

Unilateral Congenital Choanal Atresia Encountered in A 5 Years Old Patient

Abstract

Objective: We describe a case of unilateral congenital choanal atresia in a 5 years old patient.

Method: This is a case report of a 5 years old patient complaining of long-term nasal obstruction and a review of the literature, diagnostic methods and treatment options for choanal atresia.

Results: A five years old girl having difficulty with nasal breathing was admitted to our clinic. Adenoid hypertrophy was the diagnoses and the patient had an adenoidectomy operation. At the surgery room, incidentally unilateral choanal atresia was recognized.

Conclusion: This condition is rarely encountered without newborn but should be considered as a possible differential diagnosis of persistent nasal obstruction.

Keywords: Congenital choanal atresia; Nasal obstructions; Diagnosis

Case Report

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Introduction

Choanal atresia was first described by Roederer in 1755 and it was defined as a malformation of the posterior nasal aperture that interferes with air flow from nose to nasopharynx but there are still doubts about this abnormality including timing of surgery, access to the surgical field, procedure technique, pharmacologic approach before and during surgery and stent application and maintenance [1]. The choanal obliterating plaque consists of bone in 30 per cent of cases and a bony-membranous mixture in 70 per cent [2]. In general it requires immediate care because it represents a life-threatening condition for the child [3]. It was reported a successful case treated by transnasal introduction of a curved trochar in 1854.

Approximately 60 per cent of choanal atresia cases are unilateral [4] and unilateral choanal atresia is the obliteration of the posterior nasal aperture which may not be detected for years and commonly presents later in life with mild symptoms with rhinorrhea and unilateral nasal congestion [5]. Nasal endoscopy and computed tomography of paranasal sinuses provide a precise diagnosis.

We report here the case of a 5 years old patient in which the patient was initially suspected to adenoid hypertrophy and who was diagnosed with unilateral choanal atresia, and discuss diagnostic investigation and possible surgical treatment techniques. The importance of this report resides in the fact that such a incidentally diagnosis of unilateral choanal atresia.

Case Report

A five years old girl presented to outpatients clinic with snoring and open mouth sleeping. These complaints had along history and they did not seek medical help previously. In the examination of oropharynx, grade 1 tonsillar hypertrophy was

inspected. In order to determine the size of vegetation, patient was taken to endoscopy room. When the pediatric flexible laryngoscopy was furthered to right nasal passage, it was observed that septum was deviated to the right side. Procedure on the right side was terminated due to the pain felt by the patient and loss of cooperation to the examination. In endoscopic examination from left nasal passage, adenoid vegetation ratio to choanal opening was detected at the rate of %80. Patient's family did not want to try medical treatment and decided to have adenoidectomy surgery. During operation, adenoid vegetation was palpated and underwent curettage. After adequate curettage before placing adenoid packing, bilateral nasal passages were irrigated with isotonic saline.

The passage of isotonic saline instilled from left nasal passage to nasopharynx and oropharynx was observed. It was also seen that when irrigation is made from right nasal passage, isotonic saline came back from the nose and did not pass to nasopharynx. When bilateral choana was palpated with nasopharynx finger touch, it was noticed that left choana was open and right choana was obstructed with a membranous structure. Then, when right nasal passage was inspected with rigid endoscope, unilateral choanal atresia was detected. After bleeding was controlled, procedure was stopped. After operation, patient's family was informed. At that time her mother stated that she had rhinorrhea on the right side starting from birth. Repair for choanal atresia was planned but her family did not approved the operation. Patient was discharged on postoperative first day.

Discussion

Choanal atresia is a relatively uncommon condition with unilateral atresia occurring in 1:8000 births and bilateral atresia occurring half as frequently [6]. It is most common in the female sex in some series [7,8]. It is unilateral in 50 to 60% of cases, the

remaining being bilateral presentations and there seem to be no difference between right or left side presentation in unilateral choanal atresia [9,10].

Unilateral choanal atresia often presents later in life with mild unilateral chronic rhinorrhea to rarely feeding difficulties or airway symptoms [11]. Bilateral choanal atresia presents at birth with cyanosis and airway obstruction because neonates are obligate nose breathers [12].

Teissier, et al. [13] however, described a higher prevalence on right-sided atresia, as our case report showed. Composition can be classified into osseous-membranous (two-thirds of cases) or purely osseous. Our case report was the mixed type. Congenital choanal atresia can be diagnosed by several methods such as naselton catheter, rigid or flexible endoscopy, operational microscopy, a nasopharyngeal mirror or finger examination [2].

