

## CASE REPORT

### UNILATERAL CHOANAL ATRESIA-PRESENTATION IN VARIED AGE GROUPS

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#### HOW TO CITE THIS ARTICLE:

Sajitha K. B, Ihsan A. T. "Unilateral Choanal-Atresia presentation in varied age groups". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 18, March 02; Page: 3178-3182, DOI: 10.14260/jemds/2015/460

**ABSTRACT:** Choanal atresia is an uncommon and poorly recognized cause of unilateral nasal obstruction in adults. We discuss here two cases of unilateral choanal atresia, one adult and a child. Both of them had nasal obstruction as their chief complaint. Both patients underwent a Trans nasal endoscopic excision of choanal atresia with assistance of powered instrument and repair of the choana with stent. Both the patients were followed up regularly for a period of one year and were found to be symptom free with a well healed and patent choana. These case reports highlight the possibility of considering choanal atresia as a differential diagnosis in all patients presenting with unilateral nasal obstruction. CT scan and Nasal endoscopy are the investigations of choice. Trans nasal endoscopic approach with stenting provides an excellent method of management.

**KEYWORDS:** Unilateral choanal atresia, nasal endoscopy, Trans nasal endoscopic repair.

**INTRODUCTION:** The choanae by definition are posterior apertures of the nose. Choanal atresia occurs when the posterior nasal cavity fails to communicate with nasopharynx. It is a developmental anomaly and believed to occur as a result of failure of the nasobuccal membrane to rupture in the fifth and sixth week of intra uterine life.<sup>1</sup>

The reported incidence ranges from 1 in 5000 to 8000 live births and up to two-third of cases are unilateral with atresia commonly occurring on the right side. The clinical presentation of choanal atresia varies between unilateral and bilateral disease. Patients with unilateral disease present later in life with symptoms like rhinorrhea and nasal obstruction. Investigations like CT scan help in clinching the diagnosis. However confirmation can only be done by endoscopic evaluation. The present article deals with two such cases of unilateral choanal atresia, presented in later life at different age groups and their management in our institution.<sup>1</sup>

#### CASE REPORTS:

**CASE - 1:** A 24 years old male patient presented in our OPD with history of nasal obstruction, rhinorrhea and hyposmia since past 12 years. He also had symptoms of nasal allergy. On examination anterior rhinoscopy showed a DNS to left with mucoid discharge in both nasal cavities. Provisional diagnosis of allergic rhino sinusitis was made and patient was investigated further. CT Scan of PNS was done, revealed a moderate disease of left maxillary and ethmoid sinuses. Nasal endoscopy to our surprise showed a complete atresia of right choana.

**CASE - 2:** 6 yrs old girl presented with right sided nasal obstruction since birth, nasal discharge and mouth breathing. Child's mother also gave us a vague history suggestive of choanal atresia of right side which was diagnosed at the age of 2yrs, for which no intervention was done at that time. CT scan of the patient revealed a complete choanal atresia of right side which was mostly bony and partly membranous. Diagnostic nasal endoscopy was done which confirmed the diagnosis.

Both Patients underwent a transnasal endoscopic repair of choanal atretic plate under general anesthesia. The procedure involved direct visualization of the choana with 0 degree Hopkins

## CASE REPORT

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rod endoscope and the choanal atretic plate, which was partially bony and membranous was excised with the assistance of microsurgical debrider. Stenting was done in both the cases using an endotracheal tube No.5 in adult and N0.3 in child. The stent was left in situ for six weeks. Septoplasty and left sided FESS was also done simultaneously in the adult patient and the child underwent adenotonsillectomy simultaneously. Postoperative period was uneventful and they were discharged on the third postoperative day with the stents in place. Stent removal was done at 6 weeks follow up. Both of them were followed up regularly for one year duration and found to be symptom free with a well healed and patent choana.

**DISCUSSION:** Choana atresia occurs as a result of developmental error where in the nasobuccal membrane fails to rupture in 5th or 6th week of intra uterine life or due to abnormal neural crest migration.

Bilateral choanal atresia presents as an acute respiratory emergency at birth as new borns are obligate nasal breathers, whereas unilateral conditions often come to light in an older child or adults with a persistent profuse unilateral nasal discharge and nasal blockage. Choanal atresia may be an isolated anomaly or one feature of a number of associated congenital anomalies like CHARGE syndrome.<sup>2</sup> The diagnosis can be made clinically by failure to pass 6F catheter through nose into the nasopharynx (distance up to 32mm). CT scan is used to confirm the diagnosis and reveal the nature and thickness of atretic plate. The diagnosis should be confirmed by direct endoscopic evaluation.<sup>2</sup>

Numerous techniques have been described for the correction of atresia with little direct comparisons made. Unilateral atresia does not constitute an emergency. Treatment is thus delayed for several months, allowing for growth of the nose, which reduces the risk of complications and restenosis. Most techniques begin the repair by perforating the atretic plate at its thinnest portion usually inferomedial region using a urethral sound or suction instrument. A 0 degree transnasal endoscope or 120 degree nasopharyngoscope is used for visualization and subsequently a drill, back biting forceps, microdebrider or laser are used as necessary to remove choanal soft tissue and bone.

