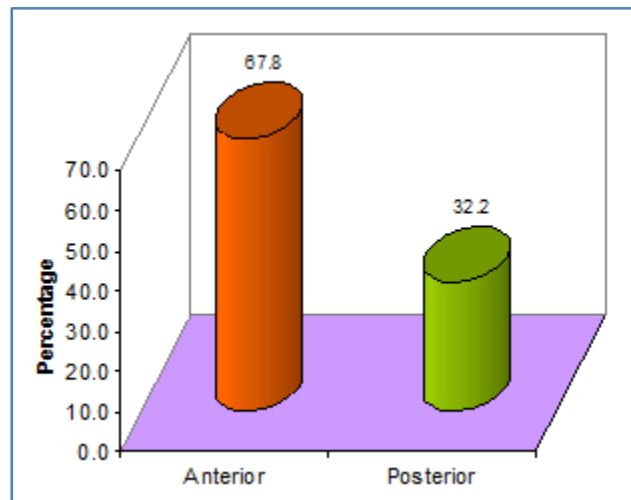


Fig. 3: Distribution according to type of DNS

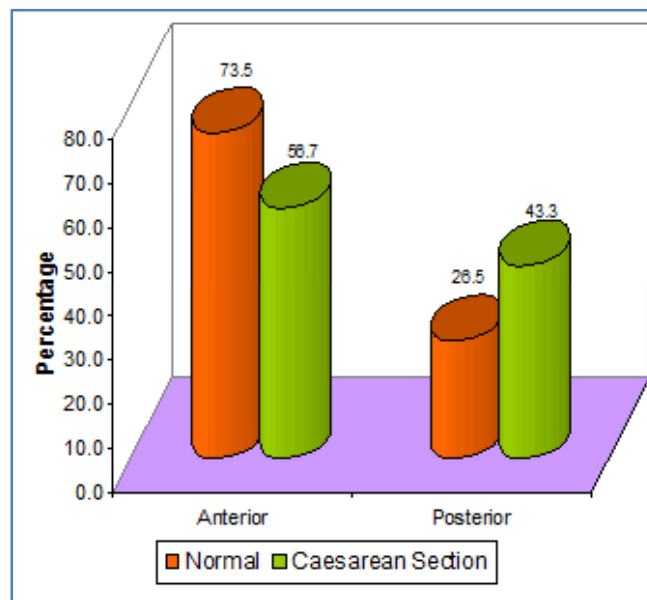


Fig. 4: Association of type of DNS and type of delivery

DISCUSSION: In the present series, the prevalence of DNS in new born was found to be 44.3%. In the extensive study of neonatal septal deviation by Gray,⁽²⁾ the incidence of DNS was found to be 48%-60%. But Jeppesen and Windfield⁽³⁾, Jazbi⁽⁴⁾ and Alpini et al⁽⁵⁾ found an incidence of less than 4%. Incidence from other studies: by Gray L (1965)⁽⁷⁾ 21%; by Jazbi (1977)⁽⁴⁾ 1.25%; by Sookhnundan 25%;⁽⁸⁾ by Saim & Said 21.8%.⁽⁹⁾

In the present series, it is observed that prevalence of DNS is high in vaginal delivery (47.4%) & low in caesarean section (39.2%). This finding is supported by Gray 1965⁽⁷⁾, Metzenbaum (1936)⁽⁶⁾ and many other authors. DNS was found to be more common in vaginal deliveries with prolonged second stage of labour (66.7%). Jeppesen and Windfield⁽³⁾ observed the same. Similar findings were

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observed in most of the studies; however Asterios et al⁽¹⁰⁾ have found no statistically significant relation between DNS and prolonged duration of labour. In our study DNS was significantly high in vaginal delivery with cephalo pelvic disproportion (62.5%).

