

Traumatology of the newborn's nose

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SUMMARY

Three different types of nasal deformities are described in the newborn:

- 1. Fixed deviations caused by injury in the prenatal period, which are mainly selfcorrecting.*
- 2. Deviations brought about during delivery, requiring repositioning, and*
- 3. Deformities caused by pressure and moulding of the foetal head, which also require treatment.*

Methods for the detection of the last two groups are also described.

The nasal construction is such that the nose is both tough and elastic. Thus it is possible for it to withstand considerable trauma, stress and strain both during pregnancy and while passing through the birth canal.

Despite this strength and elasticity, traumatic deformities occur, and infants may be born with quite marked displacement of the nasal pyramid and septum. At times these deformities cannot be repositioned even with the use of instruments.

In such cases, the nose has been injured "in utero", and the injury causing the deformity may have taken place months before delivery. The child will then be born with a deformity that is completely healed. As mentioned, early repositioning will be unsuccessful and therefore no attempt should be made. A number of investigators have demonstrated that a remarkable improvement may be expected in both the appearance and development of such a nose during the first two or three months of life, even when no surgery has been attempted.

The ends of the two nasal bones are slightly anterior to a plane extending from the forehead to the chin, and the flexible tip of the nose even more anterior to this plane.

During the process of labour, the tip of the nose is depressed. This may cause the inferior border of the cartilaginous septum to spring out of its shallow groove in the floor of the nose. When this occurs it results in a displacement

or dislocation of the lower edge of the nasal cartilage, as the cartilage is unable to return to its former place in the vomerine ridge. Following delivery, the nose will be asymmetrical and with a slanting columella. The nasal aperture to the dislocated side is flattened and the free border of the lower end of the cartilaginous septum will lie across and partially obstruct the nostril.

This type of dislocation should be treated on the 3rd day of life, by re-positioning of the septal cartilage into the anatomic groove in the floor of the nose. It can be most simply done by holding the cartilaginous part of the nose, using gauze, between the thumb and forefinger. The apex is then lifted up and at the same time the lower edge of the septum raised and pushed into place by means of a probe or elevator inserted below the free edge (Figure 1, upper left).

A slight asymmetry will persist for two or three weeks after the procedure, but the normal elasticity and springiness of the cartilaginous framework is re-established. (Figure 1, lower left).

Jeppesen and Windfeld (1972) made a comprehensive study of a large number of newborn infants with a deviation of the nose. They found a deviation of the tip of the nose to the opposite side of the dislocation in 89% of the cases, but no evidence of deviation in 7% and in the remaining 4% of the cases, the tip of the nose was deviated to the same side as the dislocation. (Table 1).

These investigators therefore advocated an additional diagnostic aid, the compression test, which shows collapse of the nasal tip against the philtrum or upper lip in cases of displacement. (Figure 1 middle: left and right).

Statistical analysis of the material of these authors showed that dislocation

Table 1. Deviation of the external nose in comparison to the direction of the dislocation of the septal cartilage in 113 registered cases (Jeppesen & Windfeld, 1972).

	N	%
Deviation to the opposite direction to the dislocation	100	89
No deviation	8	7
Deviation to the same side as the dislocation	5	4
Total	113	100

occurred to the right in 2/3rds of the babies delivered in the LOA-presentation, and dislocation to the left in almost 2/3rds of the cases delivered in the ROA-presentation. They explained their findings in the following manner: The foetal head, and with this the projecting nose, is affected by traumas from varying directions and of differing strength from the moment labour pains start and until the descent is commenced. These continue during the

further descent of the foetal head until engagement, after which the internal rotation commences, and the head including the nose, is subjected to a well defined unidirectional force.

The internal rotation of the foetal head occurs in a clockwise direction in the LOA-presentation. During this the left ala is pressed towards the anterior portion of the septal cartilage. This may produce dislocation of the septum into the right side of the nose.

