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Bilateral Bony Choanae Atresia in a Male Neonate: Case Report and Management

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ABSTRACT

Background: Choanal atresia is a rare congenital anomaly of the cavities of the nasal airway. It presents with lack of patency of the posterior ends of both nasal choanae (nasal cavities). Bilateral bony choanae atresia is uncommon congenital anomaly of the nasal cavity on like the unilateral type. This condition is commoner in the female child than in the male. Furthermore, it is often detected in the neonatal period as neonates are obligate nasal breathers. It contributes to one third of all cases of choanae atresia with an incidence of 1:8000 births.
Aim: To report this rare congenital anomaly – bilateral bony choanae atresia in a male neonate at a tertiary hospital and offer management modality.
Case report: We present baby FJ - a case report of a male neonate with bilateral bony choanae atresia at birth in a tertiary hospital. The management modality involved emergency securing of an airway pathway with an oropharyngeal airway. After which choanography using paediatric Foleys catheter – French size 8 and low 10mls osmolar contrast Medium Barium Sulfate Solution was carried out to confirm diagnosis. Surgical treatment was subsequently carried out after clinical and radiological diagnosis with good outcome.
Conclusion: Neonatal bilateral choanae atresia is a rare clinical entity. A high index of suspicion should be entertained when neonates presents with respiratory distress. Prompt diagnosis and treatment offers good outcome.

INTRODUCTION:

Choanal atresia is a rare congenital anomaly of the cavities of the nasal airway.[1] It presents with lack of patency of the posterior ends of both nasal choanae (nasal cavities).[1,2] Bilateral bony choanae atresia is uncommon congenital anomaly of the nasal cavity on like the unilateral type. This condition is commoner in the female child than in the male.[1] Furthermore, it is often detected in the neonatal period as neonates are obligate nasal breathers.[1,2] It contributes to one third of all cases of choanae atresia with an incidence of 1:8000 births.

The nasal Choanae are paired openings that connect the nasal cavity with the nasopharynx.[1] Choanal refers to a congenital condition which the nasal openings are occluded by membranous soft tissue, bone, or some instances combination of both as a result of failed recanalization of the nasal fossae in the event of fetal development.[3] When it involves one nasal opening (unilateral), it presents with unilateral mucopurulent discharge.[3] However, when this closure is bilateral the neonate presents with difficulty in breathing.[3] This situation is an acute otolaryngological emergency due to the fact that neonates are obligate nasal breatehers.[3] Thus we report this rare congenital anomaly – bilateral bony choanae atresia in a male neonate at a tertiary hospital and offer management modality.

CASE REPORT:

We present a case report of a male neonate with bilateral bony choanae atresia at birth in a tertiary hospital. The baby was admitted 30minutes after the mother had a spontaneous vertex delivery in the labour ward into the special Care Baby of the same hospital. The mother was a first time mother, the complaints were those of not initiating difficulty in breathing.

The mother of the baby was a 24 year old undergraduate and her husband was an electrical technician. She was compliant with her routine antenatal care and medication. Her pregnancy was complicated by febrile illness in the first trimester of which she was treated on outpatient basis.

On physical examination the neonate was in respiratory distress. There was no free flow of air through both nasal orifices. Furthermore, the baby had low set ears, webbed neck which short for age and widely spaced nipples. His chest and abdominal findings were normal. Due to financial constraints the parents could not afford the computerize tomography scan that was requested. Urgent choanography using paediatric Foleys catheter – French size 8 and low 10mls osmolar contrast Medium Barium Sulfate Solution was carried out to confirm diagnosis of bilateral choanal atresia. Prior to the surgery the baby was on oropharyngeal tube, orogastric feeding tube and intravenous fluid. The surgical method was through transpalatal approach with the intubation orotrachea and bony atresia excise. For the prevention of closure a stent was placed insitu. The baby was nursed in the Special Care Baby Unit.

DISCUSSION:

The case reported – bilateral bony choanal atresia is a rare clinical entity in Ear, Nose and Throat surgery. This was the foremost case that was managed at our tertiary hospital. Choanal atresia is the complete blockage of the posterior nasal openings (choanae).[1] Researchers revealed that it is the due to failure of the buconasal membrane to degenerate during the fifth to sixth week of fetal life. Available data showed that it is the most common congenital nasal anomaly, occurring at 1:8000 births.[2,3] It is seen most often in females compared to males.[2-4] However, our patient was a male. Legesse TK et al reported bilateral choanal atresia in an adolescent female.[1] However, literature have revealed that is commoner in neonates as was reported in our case report. Two major types have been demonstrated, the mixed bony and membranous type which is commoner contributing to 70% of the cases and the pure bony type making the remaining 30% of cases.[2,5-8] The case presented was the bony type of bilateral choanal atresia. Some other scholars have classified this pathology into either unilateral or bilateral, with the former commoner.[1-4] Our patient had bilateral choanal atresia. There some other school of thoughts has postulated that there is yet the third type the membranous, this has not generally been accepted.[1,2]

Approximately half of the patients with choanal atresia present other congenital anomalies.[1,2] This was in agreement with our patient who had low set ears, short webbed neck and widely spaced nipples. Other congenital anomalies associated with choanal atresia are CHARGE syndrome, Treacher Collins, Pfeifer and Cruozon syndrome.[1,2,6-10] Our patient did not have any of these syndromes.

The diagnosis of choanal atresia is confirmed by nasal endoscopy or cross-sectional imaging.[1,2-4]

The recommended diagnosis of choice for patients with choanal atresia is non-contrast CT-scan of the paranasal sinuses.[1,2] For our patient CT- scan was requested for but financial reasons parents could not afford it. However, diagnosis was based on history, clinical findings and contrast choranography.

Is worthy of note that bilateral choanal atresia is almost always detected in neonates just like in our patient with signs of upper airway obstruction.[2-4] Our patient presented with upper airway obstruction. This is well explained that neonates are obligate nasal breathers.[1,2] For this reason bilateral choanal atresia is an emergency requiring measures such as passage of oral airway.[2,3] An airway was passed for our patient prior to the surgery. Options of surgical treatment is either transnasal or transpalatal based on preferences by the surgeons. Some researchers are of the opinion that the transnasal approach has better prognosis.[8-10] Our patient had transpalatal surgery for bilateral choanal atresia. He was nursed at special care baby unit. His post-operative period was uneventful.

CONCLUSION:

Neonatal bilateral choanae atresia is a rare clinical entity. A high index of suspicion should be entertained when neonates presents with respiratory distress. Prompt diagnosis and treatment offers good outcome.

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