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Prenatal Diagnosis of Laparoschisis : Case Report

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CASE REPORT

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Abstract

Introduction and Importance
Laparoschisis is a congenital abdominal wall defect characterized by herniation of abdominal contents through a paraumbilical opening. Early prenatal diagnosis is critical for appropriate counseling, monitoring, and management. We report a case of laparoschisis diagnosed at 11 weeks of gestation in an otherwise healthy patient, confirmed by ultrasonographic and fetopathologic examinations.

Case Presentation
A 27-year-old gravida 1, para 0 woman underwent routine prenatal ultrasonography at 11 weeks of amenorrhea. High-resolution imaging and Doppler studies confirmed the diagnosis of laparoschisis. Subsequent evaluations included detailed anatomical ultrasonography and post-termination fetopathologic examination.

Clinical Discussion
Ultrasonography at 11 weeks revealed a paraumbilical abdominal wall defect with extrusion of bowel loops into the amniotic cavity, consistent with laparoschisis. Amniotic fluid volume and fetal crown-rump length were within normal ranges, with no other anomalies detected. The pregnancy was terminated at 11 weeks following multidisciplinary counseling. Fetopathologic examination corroborated the ultrasonographic findings, confirming isolated laparoschisis with no associated structural abnormalities.

Conclusion
Early detection of laparoschisis allows for tailored management strategies, including prenatal monitoring and delivery planning. This case highlights the utility of ultrasonography in diagnosing rare anomalies in the first trimester and the importance of multidisciplinary approaches in decision-making.

Key Words: Laparoschisis, Early Diagnosis, Prenatal Ultra -sonography, First Trimester, Case Report.

Introduction

Laparoschisis, a rare congenital anomaly, involves a defect in the anterior abdominal wall through which abdominal organs, primarily bowel loops, protrude without a covering membrane. Its incidence is estimated at approximately 3–5 per 10,000 live births. Early diagnosis is critical for managing associated complications, such as intestinal damage or growth restriction, and for planning delivery and postnatal surgical repair [1].

Advancements in prenatal ultrasonography have made first-trimester diagnosis increasingly feasible. Early identification provides parents and healthcare providers with vital information for counseling, risk assessment, and tailored management [2]. Here, we report a case of laparoschisis diagnosed at 11 weeks of gestation and discuss its clinical implications (**Figure 1**).

This work was reported in line with the SCARE criteria [3].

Case Observation

A 27-year-old gravida 1, para 0 woman presented for routine prenatal care at 11 weeks of gestation. Her medical history was unremarkable, and there were no known risk factors for congenital anomalies. Transabdominal ultrasonography with a high-resolution probe (5–7 MHz) revealed a paraumbilical abdominal wall defect measuring approximately 5 mm, with protrusion of bowel loops into the amniotic cavity. No covering membrane was observed, and the umbilical cord insertion site appeared normal.

Key findings included:

- **Crown-rump length (CRL):** Consistent with 11 weeks of gestation.
- **Amniotic fluid volume:** Within normal limits.
- **Doppler studies:** Normal umbilical artery blood flow.

No additional anomalies, such as chromosomal abnormalities or amniotic band syndrome, were detected. Following a multidisciplinary discussion involving obstetricians, genetic counselors, and maternal-fetal

medicine specialists, the patient opted for termination of pregnancy at 11 weeks of gestation. The decision was made considering the complexity of the condition and the potential for severe postnatal complications.

Post-procedure evaluations included:

- **Fetopathologic examination:** Confirmed a paraumbilical abdominal wall defect with herniated bowel loops. The defect was isolated, with no other structural or chromosomal abnormalities identified.
- **X-ray imaging:** Post-termination radiography of the fetus highlighted the abdominal wall defect and confirmed the herniated bowel loops, providing additional anatomical details. The skeletal structure and organ alignment appeared otherwise normal (**Figure 2 & 3**).

