Gynecology and Minimally Invasive Therapy xxx (2016) 1–5

Contents lists available at ScienceDirect

Gynecology and Minimally Invasive Therapy

journal homepage: www.e-gmit.com

Case report

Laparoendoscopic single-site surgical cystectomy of a twisted ovarian dermoid cyst during early pregnancy: A case report and literature review

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ARTICLE INFO

Article history:
Received 25 August 2015
Received in revised form
18 December 2015
Accepted 29 December 2015
Available online xxx

Keywords:
dermoid cyst
laparoscopy
pregnancy
single port
torsion

ABSTRACT

In pregnancy, the most frequently discovered ovarian tumor is mature cystic teratomas. Acute ovarian torsion in a pregnant patient is rare and is difficult to diagnose. Recent studies have demonstrated that laparoscopy during pregnancy is safe and confers many advantages over laparotomy. We report a patient with acute ovarian teratoma torsion treated with ovarian cystectomy via a single-port laparoscopy and review of the literature. A 17-year-old woman, gravida 1, in her 12th week of pregnancy, came to our emergency room with severe abdominal pain and nausea. Torsion of ovarian teratoma (5 cm in diameter) was suspected. The patient underwent emergent laparoendoscopic single-site surgery (LESS) under general anesthesia, and the detorsed cyst was successfully excised and removed intact through the single port. This was enabled by the endobag technique, thus preventing spillage of the cyst content into the abdominal cavity. The fetus tolerated surgery well without complications and was term delivered uneventfully. The literature review revealed that the advantages of using LESS in pregnant patients are that this technology is safe for both the mother and the fetus, and it allows easy removal of specimen. However, it also has several drawbacks: technically challenging and limitation of working space. In conclusion, LESS seems to be a viable alternative to multiport laparoscopic surgery for the treatment of adnexal masses in pregnancy.

Introduction

Ovarian torsion is a twisting of the ovary in its vascular pedicle, and torsion will cause ovarian infarction if the twisted ovary is not unwound. It accounts for 3% of gynecologic emergency cases.[1] Ovarian cystic torsion during pregnancy has been reported in the literature.[2] Prompt diagnosis and treatment are crucial for the preservation of the ovary. Nevertheless, clinical presentation of ovarian torsion is usually indistinct, often presenting a diagnostic challenge to clinicians.

Surgical intervention should weigh the benefits and risks of surgery to both the mother and the fetus. Nevertheless, the occurrence of adverse events during surgery is low. Laparoscopy during any trimester of pregnancy is feasible, safe, and confers many advantages over laparotomy including shorter recovery, less pain, and shorter hospital stays.[3] Recently, laparoendoscopic single-site surgery (LESS) has emerged as an option for treatment of a multitude of benign and malignant gynecologic conditions.[4,5] Compared with the conventional laparoscopic approach, use of only one 1.5- to 2.0-cm umbilical incision may enable superior exteriorization of an intact ovarian cyst or mass.

Detorsion of a twisted ovary has been reported without complication in pregnant or nonpregnant women.[6,7]

We report a case of acute torsion of ovarian teratoma in the 1st trimester of pregnancy that was successfully managed with a LESS technique.

Conflicts of interest: None of the authors has any financial or personal relationships with people or organizations that could inappropriately influence their work.

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http://dx.doi.org/10.1016/j.gmit.2015.12.003

Please cite this article in press as: Ding D-C, Chang Y-H, Laparoendoscopic single-site surgical cystectomy of a twisted ovarian dermoid cyst during early pregnancy: A case report and literature review, Gynecology and Minimally Invasive Therapy (2016), http://dx.doi.org/10.1016/j.gmit.2015.12.003

Case Report

A 17-year-old primigravida with a gestational age of 12 weeks presented to our emergency room with right lower abdominal pain. The discomfort had been progressively worsening over the past several hours. The pain was described as severe, and located at the right lower abdominal region. She experienced nausea during every acute abdominal attack. Physical examination revealed an ill-looking woman. Her abdominal examination showed right lower quadrant abdominal tenderness. Her laboratory test results showed a hemoglobin level of 13.0 g/dL and a white blood cell count of 13,500/μL. The biochemical test results were within normal limits. Ultrasonography was performed and showed a fetus with a crown rump length of 5 cm (Figure 1A) and fetal heartbeat of 164 beats/min (Figure 1B). A 5-cm complex cystic mass was noted in the right pelvis, located at the anterior aspect of the uterus (Figure 1C). The Doppler study revealed no blood flow in the right ovary.

Because there was a strong likelihood of acute torsion of a right ovarian teratoma, an emergent LESS procedure was performed. We used a homemade wound retractor (Alexis; Applied Medical, Rancho Santa Margarita, CA, USA) and a surgical glove as the single-port device. Maternal vital signs, oxygen saturation, and end-tidal carbon dioxide pressure were continuously monitored during the surgery. Fetal surveillance included ultrasound monitoring of the fetal heart beat prior to and just after the surgery.