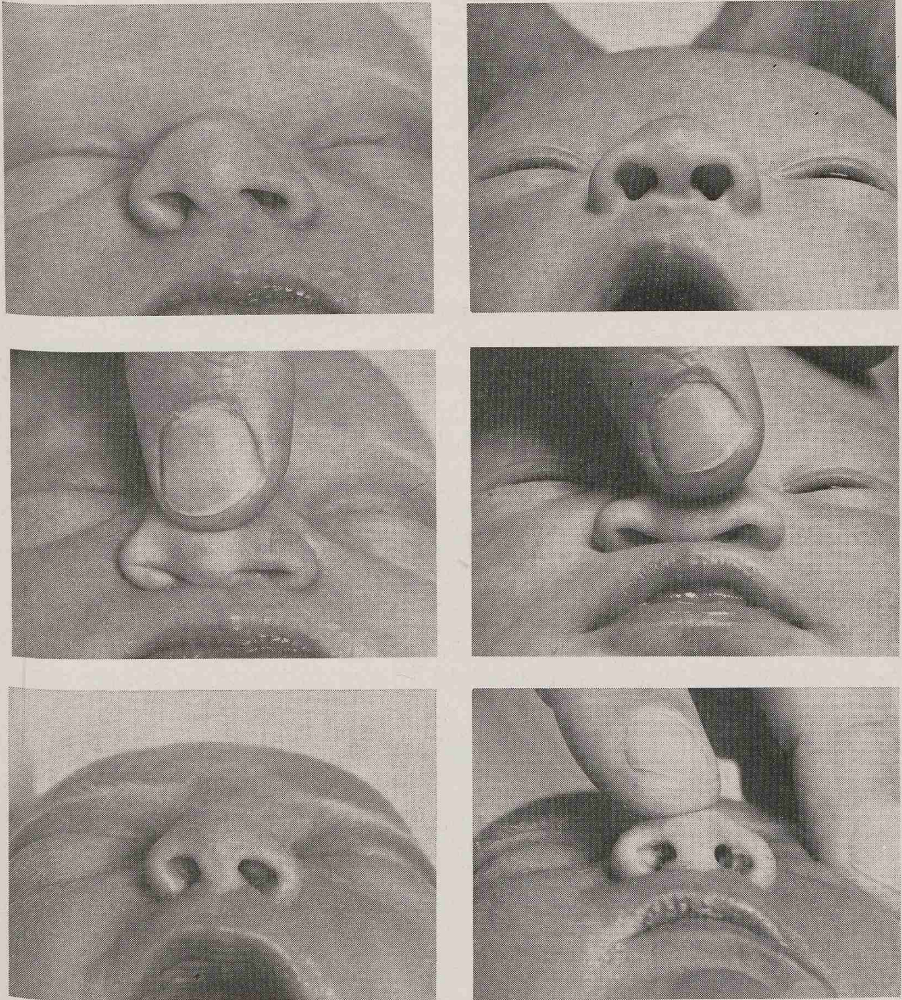


Figure 1.

Upper: left, typical septum deviation to the left. Right, a normal nose.

Middle: compression test: left, dislocation. Right, normal.

Lower: left, slight asymmetry after reduction. Right, compression test after treatment.

In the ROA-presentation, the head is rotated 135 degrees in an anticlockwise direction. The right ala is pressed against the septum, possibly giving rise to dislocation to the left.

As may be expected, dislocations were more common in primiparous than in multiparous women, and the frequency of the deformity was also higher in multiparous where the second stage of labour lasted for more than 15 minutes.

Table 2. The frequency of anterior septum dislocations in the white race after vaginal birth (Pirsig).

Author	No. studied	Septum dislocation
Birke	542	2 ⁰ / ₀ severe deformity
Ersner	25	8 ⁰ / ₀
Boyden	700	12 ⁰ / ₀
Steiner	100	6 ⁰ / ₀
Pease	956	2 ⁰ / ₀ severe deformity
		21 ⁰ / ₀ slight deformity
Montserrat	215	4.8 ⁰ / ₀ septum dislocation
		14 ⁰ / ₀ deformation of the pyramid
Jeppesen & Windfield	907	3.19 ⁰ / ₀
Gray	2000	2-3 ⁰ / ₀ anterior dislocation
		17 ⁰ / ₀ pronounced septum deformity

Table II by Pirsig (1978) demonstrates the percentages of septum dislocation found by various investigators. There appears to be some disagreement with regard to the results. This is most likely due to differing diagnostic procedures, and the fact that many babies are born with depressed and flattened vaults; a deformity that is self-correcting.

It can be seen that Lindsay Gray, who examined 2000 newborn infants, found 2 - 3% with anterior dislocation in addition to 17% with septum deformities.

