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Case report

Congenital midnasal stenosis – A novel technique for management

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ABSTRACT

Neonates are obligate nasal breathers and nasal obstruction in a neonate is an emergency. Here we report two cases of congenital mid-nasal stenosis, discuss its presentation and diagnosis with description of a novel method of management.

1. Introduction

Mouth breathing is a learned response which develops by 4–6 weeks of life. Newborn rely on a patent nasal airway to coordinate breathing and swallowing process. Nasal obstruction in infants manifests as intermittent respiratory distress, worsening during feeding with associated unilateral or bilateral nasal discharge and relieved during crying. This can often be mistaken for choanal atresia. Here we present two rare cases of congenital mid-nasal stenosis highlighting on the endoscopic diagnosis of this rare condition and the novel method of management.

2. Case series

2.1. Case 1

A 33 week old preterm with birth weight of 1.4 kg, and APGAR scope of 8 and 10 at 1 & 5 min was intubated for respiratory distress. The newborn was transferred to a tertiary referral hospital following a two failed extubation. A five French gauge catheter could not be passed through the nose. A provisional diagnosis of choanal atresia was made based on clinical history and initial evaluation. On bedside flexible fibreoptic endoscopy, the fiberscope could be passed for approximately 1 cm from the anterior end of inferior turbinate. The fiberscope could not be passed any further due to narrowing of the nose bilaterally and the middle turbinate could not be visualized. Computerized CT scan revealed the mid-nasal narrowing with normal choanae bilaterally. (Fig. 1).

2.2. Case 2

A three-week-old neonate born at 40 weeks with birth weight of 2.5 kg. The child was seen as an inpatient consultation in hospital nursery for noisy breathing and respiratory distress while feeding since birth. On examination, there was inspiratory stridor with subcostal and intercostal retractions, which relieved on crying. A five French gauge catheter could not be passed through the nose. On bedside fibre optic endoscopic evaluation, the fibreoptic endoscope was passed beyond the nasal aperture and anterior end of inferior turbinate for about 1.5 cm. Endoscope couldn't be passed beyond this due to narrowing and middle turbinate couldn't be visualized. Plain computed tomography of nose and paranasal sinuses revealed bilateral narrowing of mid nasal cavity with normal pyriform aperture and choanae. (Fig. 2).

2.2.1. Procedure

Considering that CT revealed well developed pyriform aperture, inferior and middle turbinates endoscopic assisted bilateral lateralization of inferior turbinates was done under general anesthesia. Following application of saline in adrenalin (1 in 10,000), a 2.7 mm Hopkins's rod 0° nasal endoscope was used during the procedure. The inferior turbinates on both sides were out-fractured using a Freer's elevator under endoscopic visualization (Fig. 3). The nasal cavities were stented with a re-fashioned 12 FG (4.0 mm diameter) silicone urinary catheter (Fig. 4). A window is created in the middle

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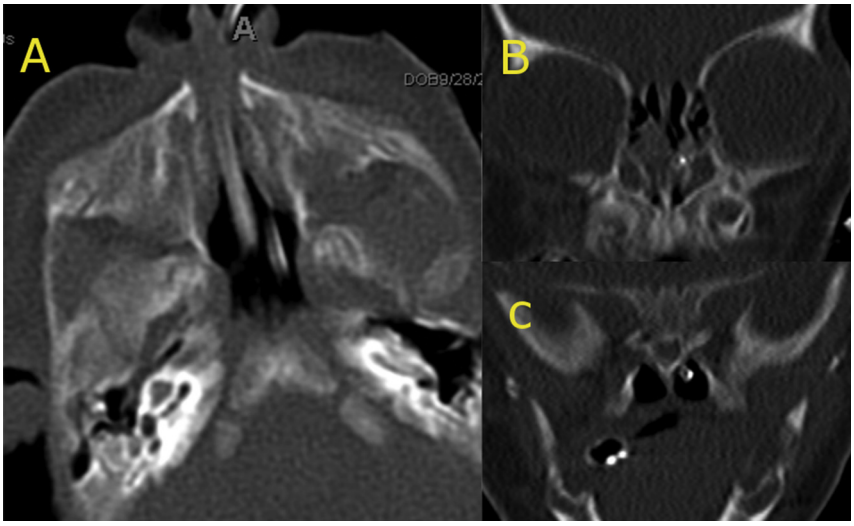

Fig. 1. Computerized tomography of paranasal sinuses- Axial view (A) showing mid-nasal narrowing. Normal pyriform aperture (B) and normal choanae (C) seen on coronal sections.

