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Bilateral Choanal Atresia in the Newborn

(Two case reports)

Müyesser Tunçer, M.D.* / Neclâ Hanioğlu, M.D. / Mustafa Tunçer, M.D.*** / Nermin Şenol, M.D.******

Bilateral choanal atresia is one of the rare conditions in newborns which, when it occurs, must be treated immediately. When the baby is observed having difficulty with cyanosis while being fed or there seems to be any degree of respiratory distress since birth, bilateral choanal atresia should always be considered in the differential diagnosis. A prompt diagnosis of this congenital obstruction of the airway and careful management of these babies in the delivery room may prevent death from asphyxia.

Although bilateral choanal atresia is a rare congenital anomaly, an increasing number of case reports during the last decade seems to be a result of the growing awareness of the otolaryngologist, pediatrician and the obstetrician of this subject.[1-9]

Diagnosis of the bilateral choanal atresia in the newborn baby is the prime responsibility of the obstetrician when a pediatrician is not present in the delivery room. As soon as such diagnosis is made, an oral airway should be placed in the patient and surgical principles for treatment should immediately be applied.

Since bilateral choanal atresia is a rare condition in the newborns, we feel that our experience with these two cases are worth presenting.

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* Senior Lecturer in Pediatrics, Faculty of Medicine, Hacettepe University, Ankara-Turkey.

** Specialist in Pediatrics, Hacettepe University.

*** Associate Professor in Obstetrics and Gynecology, Hacettepe University.

**** Resident in Pediatrics, Hacettepe University.

Case 1: This baby (Prot. No. 68/13832) was born to a gravida 3, para 3, 24 year-old-mother. after an uneventful pregnancy and spontaneus delivery, the mother had a baby boy with a birth weight of 2,980 gm. and an Apgar score of 9. Initial examination of the baby in the nursery revealed normal results excepting a peculiar noisy breathing. No cyanosis or respiratory distress seemed to be present. At eleven hours of age, when an attempt was made to feed the newborn with a bottle for the first time his color became cyanotic and the pediatrician was notified by the nurse. Examination of nostrils with catheter revealed that both of them were obstructed. X ray examinations using iodized oil confirmed the diagnosis of choanal atresia (Figure 1). An oral airway was placed immediately and surgical correction of choanal atresia was performed as a result of which bilateral bony and membranous obstruction was encountered.

