

CASE REPORT

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Large congenital cervical mass in a neonate: prenatal diagnosis and postnatal management of teratoma: a case report

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Abstract

Introduction Cervical teratomas are rare congenital neoplasms that can cause neonatal airway obstruction if large.

Case presentation The female Persian neonate displayed respiratory distress at birth, with a 7 cm × 8 cm cystic solid mass identified on the left side of the neck. Antenatal ultrasonography revealed polyhydramnios. Despite initial stabilization, the infant required intubation and mechanical ventilation due to persistent respiratory distress. Imaging confirmed a cystic mass compressing the trachea, ruling out cystic hygroma. Surgical resection on postnatal day 17 revealed a 10 cm × 10 cm solid cystic structure, histologically identified as an immature teratoma.

Conclusion Despite risks of poor fetal and postnatal outcome from large cervical teratomas, early surgical resection after airway stabilization can result in recovery. Proper multidisciplinary management of respiratory distress from such tumors is paramount.

Keywords Case report, Cervical teratoma, Neonatal airway obstruction, Surgical resection

Introduction

Cervical teratomas are rare congenital germ cell tumours originating from all three germ layers that can potentially obstruct the airway. While the incidence is estimated at 1 in 20,000–40,000 live births, these tumours represent a diagnostic and management challenge due to risks of respiratory compromise and mortality, which have been

reported between 3 and 34% depending on the degree of airway involvement at presentation. [1–4] While prenatal diagnosis allows anticipation of potential airway issues in about 20% of cases, unexpected postnatal presentation remains an area of concern. [5, 6]. We present a case of a neonate with a large cervical teratoma detected on prenatal ultrasound who developed respiratory distress shortly after birth requiring intubation and mechanical ventilation. Despite risks of morbidity and mortality from tumors of this size, early surgical management following airway stabilization resulted in favourable outcome. Presenting details of complex cases adheres to reporting guidelines, which aim to improve transparency and optimize care of similar clinical situations. This manuscript was prepared following the CARE guidelines for case reports. (<https://www.care-statement.org>)

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Case presentation

A 34-year-old female gravida 4, para 3 delivered a 2900 g female child by spontaneous, uncomplicated vaginal delivery at 36 weeks of gestation. At delivery, a large cervical mass was obvious on the left side, which was cystic solid, measuring about 7 cm × 8 cm on examination (Fig. 1). The child had a respiratory rate of 40, a pulse rate of 120, an oxygen saturation of 56%, and a primary APGAR score of 9. A few seconds postdelivery she developed apnea which was resolved by stimulation and positive pressure ventilation (PPV) for 2 min and the oxygen saturation reached 90%. Based on an ultrasonographic study performed antenatally, the amniotic fluid index was reported to be more than 40 suggestive of polyhydramnios; therefore, the delivery was done with an attendant neonatal team at the delivery room. A neck ultrasonography was requested in which a neck mass with a pressure effect over the trachea was seen.

Then she was transferred to the neonatal intensive care unit with supplementary oxygen therapy administered over a hood at a rate of 10 L/min. The patient developed respiratory distress again and the oxygen saturation fell below 60%. After a failed trial of CPAP, the child was intubated and mechanically ventilated. With an impression of cystic hygroma with internal bleeding, a neck CT scan with intravenous contrast study was requested containing CT scan report, ruling out cystic hygroma. Mass biopsy under the guidance of ultrasound and then pathologic examination was not suggestive of cervical neuroblastoma, therefore, she was taken to the operating room. Figure 2 shows an intraoperative photograph during resection of the mass. The neck was positioned in right side rotation and was entered through a transverse incision on the left side. Intraoperative finding was a 10 cm × 10 cm solid cystic structure extending from carotid bifurcation to the chest cleft. Figures 3 and 4 show photographs of the excised mass and pathology slide, respectively.