Such septum deformities may be found by introducing struts into the nasal

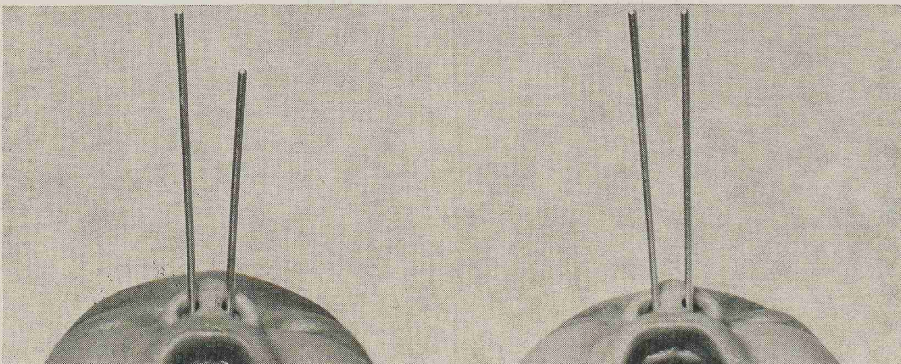


Figure 2. Nasal testing procedure: left, obstruction. Right, normal.

cavities. In normal cases, the struts can be passed 4 - 5 cm into the nasal cavities (Figure 2, right). However, in the presence of this type of deformity, a hard obstruction occurs about 1.5 to 2 cms from the external nares, preventing the passage of the strut (Figure 2, left). This is most common on one side only. Gray has been able to show, by following the patient for a number of years, that the obstruction persists or even becomes worse.

An explanation of these deformities is that they are the result of simple birth moulding and pressure. The zygomatic arch, in particular, is exposed to pressures. These are transmitted to the maxillae, which are then pressed towards each other. This pressure causes the arch of the palate to kink cranially, thus compressing the components of the septum and causing buckling of the junction of the maxillary crest, vomer and cartilage.

Gray has attempted to straighten such deviated septa by simple manipulation, using a modified Walsham's septal forceps. The blades of the forceps are introduced or wriggled into the nose and gently closed. Firm pressure is then exerted caudally on the middle of the floor of the nose, depressing the arch of the palate, in order to reduce the initial deformity.

Summarizing, it is possible to classify traumatic deformities of the newborn's nose into three groups:

Group 1. This group consists of newborn infants with fixed deviations of the nasal vault, due to prenatal trauma. In such cases the bone heals and cannot be repositioned. The deformity has a tendency to disappear spontaneously within 2 - 3 months.

Group 2. Comprising septum dislocations caused by passage through the birth canal. The foetal head and with this the projecting nose, is affected by traumas of varying strength during delivery, causing septum dislocation, followed by a typical deformity of the nose in 2 - 3%. The deformity always requires repositioning, preferably on the third day of life.

Group 3. Consisting of deformities of the septum brought about by pressures and moulding of the foetal head. The protruding zygomatic bones are particularly exposed, and transmit the pressures to the maxillae and the arch of the palate. Causing malalignment and deformities of the septal components. The deformities should be repositioned as soon after birth as possible, as they otherwise tend to become worse.

RÉSUMÉ

Les difformités nasales traumatiques du nouveau-né peuvent être classées en 3 groupes.

Groupe I

Comprend le nouveau-né avec voûte nasale à déviations fixées à cause d'un traumatisme prénatal.

Après déplacement, l'os croît dans cette position et ne peut être remis en place. La difformité a tendance à disparaître spontanément en 2 à 3 mois.

Groupe II

La déviation du septum causée par le traumatisme nasal durant le passage à l'accouchement. – La tête du foetus et avec celle-ci, le nez, est affectée par le traumatisme des différentes puissances de poussées durant la délivrance qui causent la dislocation du septum suivie par une difformité typique du nez dans les 2 à 3% des cas. La difformité nécessite toujours une mise en place de préférence le troisième jour après l'accouchement.

Groupe III

Les difformités dûes aux pressions, et moulage de la tête du foetus. Les os zygomatiques protubérants sont de telle façon spécialement exposés qu'ils transmettent les pressions au maxillaire et au palais, et causent un mauvais alignement et des difformités des composants du septum.

Les difformités doivent être mises en place aussitôt après la naissance, sans quoi elles empireraient.

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