Research Paper

Volume : 2 | Issue : 3 | Mar 2013 • ISSN No 2277 - 8179

Acquired Choanal Atresia – Report of A Rare Case

Medical Science

KEYWORDS : Acquired choanal atresia, transnasal endoscopic approach.

Dr. Bimal Kumar Mandal	RMO cum Clinical Tutor, Dept of ENT & Head-Neck Surgery, Calcutta National Medical College, Calcutta, India.
Dr. Rina Das	Demonstrator, Dept of Microbiology, Calcutta National Medical College, Calcutta. India.
Dr. Jayanta Bain	Senior Resident, Dept of Surgery, S.V.B. Patel Hospital, New Delhi.

ABSTRACT

Acquired choanal atresia is a rare entity. Here we present a case of acquired choanal atresia following iatrogenic trauma which was managed by the transnasal endoscopic approach.

Introduction:
Choanal atresia is an abnormality of canalization during development of the nasal passages. It involves bone and/or soft tissue and may result in either partial (choanal stenosis) or complete obstruction of the posterior nasal airway.

The incidence of choanal atresia is 1 in 7000 to 8000 live births. It is more common in females (2:1), more likely to be bony or cartilaginous than membranous (9:1), and more commonly unilateral and right-sided (2:1).

Choanal atresia can be either congenital or acquired, although most cases are congenital. Here we present a case of bilateral acquired choanal atresia following iatrogenic trauma, treated successfully by transnasal endoscopic approach.

Case History:
Our patient, a 14 year old male, initially complained of bilateral nasal obstruction and nasal bleeding for 1 year. He was operated outside for juvenile nasopharyngeal angiofibroma through postpalatal approach 1 year back. Following the operation, the patient was initially well for 1 month, but again he developed gradually progressive bilateral nasal obstruction without any further episode of nasal bleeding.

When he presented to our out patient department, on examination, anterior rhinoscopy was unremarkable. On posterior rhinoscopy, the choanae seemed to be filled by a mass.

Contrast enhanced CT scan was done. It showed an enhancing mass fillin[illegible] choanae, but with n[illegible]



We anticipated recurrence of the JNA and the patient was put for transpalatal resection of the nasopharyngeal mass. Before the actual operation, we went for a nasal endoscopy. It showed complete blockage of both the choanae by a fibromembranous plate. No mass was found. However, there was hypertrophied lymphoid tissue in the vault of the nasopharynx, which may have been mistaken for a mass in the CT scan. We went for excision of the plate transnasally, and two endotracheal tubes of size 3.5mm were placed in the newly created opening to prevent re-adhesion (figure 2).

The tubes were kept in situ for 2 months. After 2 months, the patient was again put up for removal of the tubes and re-evaluation. Nasal endoscopy revealed that two very small openings have been created in the choanae, which was inadequate for nasal breathing. So we re-introduced two larger sized endotracheal tubes of size 5.5mm through the choanae, which were kept for a further 6 weeks. At the end of this period, normal-sized, patent choanae were formed, which was adequate for nasal breathing.

Discussion:
Choanal atresia is an uncommon congenital anomaly which consists of a bony, membranous or cartilaginous plate obstructing one or both posterior nasal apertures. The reported incidence varies from 1 in 7000[1] to 1 in 8300 live births[2]. Acquired choanal atresia is even rarer. Whereas congenital choanal atresia is due to either persistence of the naso-buccal membrane or failure of the buccopharyngeal membrane to canalize, acquired choanal atresia or stenosis is a result of several causes. Acquired choanal stenosis and atresia are often complications of chemical cauterization, nasopharyngeal carcinoma after radiotherapy[3], surgical trauma, and infectious disease. Most acquired choanal stenosis and atresia are fibrous membranous stenosis and atresias.[4]

Though a number of investigations are in vogue to diagnose congenital choanal atresia, the investigation of choice for acquired atresias is the contrast enhanced CT scan[5]. CT scans accurately characterize the nature and thickness of the atresia, the narrowing of the posterior nasal cavity and the thickening of the vomer[6, 7]. Additionally, nasal endoscopic examination is also imperative in the diagnosis of acquired atresias[4].

