

Laparoscopic Diagnosis and Management of Ovarian Torsion in the Newborn

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ABSTRACT

Background and Objectives: The application of laparoscopic techniques in the surgical management of neonatal ovarian cysts is proving valuable both as a diagnostic tool and a potential therapeutic intervention. We report the successful management of a prenatally diagnosed ovarian cyst in a newborn female and provide operative evidence for the presumptive etiology of the cyst.

Methods and Results: A prenatally diagnosed ovarian cyst was managed using 5 mm laparoscopic instruments in a newborn female. The prenatal ultrasonographic and operative findings are consistent with in utero adnexal torsion with subsequent autoamputation and cystic degeneration of the ovary. The orphaned ovarian cyst was removed from the infant's abdominal cavity by enlarging the camera port incision.

Discussion: The application of laparoendoscopic procedures in infants and children continues to evolve with the availability of microinstrumentation and increasing experience among pediatric surgeons. This approach may prove valuable in the diagnosis and management of prenatally diagnosed ovarian cysts. In addition, further insight into the etiology of congenital ovarian cysts may be obtained. The safety and efficacy of this approach in these infants remains to be fully evaluated.

Key Words: Laparoscopy, Fetal diseases, Ovarian cysts.

INTRODUCTION

The contemporary use of routine fetal ultrasonography during pregnancy has improved the antenatal diagnosis of several conditions presenting in the newborn period. Consequently, pediatric surgeons are increasingly asked to evaluate and manage thoracic and abdominal lesions that are initially identified in utero and may persist following birth. An example of such a condition is the neonatal ovarian cyst. With the application of laparoendoscopic techniques in pediatric surgery now gaining widespread acceptance, a minimal access approach aimed at the diagnosis and treatment of symptomatic or complicated neonatal ovarian cysts appears warranted. We report the laparoscopic diagnosis and management of adnexal autoamputation secondary to ovarian torsion in a newborn.

CASE REPORT

An otherwise healthy newborn infant female was referred for surgical consultation following an antenatal ultrasound examination that revealed a cystic pelvic lesion. A postpartum ultrasound examination performed three weeks following delivery confirmed that the infant had a presumptive right ovarian cyst measuring 2.4 x 3.7 x 3.5 cm. The left ovary and uterus, as well as the kidneys and bladder, appeared normal. The ovarian cyst was felt to have a fluid level consistent with a hemorrhagic cyst. On examination, the infant had a soft, flat, and non-tender abdomen without discrete masses by palpation. A follow-up ultrasound examination three weeks later demonstrated enlargement of the cyst to approximately 3.0 x 4.0 cm. The cyst had become more complex, with irregular margins and increased intracystic echogenicity.

The infant was explored using a 5 mm laparoscope placed in the supraumbilical position with a pneumoperitoneum of 8 to 10 mm Hg CO₂. Two additional 5 mm operating ports were placed in the upper quadrants. The right ovary and fallopian tube were absent. The left adnexa and uterus were otherwise normal in appearance (**Figure 1**). An autoamputated right ovarian cyst was found in the upper abdomen along the right pericolic gutter, with the cyst hilum attached to the

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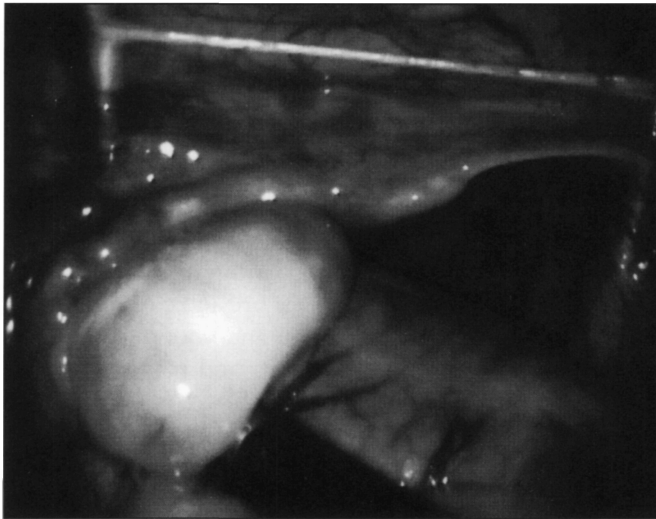


Figure 1. Laparoscopic view of absent right ovary and fallopian tube. Note the otherwise normal uterus and left adnexa.

