

Fetal Oropharyngeal Teratoma: Ultrasonographic Diagnosis and Unfavorable Perinatal Outcome. A Case Report

Jenifer Marion Sierra Pérez^{*1}, Mitzi Fernández Luna¹, Pamela Guadalupe Rodríguez Millán², Juan Pablo Uicab Esquivel², Lía Trinidad Bermejo Solís³, Carlos Renán Rivero Coronado³

¹Fourth-year resident in Gynecology and Obstetrics, Department of Gynecology and Obstetrics, Health Services of Yucatán, “Dr. Agustín O’Horán” General Hospital, Mérida, Yucatán, Mexico. Faculty of Medicine, Autonomous University of Yucatán.

²Second-year resident in Gynecology and Obstetrics, Department of Gynecology and Obstetrics, Health Services of Yucatán, “Dr. Agustín O’Horán” General Hospital, Mérida, Yucatán, Mexico.

³Gynecologist–Obstetrician, attending physician in the Department of Gynecology and Obstetrics, Health Services of Yucatán, “Dr. Agustín O’Horán” General Hospital, Mérida, Yucatán, Mexico.

ABSTRACT

Introduction: Fetal oropharyngeal teratoma, or epignathus, is an extremely rare congenital malformation that represents less than 2% of congenital teratomas. Its main clinical relevance lies in the risk of complete obstruction of the fetal airway and perinatal death. Reported cases are typically diagnosed in the third trimester or at birth; however, ultrasound detection in the second trimester remains exceptional. This case provides evidence of early prenatal diagnosis of an epignathus with intrauterine demise in a resource-limited setting.

Case presentation: A 20-year-old primigravida with prenatal care beginning at nine weeks presented at 27.2 weeks with rapid abdominal enlargement and a sensation of abdominal tension. Structural ultrasound revealed a heterogeneous oropharyngeal mass measuring 7.5 × 5.7 cm, associated with severe polyhydramnios, pleural effusion, ascites, and nonimmune fetal hydrops. No fetal heart rate was detected. Differential diagnoses included lymphangioma, branchial cleft cyst, rhabdomyosarcoma, and anterior encephalocele, with a presumptive diagnosis of oropharyngeal teratoma (epignathus). Labor induction was performed using 25 µg of vaginal misoprostol every 4 hours, resulting in the delivery of a female fetus weighing 700 g with a 6 × 6 cm oropharyngeal mass causing complete airway obstruction. The mother had a favorable postoperative course without complications.

Conclusion: Early prenatal diagnosis of oropharyngeal teratoma is essential for planning care in specialized centers capable of advanced perinatal management. This case is unique due to its second-trimester diagnosis and comprehensive ultrasonographic correlation, contributing valuable information to the existing medical literature. The key takeaway is that timely sonographic suspicion, even in resource-limited settings, allows for diagnostic orientation, genetic counseling, and the provision of comprehensive and compassionate care in the setting of adverse fetal outcomes.

KEYWORDS: Oropharyngeal teratoma; Epignathus; Prenatal diagnosis; Obstetric ultrasound; Fetal hydrops; Polyhydramnios; Fetal airway obstruction; Intrauterine fetal demise.

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INTRODUCTION

Teratoma is the most common congenital tumor of germ cell origin and represents approximately 25% of all benign and malignant tumors diagnosed during childhood. It typically develops in the sacrococcygeal region, whereas only 6% to

10% are located in the head and neck, with a male-to-female ratio ranging from 1:6 to 1:3. These tumors contain differentiated tissues foreign to the region in which they develop, and when located in the head and neck, their main risk is partial or complete obstruction of the upper airway.¹

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Fetal oropharyngeal teratoma, also known as epignathus, is an extremely rare entity with an estimated incidence of 1 in 35,000 to 200,000 live births. The overall incidence of congenital teratomas is approximately 1 in 4,000 births, with less than 2% classified as oropharyngeal. Advances in prenatal imaging—particularly fetal magnetic resonance imaging and three-dimensional ultrasound—have enabled earlier diagnosis and detailed anatomical characterization of these masses, facilitating planning for perinatal and surgical management. However, detection during the first trimester remains exceptional, and reports are scarce.^{1,2}