Under general anesthesia, the patient was placed lying down on the table without assuming a lithotomy position because no vaginal surgery was needed. A 2-cm vertical incision was made in the umbilicus at the beginning of the surgery. After insertion of the homemade single-port device into the abdominal cavity, two 5-mm sheaths and one 10-mm sheath were inserted through the open fingertip portions of a surgical glove and tied with 3–0 silk ligatures to prevent carbon dioxide leakage. The intra-abdominal pressure was set at 12 mmHg. Intra-abdominal visualization was obtained with a 5-mm 0° laparoscope (Karl Storz, Tuttlingen, Germany) inserted through a 10-mm cannula.

A right ovarian teratoma with concomitant torsion and ischemic change was noted (black color over the ovarian surface) (Figure 2A). Detorsion of the twisted ovary was performed first, and the ovarian surface indicated signs of blood circulation (black turning into red) (Figure 2B). An endobag was placed below the ovary prior to cystectomy. A right ovarian cystectomy was performed without rupturing the cyst (Figure 2C); the tumor was placed into an endobag, and then removed intact from the single port site (Figure 2D). There was minimal estimated blood loss, and surgical time was approximately 45 minutes. The pathological analysis confirmed a mature cystic teratoma, which exhibited skin appendages (Figure 2E). Postoperatively, the fetal heartbeat remained normal and stable. No tocolytic agent was required, and postoperative surgical wounds demonstrated satisfactory cosmetic results. The patient was discharged 4 days after the surgery.

The subsequent prenatal course was uneventful. A normal healthy child was born at the 38th week of gestation by spontaneous vaginal delivery (weight 2940 g, female).

Discussion

The present report added to the knowledge base on LESS procedure performed on pregnant women with adnexal masses. Although reports in the literature have described the feasibility and

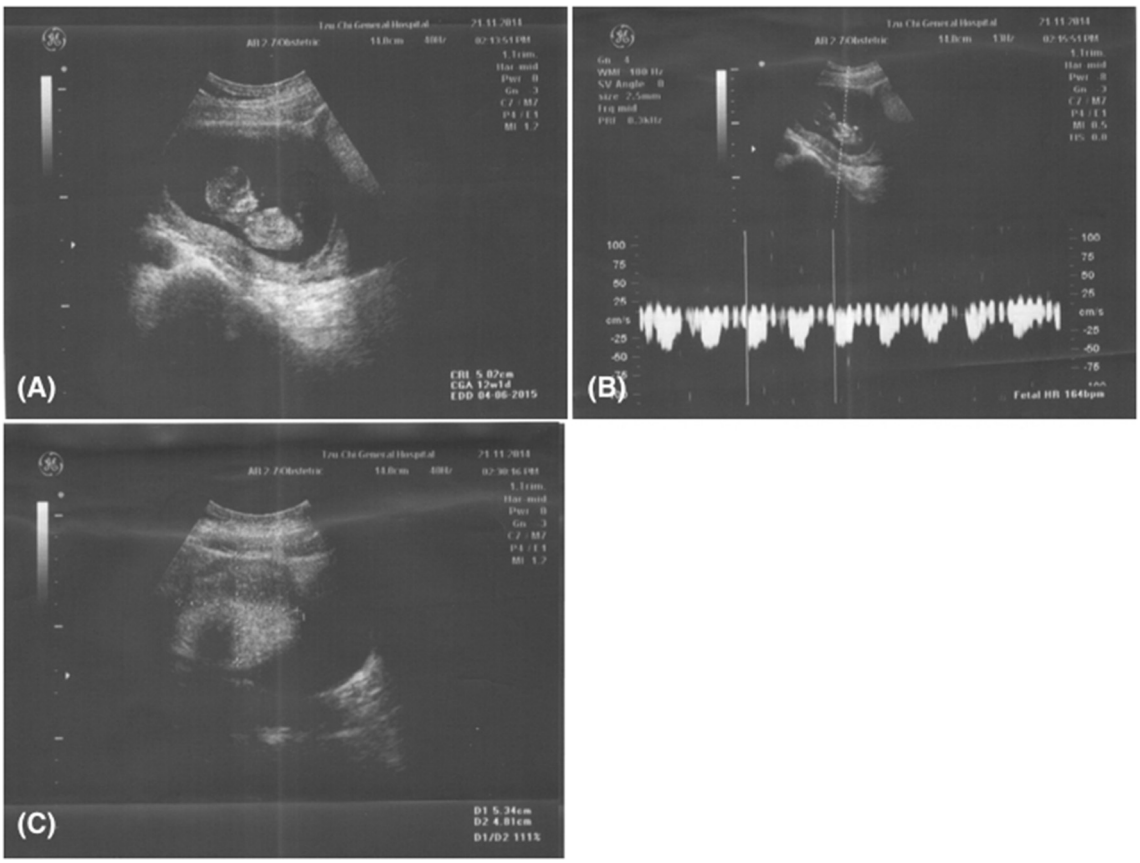

Figure 1. Ultrasonography reveals a fetus (A) with crown–rump length of 5 cm and (B) heartbeat of 164 beats/min. (C) A 5-cm complex cystic mass in the right pelvis located at anterior aspect of uterus.

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