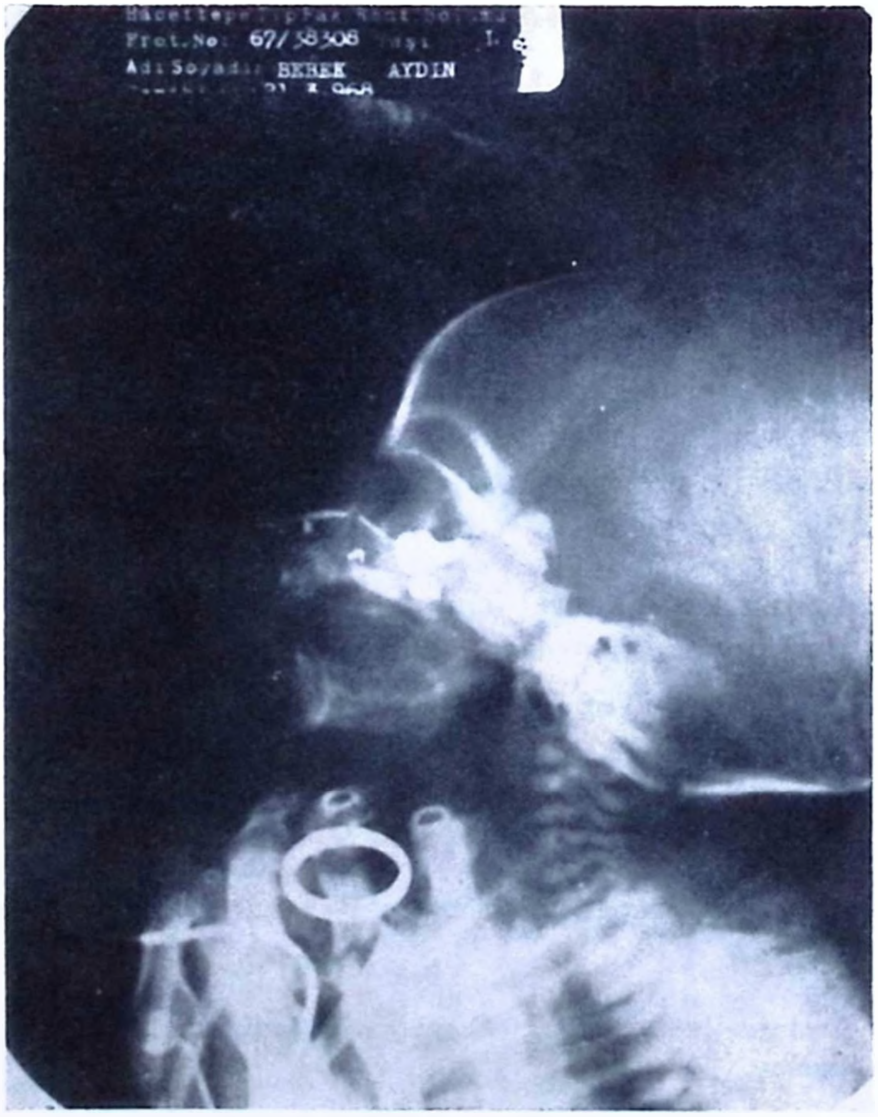

Figure 1

X-ray study of both choanas with lipiodol showing obstruction in Case 1.

The post-operative course of the baby was uneventful except for mucus obstruction of the nasal tube which required frequent suctioning. The patient is 4 years old today and his growth and development seems to be excellent (Figure 2).

Figure 2
One year old picture of the Case 1.

The mother of this boy later had a baby girl. Since she had a previous experience with the baby boy, a careful examination of both nostrils with catheter was performed on the newborn girl right after delivery and both openings were found to be intact. Examinations of the older children with catheter for choanal atresia also revealed intact nostrils.

There was no family history for choanal atresia on either the maternal or the paternal side.

Case 2: This case (Prot. No. 97924), a 1.5 day old female infant, transferred to Hacettepe University Children's Hospital with a diagnosis of respiratory distress and cyanosis, was born to a 20-year-old

mother following a normal pregnancy and delivery. Her birth weight was 3,100 gm. On admission, attempts to pass a nasal catheter were unsuccessful and a tentative diagnosis of choanal atresia was confirmed by metyhlene blue dye test and lipiodal study by X ray.

As soon as diagnosis was made, the baby was operated on and the osseous membranes were removed successfully. Post-operative days of the baby were uneventful. She was discharged on the 30th hospital day to be followed by an otolaryngologist.

This baby's appearance suggested some associated anomalies; these were low set ears, high arch palate, depressed nose, etc. Because of the baby's condition further studies could not be carried out during hospitalization to discover any additional abnormalities, associated with choanal atresia. After being discharged from the hospital, while she was on the follow-up for her repaired choanal atresia, the patient was brought to the Out-patient Department in a somewhat moribund status. In spite of all resuscitative efforts, she died at two months of age. Autopsy was not permitted.

Discussion

Bilateral choanal atresia accounts for 0.5 per thousand of major congenital anomalies in the newborn.[10] Although this is a rare anomaly, it must be considered in cases of all babies with difficulties in breathing. Recently simple tests for diagnosing choanal atresia have been suggested.[11 12 13]

Bilateral choanal atresia may also be associated with other congenital anomalies.[1 7 10 14 17]

Stool[10] suggested that after the emergency is resolved, one has the time to evaluate other major congenital anomalies, especially the cardiac defects.

Unilateral choanal atresia may initially be asymptomatic in the neonatal period and its diagnosis is not urgent. But bilateral choanal atresia should be diagnosed as soon as possible so that surgical correction can be done without further delay. Our first case was diagnosed when the bay was attempted to be fed for the first time and, in the second case, on admission.

The presence of a hereditary tendency in cases of choanal atresia is of no doubt ;[18 19] MacLean[20] has reported these such cases occurring in one family.

Etiology of choanal atresia is unknown but it has been suggested that the condition is the result of the failure of absorption of the upper portion of the buccopharyngeal membrane during embryonic life.

