Half nose

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CONGENITAL anomalies of the nose are not rare. Absence of one half of nose, presence of two complete noses and complete absence of nose are, however, extremely rare. The first case of half-nose was reported by Fatin (1955) and another was reported by Ogura *et al.* (1967). To my best knowledge only these two cases of half nose have been reported so far in the literature.

Case report

Baby G., 10 days old, was brought to E.N.T. Outpatient Department of General Hospital, Udaipur on 13 January 1972 by her mother with the complaint of absence of complete left half of the nose since birth.

Prenatal, natal and postnatal history was non-contributory. Mother, 23 years old, a primip, was in good health during pregnancy. There was no history of diabetes mellitus, specific fever or toxaemia of pregnancy. No history of exposure to X-rays during the pregnancy was available. There was no positive family history of anybody having any congenital or hereditary disease. Father is healthy.

On examination the infant, a healthy female child, weighed 7·5 lbs. at birth. There was no problem of any kind at birth. She was breathing quietly through the existing right half-nose. There was epicanthus left eye, though more apparent than real, due to absence of half-nose on that side. Soft rubber catheter could easily be passed through the half-nose into the nasopharynx.

Two weeks after the first visit to the hospital, the mother noticed swelling just internal to the medial canthus of the left eye and some mucopurulent discharge from this eye. Examination of the swelling revealed it to be in relation with left lacrimal sac because it disappeared on pressure discharging its contents of mucopus into the left eye through the lower canaliculus. She had developed this dacryocystitis due to non-formation of left nasolacrimal duct as that side of nose is absent.

Local examination of the nose revealed absence of left complete half of the nose (Fig. 1). The nasal fossa of the existing right half-nose was clean. The medial wall (normally represented by nasal septum) of the nose was similar to lateral wall outwardly but on anterior rhinoscopy no turbinates were seen. The turbinates on the lateral wall were normal. Palate and lips were normal. No other deformity in the pharynx or ears was detected.

X-ray of paranasal sinuses showed complete absence of left half of nose. Its place was taken by bone. The left nasal bone was also not formed. Both the maxillary sinuses are normally developed. The ethmoid and frontal sinuses are not developed on either side. Inter-orbital space was normal. Skull showed normal sutures and fontanelles.

On general examination, heart and lungs were found normal in all respects.

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Discussion

The development of the facial region during the second month of intrauterine life is dominated by changes resulting in the formation of the nose. In the 6 mm. embryo an epithelial thickening, the olfactory placodes, appears on either side of the front of the head above the stomatodaeum. These placodes



FIG. 1.
Half nose.

soon sink in to form olfactory pits. Elevations appear on either side of each pit, called medial and lateral nasal folds. The medial nasal folds together with the intervening area above the stomatodaeum form the so-called frontonasal process (Fig. *2a*).

The maxillary process growing anteriorly from dorsal portion of the corresponding mandibular arch fuses with the lateral nasal fold. It then extends beyond this across the lower margin of the olfactory pit to fuse with the medial nasal fold. Eventually it appears to fuse with its fellow of the opposite side. In this way the pit is transformed into the primitive anterior nares and deepening of the pit leads to the formation of the primitive nasal cavity (Fig. *2b*).

The mesenchyme which intervenes between the floor of the forebrain and the mouth increases. The nasal fossae extend backwards from the primitive posterior nasal apertures as two narrow grooves in the roof of the mouth separated by a broad partition. As these grooves deepen, the partition between them narrows to form the nasal septum (Figs. *3a*, *3b*, and *3c*).

The area between the nasal cavities, the frontonasal process, is quite broad at first, but it gradually narrows and thins out. How it occurs is not explained by the text books of embryology. With this conception of the frontonasal process, it is difficult to explain various midline congenital anomalies of the nose like median fissure at the root of the nose and/or a fold along the whole nose (Badrawy, 1967), median fissure at the tip of the nose (Handousa, 1949), bifid

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nose (Birrell, 1960), and double nose (Ghosh *et al.*, 1971), persistent frontonasal process (Badrawy, 1967), triple nares (Holmes, 1950), double septum, dermoid cyst along the dorsum of the nose (Badrawy, 1967), and midline fistula of the nose.