Many surgical approaches have been suggested for the treatment of choanal stenosis and atresia, including transnasal, transpalatal, transantral, sublabial transnasal and transseptal approaches. The transpalatal approach offers excellent exposure and high success rates. However, increased operative time, bleeding, palatal fistula, palatal muscle dysfunction and maxillofacial disturbances are possible sequelae of this procedure[6]. The transnasal approach has narrow exposure and limited possibility to develop the mucosal flaps. It also has the risk of possible injury to the eustachian tube and skull base[7].

The advantages of transnasal endoscopic approach repair of choanal stenosis and atresia are: (a) clear vision of the operative field and accurate removal of the stenosis and atresia plate without damaging neighbouring structures, thus significantly reducing the rate of restenosis; (b) it is a safe procedure, with minimal blood loss, swift recovery, and short time of hospitalization; (c) it is convenient, in postoperative care, to remove any granulation or polyps at the site of the neochoana at follow-up

visits.

The use of stents in the management of patients with choanal atresia is a subject of some controversy. Several authors[8, 9, 10] advocate postoperative stenting. However, stents can also serve as a nidus for infection and there is a question as to whether such a foreign body may contribute to choanal stenosis. Wang Qin-ying et al have avoided stenting in their series (4), whereas Shiva Kumar et al have had all their cases stented using portex polyvinyl chloride endotracheal tubes for a period of 4 weeks[11].

In general, a transnasal endoscopic approach with the aid of a power instrument is a useful procedure for the repair of acquired choanal stenosis and atresia. This technique permits an angled vision, excellent visualization and magnification of the atretic plate. Compared with traditional techniques, this technique allowed a shorter hospital stay and less blood loss[4].

REFERENCE

1. Menasse-Palmer et al. Choanal Atresia. Pediatrics in Review.1995; 16: 475-476. | 2. Singh B. Bilateral choanal atresia: key to success with the transnasal approach. J Laryngol Otol. 1990 Jun; 104(6):482-4. | 3. Peter KM. Acquired posterior choanal stenosis and atresia: management of this unusual complication after radiotherapy for nasopharyngeal carcinoma. Am J Otolaryngol 2001; 22: 225-229. | 4. Wang Qin-ying, Wang Shen-qing, Lin Shan, Chen Hai-hong, Lu Yu-yu. Transnasal endoscopic repair of acquired posterior choanal stenosis and atresia. Chinese Medical Journal, 2008, Vol. 121 No. 12: 1101-1104. | 5. Crockett DM, Healy GB, McGillt J et al. Computed tomography in the evaluation of choanal atresia in infants and children. Laryngoscope 1997; 97: 174-83. | 6. Brown OE, Smith T, Armstrong E, Grundfast K. The evaluation of choanal atresia by computed tomography. Int J Pediatr Otorhinolaryngol 1986; 12: 85-98. | 7. Petkovska L, Petkovska I, Ramadan S, Aslam MO. CT evaluation of congenital choanal atresia: our experience and review of the literature. Australas Radiol 2007; 51: 236-239. | 8. Brown OE, Pownell P, Manning SC. Choanal atresia: a new anatomic classification and clinical management application. Laryngoscope 1996; 106: 97-101. | 9. Morgan DW, Baily CM. Current management of choanal atresia. Int J Pediatr Otorhinolaryngol 1990; 19: 1-13. | 10. Carpenter RJ, Neel HB 3rd. Correction of congenital choanal atresia in children and adults. Laryngoscope 1977; 87:1304-1311. | 11. Shiva Kumar AM, Naik AS, Praveen DS. Choanal atresia: experience with transnasal endoscopic technique. Indian Journal of Otolaryngology and Head and Neck Surgery 2005; Vol. 57 No.2: 96-98. |