CASE REPORT OPEN ACCESS

Cervical Teratoma in a Neonate; Surgical Challenges and Postoperative Outcome: A Case Report

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ABSTRACT

Cervical teratomas are rare congenital tumors that may cause life threatening airway obstruction in neonates. Early diagnosis, multidisciplinary planning, and timely surgical excision are crucial for optimal outcome. A 4-hours-old male baby presented with a huge swelling in the neck. Neonate was in a stable condition. Initially feeding was given through nasogastric tube to avoid possible aspiration. After discussion in multidisciplinary team and essential investigations the baby was operated electively at age of 35-days. Endotracheal intubation was uneventful. Mass was excised after careful dissection. The blood supply of the mass was found arising from the right carotid artery. Trachea appeared deformed and was displaced towards the left side. In postoperative period patient was kept on ventilator support. However, the condition of the baby kept deteriorating. Tracheostomy was added to improve the ventilation, however baby expired on sixth postoperative day due to sepsis.

Key words Teratoma, Neonate, Antenatal, Neck.

INTRODUCTION:

Cervical teratomas are uncommon congenital germ cell tumors, representing 1.5 - 5% of all the pediatric teratomas, occurring in approximately 1 in 20,000–80,000 live births.[1,2] They are mostly benign in nature. However, due to their size and anatomical location as in cervical region, can compress the airway and mediastinal vessels, and may result in a number of complications.[3] Prenatal diagnosis by ultrasound or MRI allows for a planned delivery and prompt airway management in newborns with cervical teratomas.[4] However, in many patients the lesion is identified only after birth, requiring urgent postnatal multidisciplinary intervention to save the baby. In this case report we describe our experience of management of a newborn with huge neck mass and the lessons learnt from it.

CASE REPORT:

A 4-hour-old male neonate, weighing 3-kg, presented to Emergency Room with a large neck mass. He was the first-born, delivered at full term by cesarean section due to suspicion of umbilical cord around the neck. The lesion was not picked up in antenatal scans. Baby cried immediately after birth and referred out. On examination, the newborn was active and pink. A large globular mass measuring approximately 8-cm X 12-cm was found on the right antero-lateral part of the neck. The lesion extended from the right occipital region pushing the ear upward to the anterior neck involving mandibular surface, partially to the left side crossing the midline (Fig. I & II). The mass was firm and at places soft in consistency. Trans-illumination test was positive in the anterior part of the swelling. The systemic examination was unremarkable. An initial impression of cervical teratoma and in differential diagnosis, cystic hygroma was made. The baby was admitted for work up. Routine neonatal care was provided. The feeding was provided through a nasogastric tube to avoid possible aspiration.

X-ray neck and chest showed areas of calcifications that strongly suggested the possibility of a teratoma. Ultrasound demonstrated solid and cystic components with the presence of flow on the color Doppler. Computed tomography (CT) scan revealed a well-circumscribed heterogeneous mass compressing the trachea, esophagus, and brachiocephalic vessels, with displacement of carotid vessels. The right carotid

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Fig. I: A large neck mass: Anterior view.

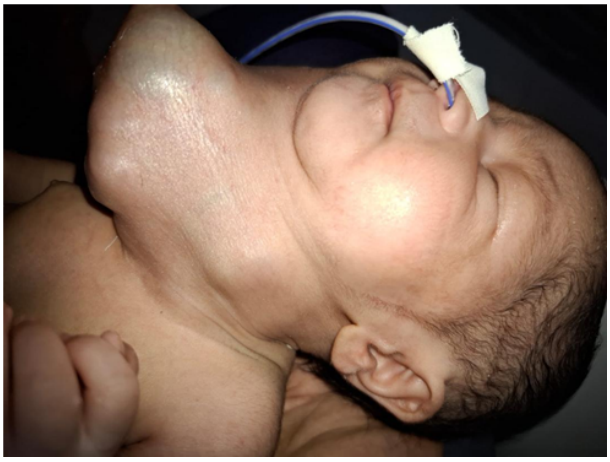

Fig. II: A lateral view of the cervical mass.

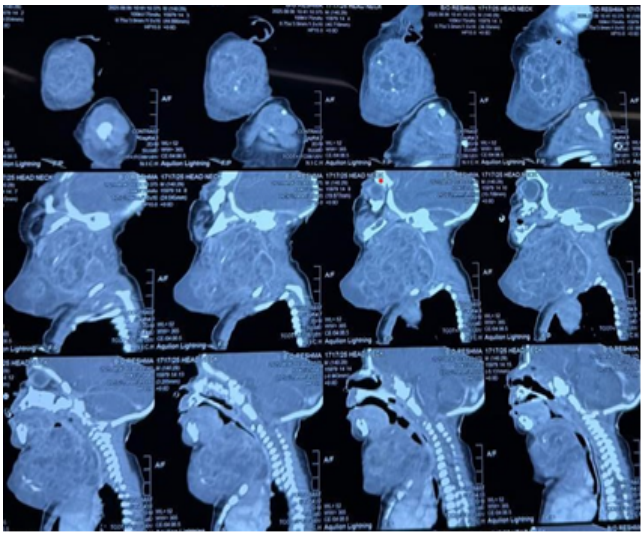

Fig. III: CT scan showing heterogeneous mass with calcifications.