Fig. 1 Photograph of neck mass in neonate

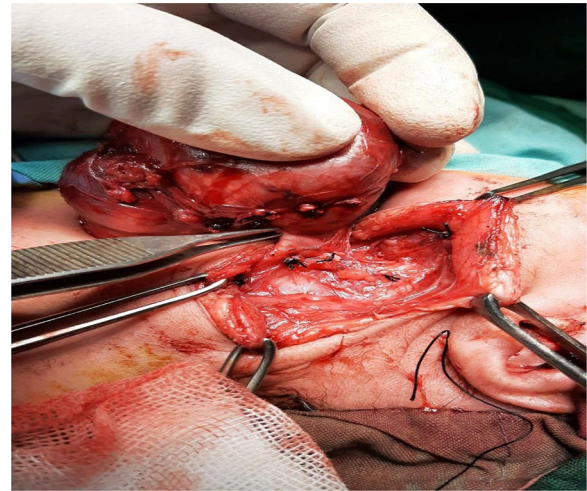


Fig. 2 Intraoperative photograph during resection of cervical mass

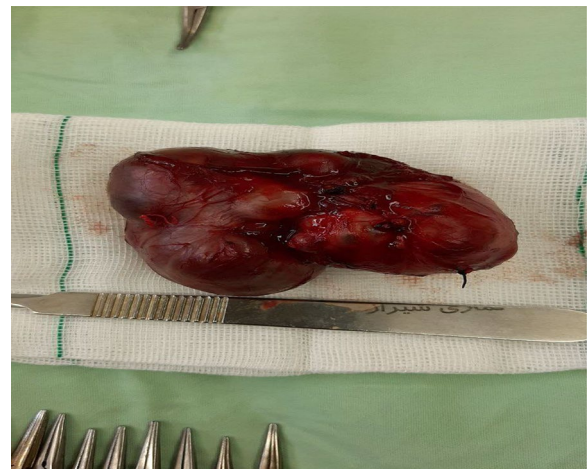


Fig. 3 Photograph of excised cervical mass

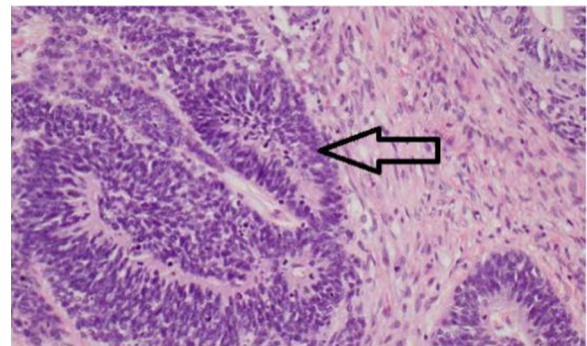


Fig. 4 Pathology slide showing components of immature teratoma, neuroepithelial part, indicated by the arrow. (H&E, 250x)

Discussion

This case describes a rare large cervical teratoma found at delivery in a newborn. Cervical teratomas are uncommon congenital tumors that can compress the airway [1]. Prenatal detection occurs in 20% of cases and aids management by evaluating airway involvement and determining delivery approach [2, 5].

In this case, challenges included late identification of the mass perinatally and respiratory compromise in the newborn necessitating intubation. Fetal MRI can better define airway compression but was not performed [3]. Securing the airway through intubation was crucial given literature linking tumor size and respiratory distress to mortality [4]. Surgical resection is standard treatment [6, 7] and pathology in this case aligned with descriptions of immature teratoma. While prenatal diagnosis allows optimized delivery planning, multidisciplinary care including airway stabilization successfully managed this high-risk presentation.

In conclusion, this case highlights the importance of timely diagnosis and coordinated neonatal resuscitation for large cervical teratomas. With informed consent from the guardian, it demonstrates lessons learned.

Conclusion

Large cervical teratomas require a multidisciplinary approach including securing the airway.

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Author contributions

Mehdi Forooghi: Conceived and designed the study. Participated in data acquisition and analysis. Drafted the initial version of the manuscript. Bita Geramizadeh: Contributed to the study's conception and design. Assisted in data acquisition and interpretation. Provided critical revisions to the manuscript. Mehdi Ghasemian: Assisted in the design and coordination of the study. Contributed to data acquisition and interpretation. Participated in drafting and revising the manuscript. Fateme Ziyae (Corresponding Author): Provided critical input in the conception and design of the study. Contributed significantly to data analysis and interpretation. Led the drafting and revising of the manuscript. Correspondence contact for the Department of Pediatric Gastroenterology. Hossein Fatemian (Corresponding Author): Contributed to the conceptualization and design of the study. Provided critical insights into data analysis and interpretation. Led the manuscript revision. Correspondence contact for the School of Medicine.

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Availability of data and materials

The datasets used in this study are available from the corresponding author upon reasonable request. All relevant data supporting the conclusions of this case report are included within the manuscript.

Declarations

Ethics approval and consent to participate

All procedures involving human participants complied with the 1964 Helsinki Declaration and its later amendments.

Consent for publication

Written informed consent was obtained from the patient parents for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests

The authors declare no competing interests relevant to this case report.

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