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# Choanal Atresia

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## IMAGE

## ABSTRACT

Choanal atresia, refers to unilateral or bilateral, bony or membranous obstruction of the posterior nasal aperture. Approximately 50% of children with bilateral choanal atresia have associated other congenital abnormalities. The presenting symptoms may vary from intermittent to severe respiratory distress. Bilateral choanal atresia is a life threatening condition. CT scan plays an important role in diagnosing the nature & extent of the choanal atresia, to rule out other causes of congenital nasal obstruction and also helpful in therapeutic approach. The introduction of multidetector CT scanner offers several additional advantages. The mainstay of treatment is surgical correction.

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## CASE HISTORY

An infant presented with severe respiratory distress which increases during feeding. Clinical examination revealed mild cyanosis which increased during feeding and relieved during crying. Chest examination was normal. CT scan was advised to rule out upper respiratory tract/nasal obstruction. The CT scan was performed on 16 slice SIEMENS CT scan 'EMOTION 16'. This case fulfilled all the CT criteria of bilateral choanal atresia including narrowing of bilateral posterior nasal apertures with posterior choanae measuring approximately ~ 1 mm on either side. There was medial bowing with thickening of the posterior medial maxilla and thickening of vomer (~ 5 mm). Retained fluid with level formation seen involving bilateral nasal cavities (Rt > Lt).

**DIAGNOSIS**: Bilateral choanal atresia (bony).

## DISCUSSION:

Choanal atresia refers to the atresia or narrowing of the posterior nasal cavity (choana). It is the most common form of congenital nasal obstruction. It is classified as unilateral or bilateral and bony or membranous. Bony atresia constitutes more than 2/3$^{rd}$ of cases. The existence of pure membranous atresia without any bony abnormality has been disputed. 75% of patient with bilateral choanal atresia have other congenital abnormality, among which the most important is the CHARGE syndrome (C, coloboma; H, heart defects; A, atresia choanal; R, retarded growth; G, genitourinary defects; E, ear defects).

**CLINICAL & RADIOLOGICAL FEATURES:** The presenting symptoms range from intermittent to severe respiratory distress with cyanosis that is aggravated by feeding and alleviated by crying. Bilateral choanal atresia is a life threatening situation with the affected infant is an obligate nose breather. The CT criteria for bilateral choanal atresia includes narrowing of the posterior choanae (lateral wall of nasal cavity to vomer < 0.34 cms in newborn), medial bowing & thickening of the postero-medial maxilla, thickening of the vomer (> 0.34 cms) and retained fluid in the nasal cavities. The various differentials of congenital nasal airway obstruction, through uncommon, includes nasolacrimal duct cyst, turbinate hypertrophy, pyriform aperture stenosis, and nasal cavity stenosis in association with craniofacial anomalies. The most important differentiating point is abnormal widening of the vomer.

**TREATMENT:** The mainstay of treatment includes surgical correction of bilateral choanal atresia. Among the various surgical approaches the transnasal endoscopic procedure has been advocated as most safe and efficacious method with the best possibility for long-term nasal patency.

## CONCLUSION

CT should be the examination of choice to evaluate neonates with nasal obstruction. It plays a important role in the diagnosis and therapeutic approach of the congenital choanal atresia. The introduction of multislice CT scanner offers significant advantages, including improved temporal and spatial resolution, retrospective determination of slice thickness, shorter acquisition time and reduced radiation exposure to the infant.