Discussion

This case underscores the critical importance of early prenatal ultrasonography in diagnosing laparoschisis during the first trimester. The ability to clearly visualize an abdominal wall defect and herniated bowel loops at such an early stage not only facilitated a timely diagnosis but also enabled comprehensive counseling and informed decision-making for the patient and her family. Early identification is a cornerstone for managing rare congenital anomalies, allowing for tailored care plans that address both immediate and long-term considerations [4].

Laparoschisis is typically an isolated anomaly, as confirmed in this case, with no chromosomal or structural abnormalities detected. The etiology of laparoschisis remains unclear, though it is hypothesized to result from vascular disruption, impaired embryonic folding, or a failure of the anterior abdominal wall to close during development. The absence of additional anomalies in this patient aligns with findings in most isolated cases, providing some reassurance regarding the prognosis [5].

Management strategies for pregnancies complicated by laparoschisis are highly dependent on the timing of diagnosis and the severity of the defect. Early detection, as in this case, provides opportunities for close monitoring of potential complications, including bowel damage due to prolonged exposure to amniotic fluid, fetal growth restriction, or oligohydramnios. If continuation of the pregnancy is chosen, delivery at a tertiary care center equipped with neonatal surgical facilities is essential to optimize outcomes [6].

The decision to terminate the pregnancy in this case highlights the need for individualized care plans that consider the patient's values, the severity of the condition, and potential postnatal outcomes. Multidisciplinary approaches involving obstetricians, genetic counselors, maternal-fetal medicine specialists, and pediatric surgeons ensure that parents receive the comprehensive information necessary to make informed decisions. These discussions should be empathetic and supportive, recognizing the emotional and ethical complexities involved [7].

Further research into the etiology, natural history, and optimal management of laparoschisis is essential, particularly for cases identified in the first trimester. Advances in imaging technology, such as three-dimensional ultrasonography and fetal MRI, hold promise for improving diagnostic accuracy and facilitating earlier interventions. Additionally, longitudinal studies tracking outcomes for neonates diagnosed prenatally with laparoschisis will help refine evidence-based guidelines and counseling strategies [8].

In conclusion, this case illustrates the value of advanced ultrasonography in the early detection of rare congenital anomalies such as laparoschisis. Early diagnosis not only informs management decisions but also empowers patients with critical information to navigate complex healthcare choices. Multidisciplinary care remains the cornerstone for optimizing maternal and fetal outcomes in such cases [9].

Conclusion

Laparoschisis diagnosed at 11 weeks of gestation illustrates the importance of advanced ultrasonography for early anomaly detection. Multidisciplinary counseling and tailored management play a pivotal role in addressing the challenges associated with this condition. This case contributes to the limited literature on first-trimester diagnosis of laparoschisis and underscores the value of personalized care in optimizing maternal and fetal outcomes.

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DECLARATIONS

Consent for publication

Written informed consent was obtained from the patient 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.

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Ethical approval

Not applicable. Our institution requires no ethical approval for case reports.

Conflicts Of Interest

All authors declare that they have no conflicts of interest.

Figures

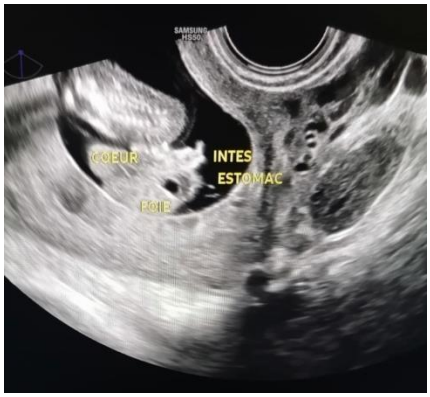

Figure 1: Ultrasonographic imaging at 11 weeks showing the paraumbilical abdominal wall defect and herniated bowel loops.

Figure 2: X-ray image of the fetus post-termination, illustrating the abdominal wall defect and extruded bowel loops.

Figure 3: Postnatal fetopathologic examination of the fetus, highlighting the abdominal wall defect and extruded bowel loops.

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