OSP Journal of Case Reports

Case Report

Bilateral Bony Choanal Atresia a Case Report

NWOGBO A.C[1*], AGI C.E[2]

[1]*Department of Otolaryngology, University of Port Harcourt Teaching Hospital.*
[2]*Department of Radiology, University of Port Harcourt Teaching Hospital Correspondence.*

Corresponding Author: NWOGBO A.C, Department of Otolaryngology, University of Port Harcourt Teaching Hospital, Email: nwogbo_augustine@yahoo.com

Received: November 25, 2022; **Accepted:** December 12, 2022; **Published:** December 25, 2022

Abstract

Background: Bilateral Bony choanal atresia is an uncommon congenital malformation seen in early neonatal life which could result in death if unrecognized early. The incidence of choanal atresia is 1:5000-10000 live births.

Aim: To report the first bilateral bony choanal atresia in University of Port Harcourt Teaching Hospital.

Case Report: We report a case of bilateral, bony, choanal atresia presenting at birth at the University of Port Harcourt Teaching Hospital, a tertiary institution. Emergency oropharygeal airway was used to secure airway patency. The diagnosis was confirmed by choanography using paediatric (foley's catheter French gauge 8) catheter, and low osmolar contrast medium (iopamdol) 10mls.

- After the clinical/radiological diagnosis, surgical treatment was instituted.

Conclusion: Bilateral bony choanal atresia is an uncommon condition. Being rare, a high index of suspicion is required. It is confirmed by diagnostic imaging and relieved by surgery.

Keywords: *Choanal Atresia; Choanography; Emergency Orohparyngeal Airway; Traspalatal Surgical Repair*

Introduction

Choanal atresia is defined as unilateral or bilateral obstruction of the posterior choanae of the nose. This congenital anormally, which was report by Johann George Roederer in 1775, occurs in 1:5000- 1:7000 live births.

Neonates are obligate nasal breathers; therefore, presence of nasal obstruction can result to severe respiratory embarrassment. This is usually the presentation in bilateral choanal atresia. The unilateral form is more common, with M: F ratio of 1:2 [1, 2].

Computed tomographic scan (CT) is known to delineate the nature of lesion, as 30% of cases are purely bony and 70% are mixed (bony and membranous) [1, 2].

Bilateral Bony choanal atresia is a respiratory emergency that require immediate diagnosis and treatment hence the aim of this study is to raise a high index of suspicion among clinicians and to demonstrate treatment modalities that will relief the crisis.

Case Report

A male neonate presented after spontaneous vertex delivery and delayed second stage, about 30mins after delivery from labour ward of the hospital into special care baby unit.

The baby was the first delivery of his mother, whose Complaints were those of birth asphyxia and difficulty in breathing.

The mother is a 24yr old university final year student married to a 34yr old man who is a trader on electrical appliances. She had supervised ANC in University of Port Harcourt Teaching Hospital. Mother had two supervised medical treatment in her first trimester for febrile illness.

Examination revealed baby in respiratory distress and cyanosis better on crying.

There was no free flow of air through both nasal cavities.

Passage of catheter through the nose was not possible. In addition, there were low set ears, short webbed neck and widely spaced nipples. Clinical examination of the chest and abdomen were unremarkable. A choanography demonstrated non spillage of dye into the nasopharynx. CT scanning requested was not obtained, due to financial reasons. Diagnosis of bilateral choanal atresia was confirmed. The baby was sustained during pre-surgical period with oropharyngeal tube, orogastric feeding tube, and intravenous fluid.

Transpalatal approach was done with orotracheal intubation and excision of bony atresia performed. Stent was put in place to prevent closure.

Postoperative, the baby was nursed in special care baby unit. However, baby died two weeks later from aspiration pneumonitis.

Discussion

Bilateral bony choanal atresia is an uncommon condition affecting new born. We have reported bilateral bony choanal atresia which is the first in the ENT Unit of this tertiary institution (University of Port Harcourt Teaching Hospital). Unilateral choanal atresia has been reported in the literature and some other work as common and predominates [1]. However, the work done by Salisu and Mukht in Kano show Bilateral choanal atresia predominating [2].

Ten of their cases were reported as Bilateral. Generally, females were commonly affected than males with M/F ratio of 1:2. A study of ten cases in Kano by Salisu and Mukht showed a ratio 1:1.75 [1, 2].

Increase of choanal atresia has been reported in twins. The reason for increased incidence in twin is not clear. Neonates with bilateral choanal atresia present with respiratory distress, which is obvious immediately at birth, as the case with our patient.