The importance of stenting as well as use of fibroblast inhibitors (mitomycin-c) remains controversial. Regardless of the techniques used, most studies report significant recurrence rates, necessitating revision surgery. The lowest recurrence rates are seen in older children, unilateral, nonsyndromic patients and patients who have undergone surgical procedures that minimize mucosal trauma.<sup>2</sup>

Duggal et al reported three cases of unilateral choanal atresia who presented with unilateral rhinorrhea and nasal obstruction in adult age group (Ranging from 18 to 21 years). All of them were managed by endoscopic excision of atretic plate without stenting.<sup>3</sup>

Mohammadi. G reported a case series of eleven patients of unilateral choanal atresia in age groups ranging from 11 to 15 years. All of them presented with unilateral nasal obstruction, rhinorrhea and snoring. Out of eleven patients three were managed by a transpalatal (Wilson) approach and eight by endoscopic transnasal technique, without using stents or balloons.<sup>4</sup>

In our case studies, both patients had similar complaints of unilateral nasal obstruction and rhinorrhea as in the literature reported above, with a symptomatic ratio of 100 % and these observations highlights the possibility to consider unilateral choanal atresia, though rare as a differential diagnosis in all patients presenting with the symptoms.

Panda et al reported a case of 22yrs old patient with bilateral choanal atresia.

## CASE REPORT

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The passage in this patient was established via a transnasal endoscopic approach using a 2.5 mm diamond burr and stenting with No 6 portex cannula.<sup>5</sup> The techniques described in three papers from GOSH (Great Ormond Street Hospital) London represents the largest reported experience at 161 patients and involves a transnasal repair under direct vision.<sup>6</sup>

In our cases we preferred a transnasal endoscopic approach as reported in previous literatures. We used powered instrument like micro surgical debrider to excise the atretic plate. In order to prevent restenosis stenting was done for 6 weeks. Both the patients were found to be symptom free with a patent choana at one year follow up.

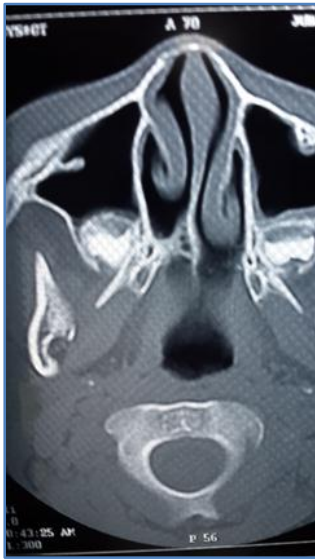
**CONCLUSION:** Unilateral choanal atresia usually presents in younger age group or in adulthood with symptoms like nasal obstruction and nasal discharge.

Our reported cases highlights the fact that choanal atresia though is a poorly recognized cause of nasal obstruction should be considered as a differential diagnosis in all adult patients presenting with the symptom. CT scan and diagnostic nasal endoscopic evaluation are the investigations of choice. Transnasal endoscopic approach with stenting provides an excellent method of management in these cases.

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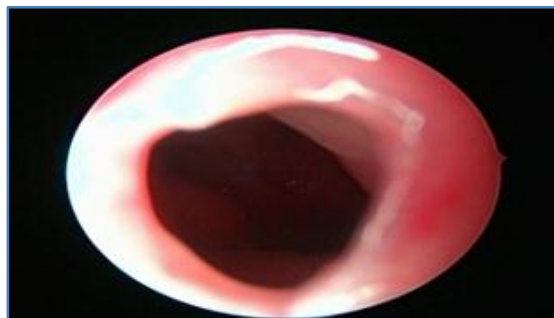
## CASE REPORT



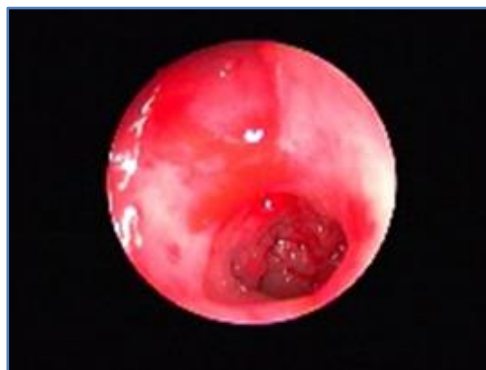
**Fig. 1: Axial CT scan of the child showing atresia of right choana**



**Fig. 2: Endoscopic picture of the adult patient showing complete atresia of right choana**



**Fig. 3: Post-operative endoscopic picture of adult patient showing patent right choana at 6 month follow up**



**Fig. 4: Post-operative endoscopic picture of child showing patent right choana at 6 month follow up**

## CASE REPORT

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**FINANCIAL OR OTHER**

**COMPETING INTERESTS:** None

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Date of Submission: 30/01/2015.  
Date of Peer Review: 31/01/2015.  
Date of Acceptance: 20/02/2015.  
Date of Publishing: 02/03/2015.