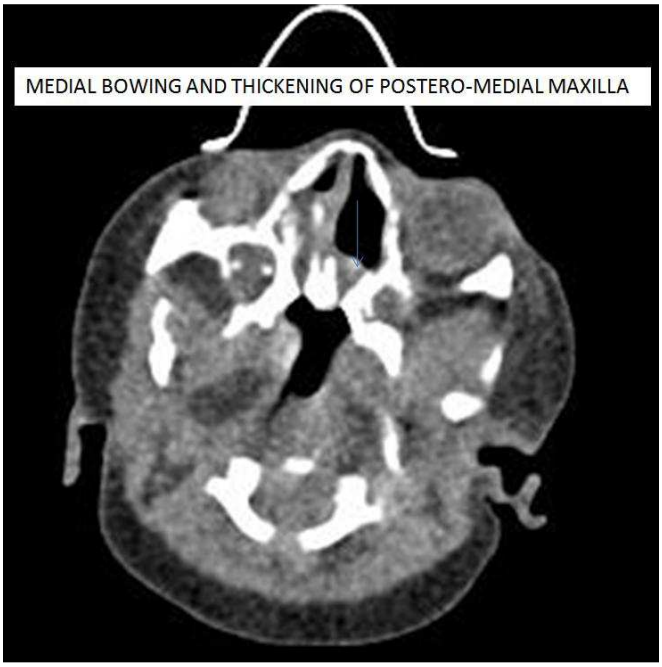


**Figure1:** Axial CT section showing medial bowing and thickening of posterior- medial maxilla

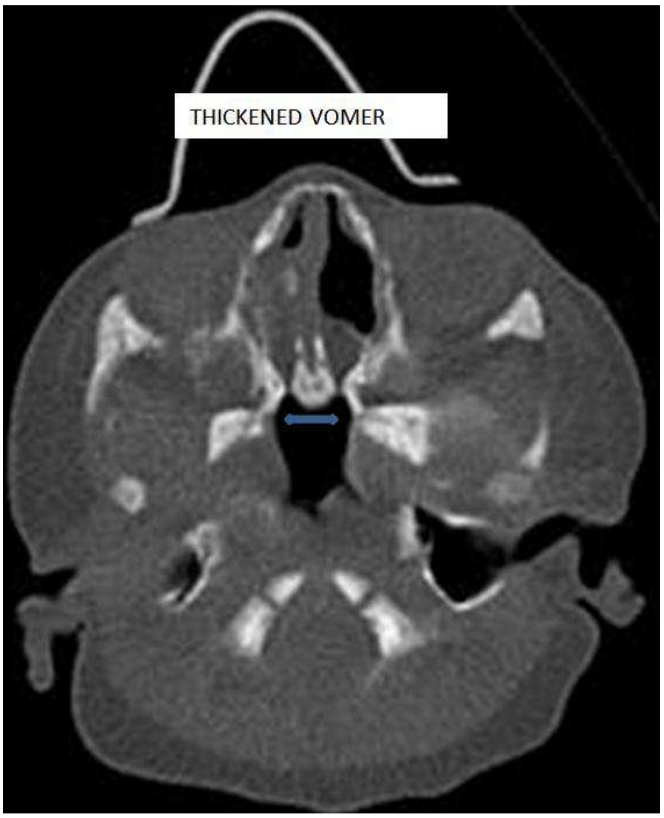


**Figure2:** Axial CT section showing marked thickening of the vomer (horizontal arrow)

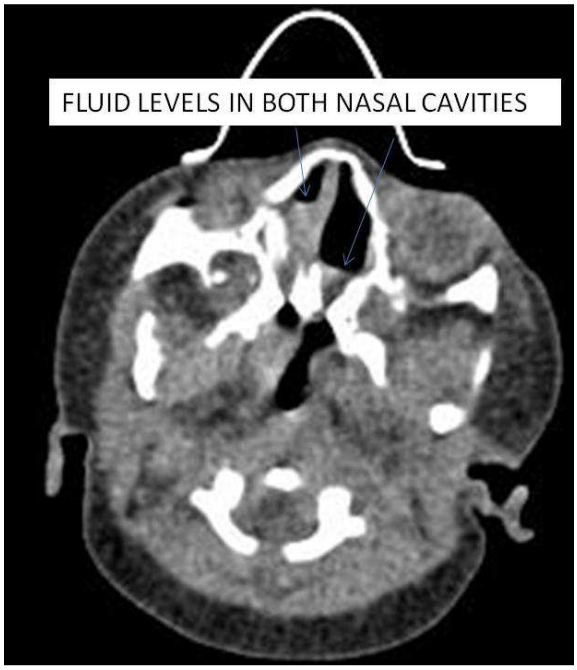


**Figure 3:** Axial CT section showing fluid level in both nasal cavities

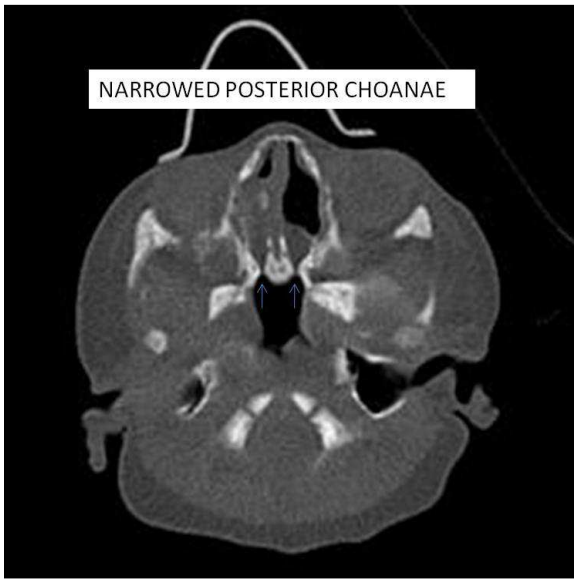


**Figure 4:** Axial CT section showing narrowed posterior choanae

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