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Research Article

INCIDENCE AND FACTORS ASSOCIATED WITH NASAL SEPTAL DEVIATION IN NEONATES: A CROSS-SECTIONAL INVESTIGATION

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ABSTRACT

The purpose of this study is to estimate the prevalence and identify the precipitating factors of neonatal nasal septal deviations. A deviated nasal septum was observed in 125 neonates using Gray's struts on the 2nd day. As long as the strut passes up to the 4 cm mark, it is considered normal. If the strut gets stuck before the 4 cm mark, it is diagnosed as having a deviated septum. The nasal septums of 25 of the 125 neonates were deviated. High birth weight, primiparas and emergency LSCS neonates had significantly higher deviations. It is estimated that 20 percent of newborns have a septal deviation at birth. The incidence of this condition is further increased by the amount of birth trauma.

Keywords:-. Nasal, Neonates, Trauma, Septum, Newborns.

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INTRODUCTION

It is common for nasal septums to deviate, making them more the rule than the exception. Patients with ENT problems suffer a considerable amount of morbidity due to this disease. Nasal injuries during the course of pregnancy and during the process of parturition are common etiological factors of deviated nasal septums [1]. It is not surprising that the nose is subjected to significant compressional and rotational forces during fetal development and parturition, as it is the most projecting part of the face. It is therefore not unusual to see neonates with nasal septal deformities (NSDs). In newborns, NSD can be classified into two types. (a) There is an external deformity of the nose caused by anterior dislocation of the septal cartilage from the maxillary groove. (b). The second type of deformity is combined septal deformity, which is caused by forces transmitted from the foetal body to the skull during moulding and may not appear externally [2]. Numerous studies indicate that 2.8 to 32% of newborns have a deviated nasal septum. The nasal passages are the only means of breathing for infants, so nasal obstruction can cause cyanotic spells, high pulmonary resistance, and even respiratory failure [3]. Literature reports describe newborns with acute respiratory distress and cyanosis caused by traumatic subluxation of the nose. Additionally, an infected nose and aerophagy are common causes of nasal obstruction and colic [4]. It is likely that people with compromised health may suffer from sinus problems such as sinusitis, epistaxis, eustachian tube dysfunctions, wound infections, respiratory tract infections, dental problems, and poor general health due to a deviated nasal septum that persists. It is common for these deformities to persist in adulthood and to cause physiological, anatomical, psychological, and cosmetic problems [5]. The purpose of this study is to better understand the role of strut test in the diagnosis of new-borns with deviated nasal septa

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MATERIALS AND METHODS

Source of Data

Those born within 24 hours of birth, admitted to a hospital's OBG, Paediatrics or ENT departments. A random number table was used to select subjects by simple random sampling. A newborn born two days ago was selected because tissue oedema in the first 24 hours may give a high false positive result, and many babies when born uncomplicated are discharged from the hospital within two days.

Exclusion Criteria

The study excluded newborns with cleft lips, cleft palates, cleft noses, as well as other physical malformations of the head and neck region and major life-threatening diseases.

Study Design, Sample Size and Methodology

A cross-sectional study design was used for this study, and the study sample contained 125 cases collected between January and August. Prior to the commencement of the study, the study was ethically cleared by the institution. Based on a pre-fixed proforma, history was taken, ENT examination was performed, along with the strut test. An examination of the history revealed nasal discharge, noisy breathing, poor feeding, and significant birth trauma. The anterior rhinoscopy was performed with an otoscope to rule out external deviation of the nose, a cold spatula test and cotton wool test were performed, and a cold spatula test and cotton wool test were conducted.

Strut Test

Diagnostically, it is the most important test. A mark was made at 4 cm from one end of acrylic strips that were 2 mm thick, 4 mm wide, and 10 cm long. Passing these struts in the nasal cavity around the septum was necessary. In the case of a septal deviation, if the strut passes before the 4 cm mark, then the strut is delayed before that point.

Statistical Analysis

The results obtained were statistically significant using the Chi Square test. A statistical analysis was carried out using Medcalc 8.2 software.