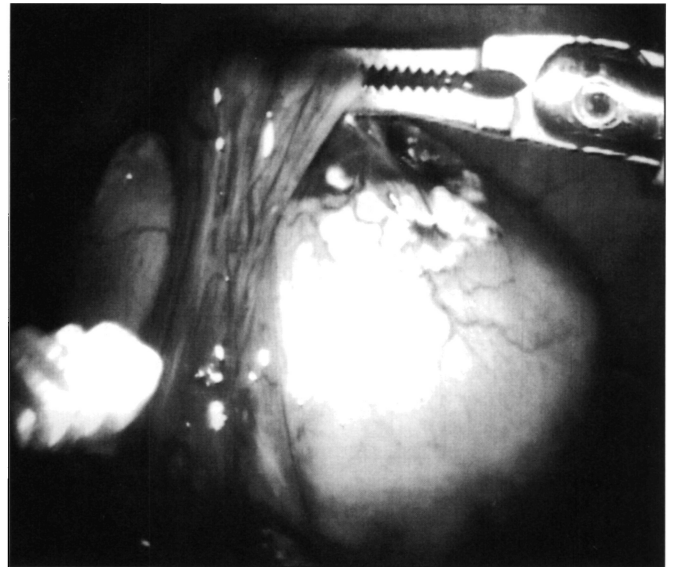


Figure 2. Autoamputated right ovarian cyst adherent to the omentum. No viable oocytes or follicles were found.

omentum (**Figure 2**). The cyst was dissected free and removed via the umbilical incision by enlarging the fascial defect. Microscopic examination of the cyst demonstrated hemorrhagic infarction with calcification of the ovary consistent with antenatal torsion. There was no evidence of viable follicles or tumor. The patient had an uncomplicated recovery and was discharged home within 20 hours following her operation.

DISCUSSION

The application of laparoendoscopic surgery in infants and children is becoming well accepted. With increasing experience, the spectrum of laparoscopic procedures in infants and children has expanded dramatically over the past five years. While the emphasis has been predominantly on the development of therapeutic interventions, the laparoscopic approach to many pediatric surgical problems has allowed for greater diagnostic evaluation as well.

The traditional surgical management of a prenatally diagnosed ovarian cyst reflects the character and natural history of the cyst. Simple, asymptomatic ovarian cysts, or cysts that are decreasing in size, are often managed

expectantly.¹ Conversely, symptomatic cysts or complicated cysts that are persistent or enlarging are generally managed by surgical exploration and either aspiration or excision.² A recent report demonstrates the diagnosis and successful aspiration of benign ovarian cysts in the newborn using a laparoscopic approach.³ A subset of infants with ovarian cysts will have antenatal torsion with subsequent infarction and cystic degeneration or autoamputation of the gonad. Consistent with our findings, we speculate that neonatal adnexal torsion with resorption of the autoamputated ovary may explain some cases of unilateral absence of the ovary and fallopian tube, estimated to occur with an incidence of 1 in 11,241 women.³

While the incidence of ovarian neoplasia is low in the newborn, the association of ovarian torsion secondary to either neoplastic or benign cystic masses is a constant concern. It remains difficult to accurately predict which ovarian cysts are at risk for torsion either in utero or during infancy. Given the increasing experience with laparoendoscopic surgery in infants and children, we feel that a minimal access approach toward the diagnosis and treatment of ovarian cysts in the newborn will prove to be valuable to the pediatric surgeon.

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