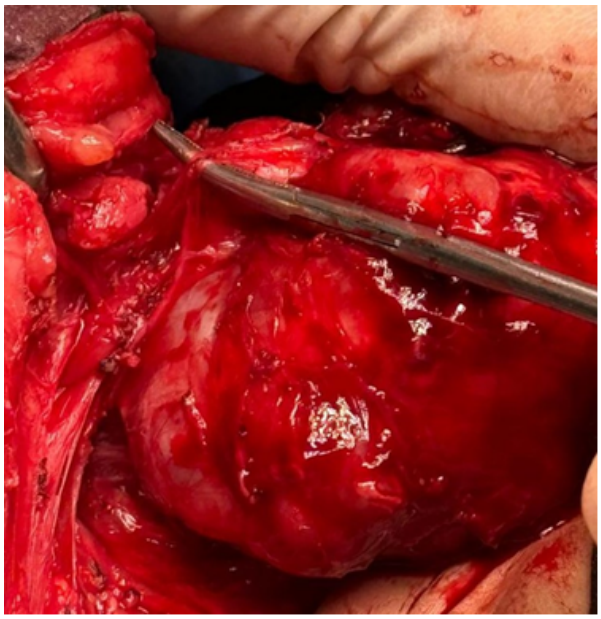

Fig. IV: Intraoperative view. Mass had solid and cystic components.

artery was almost compressed and formed a semicircular ring. (Fig. III). There was an impression of presence of collateral vessels around the mass. The serum alpha-fetoprotein was elevated (>20,000 ng/ml), and serum beta hCG was <2.3 mIU/ml. Tru-cut biopsy and subsequent histopathology report confirmed a diagnosis of mature cervical teratoma.

During the stay in hospital baby experienced intermittent episodes of respiratory distress. The case was discussed in a multidisciplinary meeting as surgical removal was considered challenging because of anatomical distortion as well as consequences of compression on trachea, and adventitious blood supply from great vessels of the neck. After getting consensus the patient was operated on day-35 of life. The endotracheal intubation was achieved without any difficulty. ease. The surgery proceeded smoothly with a successful tumor excision. The mass was densely adherent to the trachea. The right carotid artery was found deep to the mass, forming a semi-circular ring. A feeding vessel to the mass was also noted from the external carotid artery. It was ligated after careful dissection (Fig. IV). The tissue around trachea was approximated to provide cover and support to it so as to mitigate the possible effects of tracheomalacia.

The patient was kept on elective mechanical ventilation in the postoperative period. In his ICU stay for initial three days recurrent episodes of hypoglycemia along-with bradycardia were reported. The echocardiography done showed no cardiac

anomaly and ejection fraction was 40%. Epinephrine infusion was started to support the circulation. There was also an impression of tracehomalacia because attempts to extubate were unsuccessful. On day four, tracheostomy was performed due to suspected airway compromise. However, patient's condition kept deteriorating and signs of sepsis were noted. Baby expired on sixth postoperative day in spite all the measures taken in ICU.

DISCUSSION:

Cervical teratomas, though rare, can pose an immediate threat to neonatal survival due to airway obstruction.[5] Prenatal diagnosis facilitates planning. However, in our patient the mass was not detected on antenatal ultrasound. An impression of umbilical cord around the neck was made because of which cesarean section was performed. In spite of a large mass the baby remained stable in the neonatal period with occasional episodes of respiratory distress.

Surgical excision is the treatment of choice with involvement of multidisciplinary team including anesthetists, intensivist and other surgical specialists.[6] As baby was not in apparent respiratory distress it was expected that endotracheal intubation shall be easy. Same was experienced in our patient. A plan for using adjuncts as well readiness with surgical airway was in plan. The main technical difficulties anticipated during were the great vessels of the neck as well as trachea that was compressed and appeared deformed during the procedure. Though tumor was dissected with meticulous dissection and surgery went smoothly the appearance of trachea was a cause of concern, Tracheomalacia was our fear. There was a discussion during surgery to add tracheostomy but was not agreed upon by the team members. It was suggested to electively ventilate the baby and if need arise tracheostomy can be added. This in a retrospect was not a sound decision. Ventilator related issues on the lungs should have been considered. Development of sepsis also points towards the care provided in the ICU and infections acquired during the stay directs at revising ICU care policies and practices.

Histopathology confirmed a mature teratoma, a benign pathology. However, the demise of the infant after successful excision is disappointing. The cause of recurrent hypoglycemia, and recurrent bradycardia may be related to the impending sepsis. The outcome could have been different if these issues were prevented in the first place. Second surgery also added to the physiological stress to the patient.

CONCLUSION

Cervical teratomas are benign lesions. In spite of their grotesque appearance they can be excised carefully. However, in order to achieve an optimal goal issues related to the postoperative care are extremely important. This can avoid morbidity and mortality.

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