However, immediate insertion of an appropriately sized oropharyngeal tube relieved the distress. Those with unilateral choanal atresia, on the other hand, tend to present later in life with unilateral nasal obstruction, rhinorrhea and feeding difficulties. Other anomalies have been associated with choanal atresia.

Notable is CHARGE association [4].

In our patient other anomalies noted were short webbed neck, low set ears and widely spaced nipples.

In about 23-29% of all cases, CHARGE association has been observed. Other congenital anomalies sometimes observed are, high arched palate, cleft palate and pinna anomaly [4-7]. This is usually observed in about 45.5% of cases. Another rare syndrome associated with this atresia is Noonan syndrome, characterized by hypertelorism, webbing of neck and Heart anomaly.

Diagnosis in our patient was based on history, clinical examination and contrast choanogram. C T Scanning is a better diagnostic tool compared with choanography. This was not however employed in our patient as parents could not obtain the result before surgery was commenced [2, 5].

Controversy exists regarding the best surgical approach for repair. Presently, most commonly employed approaches are the transpalatal and the Trans nasal routes. The transpalatal approach is said to provide good exposure and high success rate. But have increased operating time and blood loss, as well as palatal disfunction and fistula. This approach was what we used in our case [8, 9, 10].

Trans-nasal approach has also recorded success and attracts less time, but has problem of re-stenosis. Presently, Endoscopic trans-nasal approach is gaining popularity and is said to give excellent result [9, 11].

To reduce the problem of excessive granulation tissue formation, use of soft material as stent and topical mitomycin, have been advocated.

Mitomycin is an antibiotic which reduces post-operative scar formation. Follow up is mandatory as well as dilation when necessary. This will prevent re-stenosis and repeat of surgery [10, 12, 13].

Conclusion

Bilateral bony choanal atresia is an uncommon neonatal emergency. High index of suspicion is required in the labour rooms and neonatal wards. Insertion of appropriate oropharyngeal tube will immediately relieve the emergency and anxiety associated with its presentation. While proper surgical repair will be planned.

References

1. Michelle W., George GB., Matin JB (2008) Nasal obstruction in children. Scott-Brown's otorhinolaryngology, Head and Neck surgery. 7th edition, Great Britain. *Hodder Arnold* 1070-1072.
2. Salisu A D., Mukhtar-Yola M (2007) Choanal Atresia Presentation and Management in Nigerian Teaching Hospital Niger. *J. otolarynogol* 4: 1-5.
3. Brown OE., Pownell P., Manning SC (1996) Choanal Atresia: a new anatomic classification and clinical management applications. *Laryngoscope* 106: 97-101
4. Deutsch E., Kaufman M., Eilon A (1997) Trans-nasal Endoscopic management of choanal atresia. *Int. J. Pediatric Otolaryngol* 40: 19-26.
5. Leclere JE., Fearon B (1987) Choanal atresia and associated anomalies. *Int. J. Pediatric Otolaryngol* 13: 265-272.
6. Flake CG., Ferguson CF (1961) Congenital choanal atresia in Infants and children. Ann Otol Rhino Laryngol 70: 1095-1110.
7. Prasad M., Ward RF., April MM., Bent JP., Froechlich P (2002) Topical Mitomycin as an adjunct to choanal repair. *Arch Otolaryngol Head Neck Surg* 128: 398-400.
8. Kaplan LC (1985) Choanal atresia and its associated anomalies. Further support for CHARGE association. *Int. J. Peadiatric Otorhinolaryngol* 8: 237-242.
9. Singh B (1990) Bilateral choanal atresia: Key to success with the trans-nasal approach. J. *Laryngol Otol* 104: 482-484.
10. Gary DJ., Christopher LV., William CG., Charles WG (1998) Tran-nasal Endoscopic repair of congenital choanal atresia. Long-term result. *Arch Otolaryngol Head Neck Surg* 124: 537- 540.
11. Mukesh P., Rebort FW., Max Ma., Joh PB., Patrick F (2002) Topical mitomycin as an adjunct to choanal atresia repair. *Arch Otolaryngol Head and NeckSur* 128: 398-400.
12. Cumberworth VL., Diazaeri B., Mackey I S (1995) Endoscopic fenestration of choanal atresia. *J. Laryngol Otol* 109: 31-35.
13. John H., Elisabeth R., Bengt K (1997) Epidemiology of choanal atresia with special reference to the CHARGE association. *Paediatrics* 99: 363-367.