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X-ray Quiz

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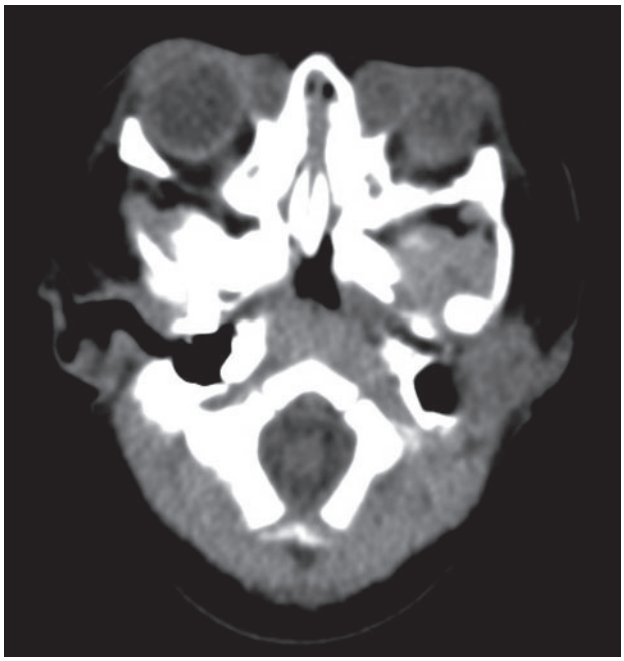
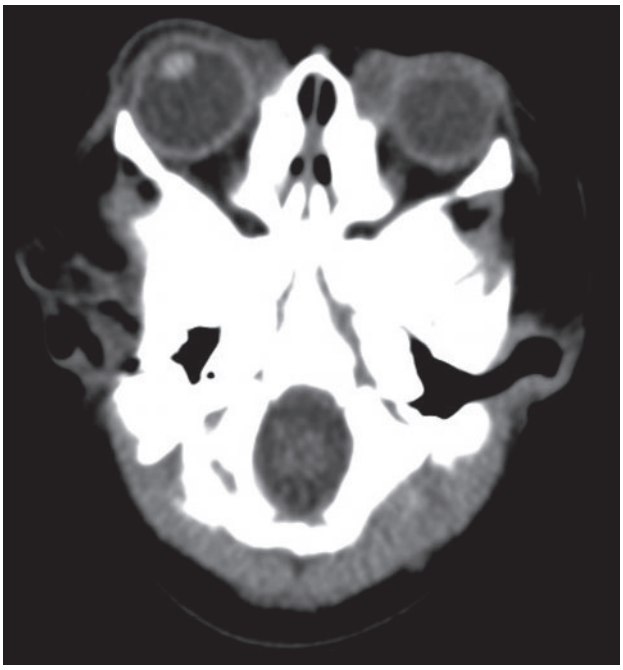
Case history

This is the first baby of the family born at 36-week gestation via vacuum extraction in a private hospital. Birth weight was 2.55 kg with normal Apgar scores 9(1) 9(5).

Antenatal history was unremarkable. The baby girl was noticed to have respiratory distress immediately after birth. Chest X-ray there showed clear lung. She was subsequently found to have difficulty in passing feeding tube through both nostrils. Private ENT surgeon was consulted there with flexible nasoendoscopy performed. She was transferred to our NICU after stabilisation. Plain CT nasopharynx and sinuses was done immediately.





Question
What is the diagnosis?
A. Encephalocele
B. Bilateral choanal atresia
C. Nasal polyps
D. Nasal haemangioma
E. Nasal nasolacrimal duct cyst

(Answer on page 18)

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J Clin Immunol 2012;32(3):421-9. PubMed PMID: 22289994; PubMed Central PMCID: PMC3350625.

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Answers to X-ray Quiz on page 16

Answer: B

Flexible bronchoscopy in the referring hospital detected narrow nasal cavities (right side minimal air bubble, left side no air bubble); larynx was of normal looking with mobile vocal cords. Oropharyngeal airway was inserted and SpO_2 was stable on room air before transferal.

CT nasopharynx and sinuses in our hospital confirmed bilateral choanal atresia with the posterior choanae measured 1.3-1.5 mm in diameter and the posterior vomer appearing slightly thickened. Multiple transnasal endoscopic surgeries were performed involving submucosal resection, stent insertions and dilatations. However the baby remained symptomatic because of stenotic nasal passages due to scarring tissues/ adhesions. Finally tracheostomy was inserted but the baby succumbed shortly afterward probably related to the blockage of tracheostomy tube.

Choanal atresia can be caused by membranous or bony obstruction. The mixed type constitutes 70% of cases whereas the remaining ones are due to the bony type. When compared with the unilateral lesion, bilateral choanal atresia is less common but presents much earlier as neonatal respiratory distress owing to the obligated nasal breathing in newborns. Paradoxical cyanosis is the characteristic as the infants become cyanotic at rest but turn pink while crying with mouth open. The diagnosis can be made by either nasoendoscopy or plain CT of the paranasal sinuses and skull base. CT will detect the narrowing of the posterior nasal cavity +/- thickening of vomer. The normal mean width of the posterior choanal airspace, measured from the lateral wall of the nasal cavity to the vomer, is 0.67 cm in the newborn. In children less than 8 years of age, the vomer generally measures less than 0.23 cm in width and should not exceed 0.34 cm. Surgical correction can be performed either via transpalatal approach, or more commonly, through a transnasal endoscopic approach which later requires post-operative stenting followed by repeat dilatations.

References

1. Ramsden JD, Campisi P, Forte V. Choanal Atresia and Choanal Stenosis. Otolaryngol Clin N Am 2009;42(2):339-52.
2. Schroeder JW Jr, McColley S. Congenital Abnormalities of the Upper Airway. Chapter 13, p266. Pediatric Pulmonology. American Academy of Pediatrics, 2011.