Nasal endoscopy and computed tomography of paranasal sinuses provide a precise diagnosis [14]. Paranasal sinus computed tomography (CT) is the standard evaluation method in diagnostic radiology [15]. CT scan and magnetic resonance imaging are not used as routine for diagnosis of chronic nasal obstruction in children. But CT scanning is the preferred method for the radiologic examination in children with suspected choanal atresia. Careful suctioning and application of a topical decongestant is especially important prior to CT to eliminate viscous secretions that can fill the occlude nasal cavity and obscure the true thickness of membranous occlusion [1]. Endoscopy offers the advantage of diagnostic certainty as well, but in very young patients may be difficult to perform.

Many techniques have been described for the management of congenital choanal atresia. The most commonly used methods are microscopic and endoscopic transnasal, transpalatal, transseptal and transantral procedures [16]. Endoscopic transnasal interventions should be preferred because they provide better visualisation and lower complication rates [17].

We used a transnasal endoscopic approach in our case, and encountered no complications. We used both soft tissue resection and bone drilling during surgical treatment due to the atretic plaques were mixed type. Congenital choanal atresia is a rare entity in this age and few such cases have been reported. It should be considered in persistent nasal obstruction cases.

Conclusion

In children in whom clinical data point towards chronic nasal obstruction and paranasal sinuses x-ray seem to be insufficient to confirm the cause of the obstruction, diagnosis could have been directed by bilateral nasal fiberoptic examination safely leading to surgical treatment.

References

1. Manica D, Schweiger C, Netto CC, Kuhl G (2014) Retrospective study of a series of choanal atresia patients. *Int Arch Otorhinolaryngol* 18(1): 2-5.
2. Tatar EÇ, Ozdek A, Akcan F, Korkmaz H (2012) Bilateral congenital choanal atresia encountered in late adulthood. *J Laryngol Otol* 126(9): 949-951.
3. Llorens DC, Casasu' s JC (1994) Atresia bilateral o' sea de coanas en adulto. *An Otorrinolaringol Ibero Am* 21(5): 487-496.
4. Gujrathi CS, Daniel SJ, James AL, Forte V (2004) Management of bilateral choanal atresia in the neonate: an institutional review. *Int J Pediatr Otorhinolaryngol* 68(4): 399-407.
5. Park AH, Brockenbrough J, Stankiewicz J (2000) Endoscopic versus traditional approaches to choanal atresia. *Otolaryngol Clin North Am* 33(1): 77-90.
6. Harney MS, Russell J, Choanal AB (2009) Heidelberg: Springer Berlin Heidelberg. pp. 223-227.
7. Hengerer AS, Brickman TM, Jeyakumar A (2008) Choanal atresia: embryologic analysis and evolution of treatment, a 30-year experience. *Laryngoscope* 118(5): 862-866.
8. Burrow TA, Saal HM, de Alarcon A, Martin LJ, Cotton RT, et al. (2009) Characterization of congenital anomalies in individuals with choanal atresia. *Arch Otolaryngol Head Neck Surg* 135(6): 543-547.
9. Harris J, Robert E, Källén B (1997) Epidemiology of choanal atresia with special reference to the CHARGE association. *Pediatrics* 99(3): 363-367.
10. Brown OE, Pownell P, Manning SC (1996) Choanal atresia: a new anatomic classification and clinical management applications. *Laryngoscope* 106(1 Pt 1): 97-101.
11. Wiatrak BJ (1998) Unilateral choanal atresia: initial presentation and endoscopic repair. *Int J Pediatr Otorhinolaryngol* 46(1-2): 27-35.
12. Ronaldson RT (1881) Note on a case of congenital closure of the posterior choana. *Edinb Med J* 26: 1035-1036.
13. Teissier N, Kaguelidou F, Couloigner V, François M, Van Den Abbeele T (2008) Predictive factors for success after transnasal endoscopic treatment of choanal atresia. *Arch Otolaryngol Head Neck Surg* 134(1): 57-61.
14. Voegels RL, Chung D, Lessa MM, Lorenzetti FT, Goto EY, et al. (2002) Bilateral congenital choanal atresia in a 13-year-old patient. *Int J Pediatr Otorhinolaryngol* 65(1): 53-57.
15. Anderhuber W, Stammberger H (1997) Endoscopic surgery of uni- and bilateral choanal atresia. *Auris Nasus Larynx* 24(1): 13-19.
16. Stankiewicz JA (1990) The endoscopic repair of choanal atresia. *Otolaryngol Head Neck Surg* 103(6): 931-937.
17. Singh B (1991) A safer transnasal technique for the management of bilateral choanal atresia. *J Laryngol Otol* 105(12): 1004-1005.