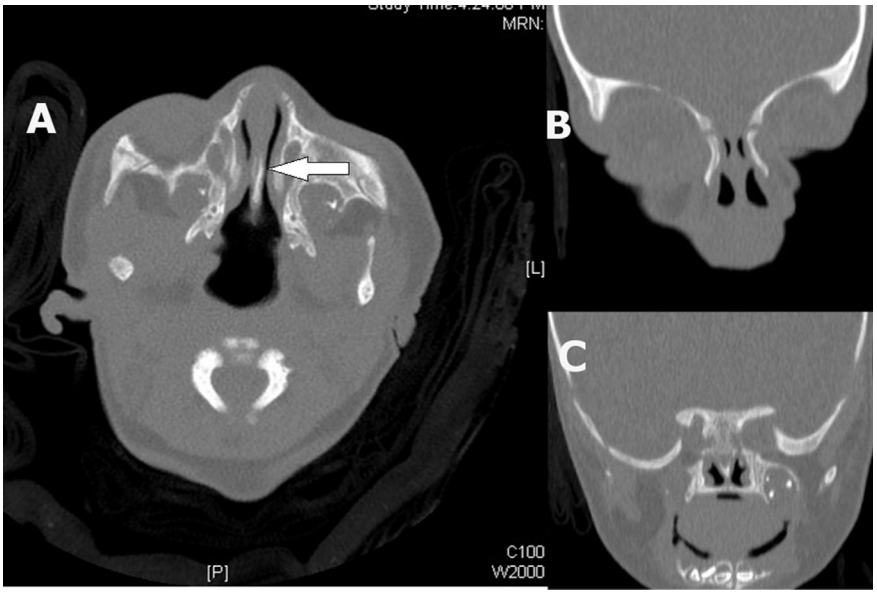

Fig. 2. Computerized tomography of paranasal sinuses- Axial view show (A) narrowing in middle nasal cavity with normal pyramidal aperture and choanae. The classical 'hourglass' appearance is seen on axial sections (arrow pointer). Coronal view showing (B) normal pyriform aperture and (C) normal choanae.

of an 8 cm long segment of silicone urinary catheter and folded with the window facing outwards. This stent is inserted into both nasal cavities with each arm measuring approximately 4 cm in length and retained for three days.

2.2.2. Post-operative care

The procedure was uneventful in both the patients. They were successfully extubated, the first neonate on seventh post-operative day and second case on fourth post-operative day. Both babies were discharged on saline nasal drops to prevent crusting of the nose.

2.2.3. Follow up

The infants were followed up at one month, three months and six months. The respiratory distress resolved post operatively and both were gaining weight appropriate for age. Fibreoptic endoscopy done three months post operatively showed bilateral nasal patency with no synechiae/narrowing.

3. Discussion

Nasal obstruction in a newborn is a potentially life threatening condition. The source for the obstruction can vary from mucosal edema to congenital nasal masses or bony stenosis. The congenital bony stenosis can be classified based on site of stenosis as anterior stenosis or congenital pyriform aperture stenosis (CPAS), the middle or mid-nasal stenosis and posterior stenosis or choanal atresia [1].

Choanal atresia is the commonest cause for nasal obstruction in the newborn. Its incidence is reported to be 1:5000 to 1:8:000 live births [2]. Congenital pyriform aperture stenosis is a rare cause of nasal obstruction at the nasal valve area due to the bony outgrowth of the nasal process of maxilla into the nasal cavity [3]. Congenital mid-nasal stenosis is an even rarer condition due to unequal growth of the lateral wall of the nose or excessive in folding of the nasal septum.