A Missed Bilateral Choanal Atresia

What do you see in the image?
a) Deviated posterior nasal septum
b) Nasopharyngeal tumour
c) Rhinolith with mucous plug
d) Bilateral choanal atresia
e) Nasal pyriform aperture stenosis

Case

A baby girl was born via emergency lower segment caesarean section after 33 weeks' gestation. The mother had developed premature uterine contraction, leaking liquor followed by acute fetal distress condition as shown on cardiotocograph.

The 1.85 kg baby was intubated in the operating theatre because of respiratory distress. The baby was noted to have a flat nasal bridge, low set ears, prominent occiput and short sternum. Further examination revealed pansystolic murmur. Echocardiography showed patent foramen ovale with moderate persistent ductus arteriosus.

The baby was kept intubated for more than 1 week because of multiple medical and surgical problems. On day 12 after birth, Ryle's tube insertion was attempted through the nostrils. However it failed. Choanal atresia was suspected. Flexible nasoendoscopy showed blind ends in both nasal cavities.

Computed tomography (CT) scan revealed severe narrowing of both posterior choana measuring 1.5 mm on the left and 2.0 mm on the right, with soft tissue density within measuring 8.7 mm on the left and 9.1 mm on the right. Left eye globe is smaller than the right and a cystic mass similar to vitreous humour was seen in the posteromedial aspect of the eyeball. The osseomembranous choanal atresia and possible left coloboma were diagnosed.

Discussion

Choanal atresia results from the persistence of the bucconasal membrane, which separates the nasal cavity and the nasopharynx in the early embryological development period. Unilateral case is often diagnosed later in life with the complaint of unilateral nasal obstruction. Bilateral atresia almost always present with respiratory emergency because newborn babies are obligate nasal breathers.

Choanal atresia may be found as an isolated anomaly but 60% to 70% of cases are associated with other congenital defects,[1] namely the CHARGE association. It consists of coloboma of the eye, heart disease, atresia of the choana, retarded growth or development, genital hypolasia and ear deformities including deafness.

Early and prolonged intubation can mask the diagnosis. In this condition, the breathing effort can never be assessed. However, failure of multiple attempts of extubation should trigger a new diagnosis especially if the chest auscultation and X-rays revealed normal findings.

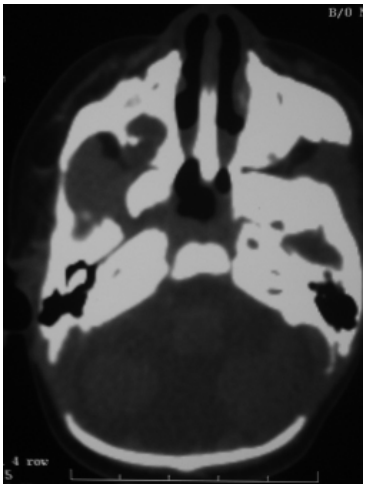

Fig. 1. Axial CT scan of the nose and paranasal sinus shows blind ends of the posterior nasal cavity.

Inability to pass through a feeding tube via the nostril is very suggestive. Confirmation can be done with nasoendoscopic examination and CT scan, which will demonstrate the presence of septa between the nasal cavity and the nasoharynx. It can be a pure bony or membranous partition but the most common is the mixed component.

Surgical repair is recommended in the first weeks of life in bilateral cases because this is a life-threatening situation in newborns.[2] Surgical approaches which include transpalatal, trans-septal, transantral and transnasal have been described. However, the endoscopic transnasal route has become the approach of choice because of the reduction in operative time, less bleeding, not disturbing the growth centres of the bony plates and the pyramid of the nose as well as reduce the risk of palatal fistula.[3]

Although there are many recent advances in the treatment of choanal atresia, the utmost important part in the management is the early accurate diagnosis. Thus, a simple procedure such as passing the nasogastric tube through the nostrils can be a diagnostic tool and should be routinely performed, especially in an intubated newborn.

Answer: d

REFERENCES

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