A more frequent occurrence of anterior nasal septal deviation has been found in children born by normal vaginal labour (86%) than in caesarean section (56.7%). It testifies the importance of Birth injury, which leads to anterior nasal septal deformity. Gray found that pressure applied on the nose during labour was not commonly associated with bony obstruction, but is usually due to bending of cartilage without its dislocation from maxillary crest which corrects itself in a few days. The deformity is usually a smooth concavity rather than a caudal dislocation of the cartilage. Prevalence of septal dislocation in our case series was 9% which was found to be more common in normal delivery (12.6%) than in caesarean section (3.3%).

In this series, the incidence was high in breech presentation (56.5%) when compared to vertex presentation (43.5%). These findings are supported by Jeppeson and Windfield.⁽³⁾ Danforth⁽¹¹⁾ observed that most vertex presentations are positioned in left occipito anterior and with rotation in to the normal position; the nasal septum can be pushed to the left of vomer and external nose to right of vomer. With all these forces being brought to bear on neonatal septum, micro fractures and dislocation of cartilage occur frequently. Jazbi⁽⁴⁾ and Gray support the idea that the septal deviation occurs as the baby's head undergoes internal rotation in the pelvis. This theory has been cited to explain the relationship between the presentation of the head and the side to which the deviation occurs.

In this study deviated nasal septum was found to be more common towards left (62.7%), as observed by Mackenzie (1880)⁽¹⁾ & Gray(1965).⁽⁷⁾

Prevalence of DNS was comparable in male (43.6%) and female (45.1%) babies. Grey (1978)⁽¹²⁾, Sinha and Maheswari (1970)⁽¹³⁾ observed that birth trauma affects male and female equally. Other studies also not found a great gender difference in the prevalence of DNS. However in adults a higher percentage of males are found to have deviated septum than females. This is thought to be due to a higher incidence of trauma to septum during childhood and adolescence in males.

This study didn't show statistically significant correlation between the weight of new born and the nasal septal deviation. DNS was found to be more prevalent in low birth weight babies. It may be due to the immature nasal skeleton of low birth weight babies (Bhatia R et al).⁽¹⁴⁾

In this series, it was observed that prevalence of DNS is more in primipara delivered by vaginal route (54.4%) when compared to multipara delivered by vaginal route (37.1%). This association was statistically significant. Jeppesen and Windfield⁽³⁾ and Abhinandan et al⁽¹⁵⁾ found incidence higher in neonates born to primipara when compared to multipara. However Asterois et al⁽¹⁰⁾ found no statistically significant difference in the prevalence in nasal septal deviation in primipara and multipara but observed a higher incidence of septal deviation in instrumental deliveries. In our study also prevalence of DNS was significantly higher in instrumental deliveries (80%).

There is controversy regarding correction of DNS in neonates. Some authors suggest correction of dislocation with Gray's strut. Some believe self-correction in later life. Only gross deviations interfering with breathing or breast feeding necessitate other measures like cut endotracheal tube insertion through nose up to nasopharynx for a period of 2-3months has been mentioned in a case report.⁽¹⁶⁾ Majority of authors suggest elective septoplasty in later life.

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CONCLUSION: In the present study, out of 400 new born babies, 177 were found to have DNS; the prevalence being 44.3%. It has been observed that incidence of DNS is more in new born delivered by vaginal route. The prevalence was low in caesarian section. High prevalence was also found in cephalo pelvic disproportion, prolonged labor and in newborns of primipara. Results also suggest an increased incidence of nasal septal deviation in breech presentation and instrumental delivery, but the numbers are too small to be statistically significant.

The nose bears the brunt of injuries in most cases of facial trauma. Since a good percentage of such deformity originate at the gestational period and during delivery, early detection at the neonatal period is important for an early management and to prevent complications in adult life. It is suggested that examination of nasal septum should be made a part of routine screening of new born so that morbidity associated with this deformity can be minimized in newborns and children in later life.

There is lack of literature to assess whether the septal manipulation and septal reduction is effective on long term. At the same time, comprehensive study and research is required to standardize the diagnostic methods and treatment modalities for early detection and management of deviated nasal septum.

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