The present case report of half nose belongs to the lateral anomalies of the nose and again cannot be explained by the classical description of development of nose as given above.

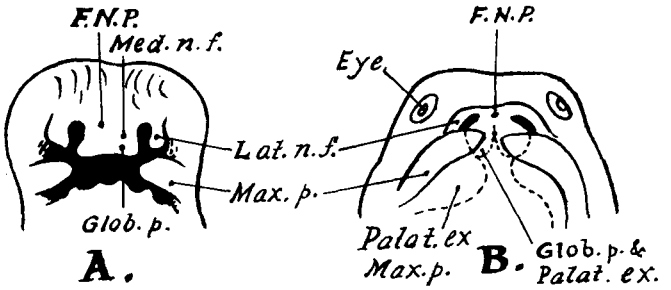


FIG. 2.

Development of the nose.

F.N.P.: Frontonasal process.
Lat. n. f.: Lateral nasal fold.
Med. n. f.: Medial nasal fold.
Glob. p.: Globular process.
Max. p.: Maxillary process.
Palat. ex.: Palatal extension of either the maxillary or globular processes.

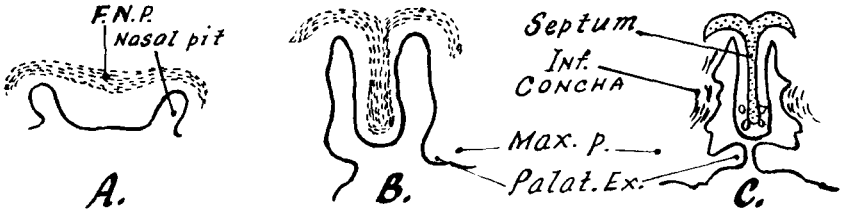


FIG. 3.

Three stages in the development of the nose.

A. The nasal pits and cartilagenous core.
B. Coronal section of an embryo 23 mm. long showing formation of nasal cavities and a thick septum between.
C. Coronal section of an embryo 28 mm. long.

The hypothesis to explain above congenital anomalies as put forward by Badrawy (1967) is very convincing, According to this hypothesis, the narrowing of the frontonasal process occurs through a process of folding. The two layers of the folded cartilage fuse in the centre to form a single septal cartilage. This bilateral origin of the septum is duly supported by the old view of development of the definitive septum. The view holds that a tectoseptal extension from each maxillary process extends upwards and medially deep to the ectoderm of common bucconasal cavity, until it reaches the midline where it fuses with the corresponding extension from the opposite side to form a median anteroposterior projection. This tectoseptal extension as seen on sections of embryos can,

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according to this new hypothesis, be interpreted as a folding in the midline of the frontonasal process and the mesodermal tissues which lie between it and the brain (Figs. 4*a*, 4*b*, and 4*c*).

The hypothesis of a folding of the frontonasal process affords a separate medial and lateral wall for each nasal cavity. This allows independence of further growth of each cavity. Thus arrest of one side can occur while the other side develops normally, resulting in half-nose.

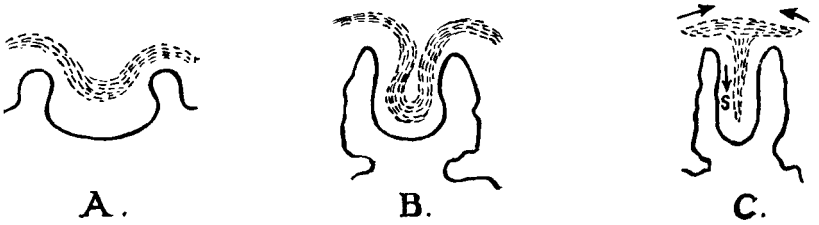


FIG. 4.

Folding of the fronto-nasal process.
A and B two stages supposed to intervene between the two steps A and B in Figure 3. C, the alternative is compression from sides and an extension to form the septum (s).

Summary

A case of half-nose, a very rare congenital anomaly of nose, is reported. An infant who was otherwise free from the abnormalities showed an absence of the external nares, the nasal skeleton and the nasal cavity on the left side. The other side of the nose was normal.

Acknowledgement

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