Head and neck teratomas account for approximately 20% of all teratomas diagnosed prenatally and nearly 30% of fetal tumors in this region. Their origin is thought to be related to aberrant migration of primordial germ cells that become implanted outside their normal pathway, such as in the mediastinum or hypothalamic regions. Although most are benign, immature or malignant variants rarely occur. Sonographically, they often present as solid or mixed cervical or facial masses that may induce fetal neck hyperextension, polyhydramnios, and even pulmonary hypoplasia secondary to airway compression.²

Accurate prenatal diagnosis is essential to anticipate neonatal respiratory complications and to plan a multidisciplinary management strategy. In selected cases, advanced perinatal interventions—such as the EXIT-to-airway procedure or fetal endoscopic tracheal intubation (FETI)—allow airway stabilization during delivery and can improve neonatal survival. The choice of technique depends on tumor size, anatomical extension, and the degree of respiratory compromise.^{2,3}

With advances in prenatal diagnosis, surgical techniques, and specialized perinatal care, the prognosis of oropharyngeal teratomas has improved significantly, achieving favorable survival rates when timely intervention is performed in centers with multidisciplinary expertise. However, in resource-limited settings, outcomes may be fatal, particularly when diagnosis occurs at advanced stages or when there is severe intrauterine airway compromise.³

The objective of this article is to report a case of fetal oropharyngeal teratoma diagnosed in the second trimester, emphasizing the ultrasonographic findings, diagnostic limitations, and the importance of multidisciplinary management.

CASE REPORT

A 20-year-old primigravid mestizo female, originally from and residing in Mérida, Yucatán, university student, with a middle socioeconomic level and a strong family support network, presented for evaluation. She lived with her partner and parents, was pursuing university studies, and had access to institutional medical services. She reported a rapid increase in abdominal size and a sensation of tension, without pain, bleeding, or loss of fluid. She denied fever, general malaise, and urinary or gastrointestinal symptoms.

She had no personal or family history of chromosomal abnormalities, congenital malformations, chronic diseases, sexually transmitted infections, exposure to teratogenic medications or radiation. She reported a balanced mixed diet, no use of alcohol, tobacco, or other substances, a healthy lifestyle, and adequate sleep. Her menstrual cycles were regular, with no history of infertility or prior pregnancy loss. There were no relevant genetic backgrounds or consanguinity. She had no comorbidities, surgical history, or known allergies. Her home environment was stable, with strong emotional support from her partner and family, and she denied any history of depression or domestic violence.

The pregnancy had been monitored since the ninth week, with routine prenatal studies within normal parameters, including complete blood count, serum glucose, infectious serologies, and blood type. At 27.2 weeks of gestation, she presented for evaluation due to rapid abdominal growth and a sensation of tension. Maternal vital signs were normal (blood pressure 110/70 mmHg, heart rate 82 bpm, temperature 36.5 °C). Uterine fundal height was greater than expected for gestational age, and fetal heart tones were not auscultated using a handheld Doppler device.

A detailed obstetric ultrasound was performed with a 3.5 MHz convex transducer by a maternal–fetal medicine specialist. Fetal biometry corresponded to 25 weeks of gestation, with an estimated fetal weight of 739 g (below the 1st percentile according to Hadlock). The placenta was located on the posterior uterine wall. A marked increase in amniotic fluid was observed, with a maximum vertical pocket of 15.4 cm and an amniotic fluid index of 39.8 cm, consistent with severe polyhydramnios.

Targeted ultrasound evaluation identified a heterogeneous pharyngeal mass measuring 6.4 cm in sagittal view and 7.5 × 5.7 cm in axial view, located in the retropharyngeal and oral region, with mixed solid–cystic components and hyperechoic areas. The mass protruded through the fetal mouth and appeared fixed to the hard palate. Additional findings included bilateral pleural effusion and probable ascites, compatible with nonimmune fetal hydrops. No fetal cardiac activity was detected using color Doppler or power Doppler, confirming second-trimester intrauterine fetal demise.