Treatment is surgical. Many surgical approaches for correcting this obstruction have been recommended with good results.[17 21 24] The most important matter in treatment is to keep the airway open until a definite diagnosis of choanal atresia is made, which leads to the surgical correction before the occurrance death from suffocation.

Summary

Two case reports of bilateral choanal atresia were presented. The importance of the early recognition of this condition in babies while in the delivery room, who suffer from respiratory difficulties and the ways of treating the condition are discussed.

REFERENCES

1. Beinfield, H. H.: Congenital bilateral bony atresia of the posterior nares in a one month old premature infant who survived, J. Pediat. 45: 679, 1954.
2. Cracovaner, A. J. and Goodman, M.: Congenital bilateral choanal atresia, Arch. Otoloryng. (Chicago) 64: 267, 1956.
3. Beinfield, H. H.: Atresia of the posterior nares in the infant, Eye, Ear, Nose, Throat Monthly 34: 575, 1955.
4. Singleton, G. T.: Congenital choanal atresia, Arch. Otolaryng. 87: 620, 1968.
5. Schwartz, A. A., and Isaacs, H. J.: Congenital atresia of the posterior nares, report of two cases, Arch. Otolaryng. 35: 603, 1942
6. Boyd, H. M. E.: Congenital atresia of the posterior nares, description of techniques used in meeting operative difficulties and report case, Arch. Otolaryng. 41: 261, 1961.
7. Connelly, J. P., Montgomery, W. W. and Robinson, J. C.: Choanal atresia. Part I: Medical aspect of a serious anomaly, Clin. Ped. 4: 64, 1965.
8. Flake, C. G., and Ferguson, C. F.: Congenital choanal atresia in infants and children, Ann. Otol. 73: 458, 1964.
9. Key, F. M. Jr., and Mendel, E. B.: Bilateral choanal atresia, Obstet. and Gynec. 32: 58, 1968.
10. Stool, S. E., Kemper, B. I.: Choanal atresia: Cardiac disease, Pediatrics 42: 525, 1968.
11. Van Leeuwen, G., Gleen, L.: Screening for hidden anomalies, Pediatrics 41: 147, 1968.
12. Reisner, S. H.: Simple test for the diagnosis of choanal atresia in the newborn, Pediatrics 42: 216, 1968.
13. Danufsky, P. G.: Simpler test for the diagnosis of choanal atresia in the nebworn, Pediatrics 42: 1012, 1968.

14. McGovern, F. H.: The association of congenital choanal atresia and congenital heart disease. Report of two cases, Ann. Otol. Rhinol. Laryng. 62: 894, 1953.
15. Hanckel, R. W.: Bilateral choanal atresia, Report of case infant and review of literature, Ann. Otol. Rhin. and Laryng. 58: 852, 1949.
16. McNeill, N. A., and Wynter-Wedderburn, L.: Choanal atresia. A manifestation of the Treacher Colcins syndrome, J. Laryng. 67: 365, 1953.
17. McGovern, F. H., and Fitzhugh, G. S.: Surgical management of congenital choanal atresia, Arch. Otolaryng. (Chicago) 73: 627, 1961.
18. McGovern, F. H.: Congenital choanal atresia, Laryng. 60: 815, 1950.
19. Phelps, K. A.: Congenital occlusion of choanae, Ann. Otol. Rhin. and Laryng. 35: 143, 1926.
20. McLean, R. G., and Hammack, W.: Congenital choanal atresia. Report of 3 cases occurring in one family, A.M.A. Arch. Otolaryng. 70: 137, 1959.
21. Ruddy, L. W.: Transpalatine operation for congenital atresia of the choanae in small child or infant, Arch. Otolaryng. 41: 492, 1945.
22. Beinfield, H. H.: Surgery for bilateral bony atresia of the posterior nares in the newborn, A.M.A. Arch. Otolaryng. 70: 1, 1959.
23. Lipshutz, H., Abramson, L.: Complete bilateral bony choanal atresia: A new approach to its correction and report of a case, Plas. R. Surg. 39: 465, 1967.
24. Tschopp, C. F.: Transnasal correction of choanal atresia, Arch. Otol. 83: 607, 1966.