RESULTS

A total of 125 cases were recorded, 59 of which were females and 66 were males. There were 25 cases of DNS, 13 of which were females and 12 of which were males. Among the 12 cases, one had bilateral deviation of the septum and one had DNS to the left. Only 8 of the 25 new-borns born to multipara mothers were affected with NSD in this study (Table 1). Based on 63 primiparas in the study, 26.19% of newborns born to primiparas had NSD, whereas 12.9% of newborns born to multiparas had NSD. There was a statistically significant difference with a P value of 0.05 (Table 1). A second very important finding in our study is the relationship between Neonatal Septal Deviation (NSD) and the mode of delivery. Birth trauma is determined by the mode of delivery. Elective caesarean sections have the lowest rate, while vaginal deliveries have the average rate, while difficult deliveries, such as emergencies, persistent occipito posterior, vacuum deliveries, forceps, etc., have the highest rate. According to the study, NSD incidence varies proportionally with the amount of birth trauma, e.g., the lowest incidence is seen in newborns delivered by elective section, while the highest incidence is seen in newborns delivered by instrumental means. This difference was statistically significant at P 0.001 (Table 2). The prevalence of NSD was also higher in babies born with higher birth weights than in babies born with low or normal birth weights. The difference between the high birth weight group and the low birth weight group, as well as the difference between the two groups separately, was calculated using statistical significance. Table 3 shows that both times, P values were 0.001, which indicates statistical significance.

Table-1: DNS cases and subjects were distributed by sex, as well as primipara or multipara cases in both

	Males	**Females**	**Primipara**	**Multipara**
Total number	66	59	63	162
Number of NSD	12	13	17	8
Percentage	17.41	22.04	26.21	12.89

Table 2: An overview of the distribution of the subjects and DNS cases according to their delivery mode

	Normal vaginal delivery	Emergency LSCS	Elective LSCS	Instrumental delivery
Total number	62	40	15	9
No. of DNS	7	12	00	6
Percentage	10.39	29.76	00	71.04

Table 3: Using birth weight as a measure of the distribution of subjects and DNS cases.

	Low birth wt. (<2.5 kg)	Normal birth wt. (2.5–3 kg)	High birth wt. ([3 kg)
Total number	24	69	32
No. of DNS	03	08	14
Percentage	10.30	12.04	45.26

DISCUSSION

A wide range of studies has indicated that NSD is common in newborns, and there has been no general consensus as to the incidence. The correct method for diagnosing NSD in newborns would be important for determining the incidence. It is now considered standard practice to use nasal struts for the diagnosis of NSD in newborns, as popularized by Lindsay Gray. It requires little skill to use, is fairly accurate, and does not require any invasive procedures. The strut is a simple instrument. Depending on the amount of birth trauma, NSD incidence varies considerably, with a higher trauma rate resulting in a higher incidence rate. By gathering this information, we may be able to pinpoint those at greatest risk of developing NSD at birth. According to this study, neonates born to primiparas would be at risk, as would babies born to prolonged/difficult labors and babies with cephalopelvic disproportions [6]. Based on a study by Lindsay Gray, 95% of the deviations persisted in neonates with NSD and 80% of the straight septums persisted for up to two years and beyond. The subject of septal dislocation reduction has been the subject of further, controversial research, but in general, it is unlikely to reduce on its own. A reduction of the septal dislocation was also discussed by Gray, using Gray's modified Walsham's forceps. Gray's procedure is simple, well tolerated by newborns, and gives permanent results when done early. As a result, we have the following overall scenario [7]. Neonates with higher birth trauma have a higher incidence of neonatal NSD, which is around 20%. It is important to note that a significant number of NSDs persist into adulthood and give rise to DNS. Reducing NSD is also easy, simple, and long-lasting, especially when done within 3 days of birth, giving a permanent solution to morbidity.

CONCLUSION

It is estimated that 20% of all newborns have septal deviations during their first month of life. Predisposes to neonatal septal deviation more when there is more birth trauma, such as in primiparas or for LSCS delivery in an emergency. It is also more prevalent when there is a high birth weight and instrumental delivery. Neonatal septal deviations can be diagnosed fairly accurately by the strut test, as it's simple, non-invasive, and non-invasive. In peripheral centres, a qualified nurse or an ANM can carry out the test, and positive cases of NSD will be referred for proper treatment.

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