Differential diagnoses included epignathus (oropharyngeal teratoma), congenital lymphangioma, branchial cleft cyst, rhabdomyosarcoma, and anterior encephalocele. The heterogeneous mixed mass with cystic–solid components, oral protrusion, and apparent osseous attachment suggested oropharyngeal teratoma (epignathus) as the most likely diagnosis. Pleural effusion, ascites, and absence of cardiac activity indicated severe hemodynamic compromise and fatal in utero outcome. Infectious, metabolic, or immunological etiologies of fetal hydrops were excluded through normal maternal laboratory studies. A major diagnostic limitation was the lack of economic and technological resources to obtain complementary imaging such as fetal MRI or postnatal histopathological examination.

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Maternal analytical studies included TORCH serologies, irregular antibodies, thyroid function tests, and metabolic screening, all within normal limits, further excluding infectious, metabolic, or immunologic causes of hydrops.

Following confirmation of fetal demise, labor induction was initiated with vaginal misoprostol 25 µg every 4 hours, for a total of seven doses, resulting in delivery without the need for oxytocin augmentation. A female fetus weighing 700 g without signs of life was delivered, presenting a 6 × 6 cm oropharyngeal tumor protruding from the oral cavity and completely obstructing the upper airway. The placenta was delivered intact. No other external malformations were noted. Due to institutional limitations, no histopathological examination of the mass or fetus was performed.

The mother had a favorable clinical course, with no obstetric or hemorrhagic complications, and was discharged 24 hours later in stable condition. Psychological support and post-event genetic counseling were provided, with good patient and family understanding and adherence.

At the 15-day follow-up visit, the patient was asymptomatic, without signs of infection or puerperal complications. She

reported mild sadness and anxiety related to the pregnancy loss; therefore, psychological follow-up was continued, with good therapeutic adherence and understanding of the event. She tolerated misoprostol well without relevant side effects, and no hemorrhagic, infectious, or adverse events were documented.

The fatal outcome was attributed to a large congenital oropharyngeal malformation with complete airway obstruction and secondary fetal hydrops, a condition considered lethal in utero. This case highlights the importance of timely prenatal diagnosis of fetal masses through structural ultrasound, complemented—when possible—by fetal magnetic resonance imaging to plan a multidisciplinary approach that may include fetal surgery or an EXIT (ex utero intrapartum treatment) strategy in specialized centers. It also underscores the need for equitable access to histopathological and genetic studies, essential for diagnostic confirmation, reproductive counseling, and recurrence prevention in future pregnancies.



Figure 1. Obstetric ultrasound performed at 25 weeks showing a heterogeneous oropharyngeal mass measuring 75 × 67 mm, originating in the oral cavity and extending toward the facial region, compatible with an oropharyngeal teratoma (epignathus).



Figure 2. Female fetus with a 60 × 60 mm oropharyngeal mass protruding from the oral cavity, causing complete obstruction of the upper airway.

DISCUSSION

Fetal oropharyngeal teratoma (epignathus) is an extremely rare congenital malformation, with an estimated incidence of 1 in 35,000 to 200,000 live births. It often results in severe airway obstruction and carries a high perinatal mortality rate. In the literature, it is typically associated with a

heterogeneous oropharyngeal mass composed of solid and cystic elements, polyhydramnios, and occasionally elevated maternal alpha-fetoprotein levels. Prenatal diagnosis can be achieved through ultrasound and complemented by fetal magnetic resonance imaging to evaluate tumor extension and plan neonatal airway management. As in our case,

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unfavorable outcomes are related to large tumor size, impaired fetal swallowing, and the presence of hydrops, all of which contribute to an in utero lethal prognosis due to complete airway obstruction. The development of fetal hydrops in such cases is explained by hemodynamic compromise secondary to mechanical airway obstruction and impaired venous return, resulting in high-output cardiac failure.^{2,4}

This pathophysiological mechanism aligns with the findings of Abiad et al. (2024), who noted that rapidly growing, poorly vascularized head and neck teratomas carry a high probability of intrauterine death.³

In a retrospective study of 79 fetal teratomas, Simonini et al. (2021) reported sacrococcygeal (59.5%), cervical (20.2%), and oropharyngeal (7.6%) locations as the most frequent. Oropharyngeal teratomas demonstrated the poorest prognosis due to their association with polyhydramnios, cardiac compromise, and elevated perinatal mortality from respiratory failure. Consistent with these findings, the oropharyngeal mass in our case resulted in severe polyhydramnios, fetal hydrops, and intrauterine demise. The study also reinforced the usefulness of prenatal MRI for delivery planning and suggested that amniotic fluid drainage may reduce the risk of preterm birth and associated morbidity.⁵

Li et al. (2024) described a fetal oral teratoma diagnosed at 28 weeks, associated with polyhydramnios and absence of a gastric bubble, leading to preterm delivery and neonatal death due to respiratory obstruction despite attempted intubation. Similar to our case, the oropharyngeal mass compromised the airway, resulting in a fatal outcome. This report emphasizes that although rare, oropharyngeal teratomas can be diagnosed by structural ultrasound, with fetal MRI serving as a key tool for assessing tumor extension and planning perinatal management.⁶

Zhang et al. (2025) analyzed 18 cases of fetal cervical masses, including one teratoma, and demonstrated that detailed ultrasound assessment together with complementary imaging such as MRI allows precise localization and characterization of tumor extension, optimizing delivery planning and neonatal prognosis. In alignment with their findings, our case relied on ultrasonography to identify a large oropharyngeal mass associated with polyhydramnios and a lethal outcome, underscoring the importance of multidisciplinary management and early referral to centers equipped for advanced perinatal care.⁷

When diagnosis is made early, optimal management includes planning delivery at a tertiary-level center with availability of the EXIT (ex utero intrapartum treatment) procedure, which enables securing the airway before clamping the umbilical cord.⁸ However, in resource-limited settings such as ours, the absence of fetal MRI and specialized obstetric–neonatal equipment prevents implementing such interventions, limiting treatment options and influencing fetal outcome.

The main limitations in this case were the inability to perform fetal MRI or postnatal histopathological examination, which prevented confirming tumor maturity. These limitations highlight disparities in access to advanced prenatal diagnostic tools, which significantly impact fetal prognosis and perinatal planning.

Positive aspects of the case included structured prenatal diagnosis, comprehensive fetal evaluation by a specialist, and adequate ultrasound documentation. However, the lack of complementary studies—particularly fetal MRI and access to an experienced multidisciplinary EXIT team—restricted the possibility of planning advanced neonatal management. Furthermore, the absence of histopathology prevented confirmation of tumor grade.

The lethal outcome can be attributed to complete upper airway obstruction and cardiovascular compromise secondary to fetal hydrops. Limited access to advanced imaging restricted detailed assessment of tumor anatomy and prevented planning of perinatal intervention. Nonetheless, the ultrasound findings were consistent with the literature and allowed establishing a reliable presumptive diagnosis.

This case highlights the need to strengthen prenatal diagnostic programs in resource-limited regions, promote timely referral to centers with EXIT capability, and ensure access to advanced imaging. It also demonstrates the importance of a strong physician–patient relationship and continuous psychological support.

The patient reported feeling accompanied and supported by the medical team throughout the process. Although she expressed sadness over the loss, she also felt reassured by understanding the cause of the outcome and expressed gratitude for the clear information, empathetic care, and psychological follow-up that helped her navigate the grieving process.

CONCLUSION

Fetal oropharyngeal teratoma is an extremely rare malformation with poor prognosis when associated with polyhydramnios and hydrops. This case highlights the importance of early prenatal diagnosis and multidisciplinary planning to optimize obstetric and neonatal management. Limited access to advanced diagnostic resources restricts therapeutic options and influences outcomes, underscoring the need for timely referral and improved access to high-specialty care centers.

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surgical and anesthetic procedures and for publication of this case report, in accordance with the ethical principles of the Declaration of Helsinki and institutional guidelines.

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