

Management of Ectopic Pregnancy in a Broad Ligament and Recurrent Tubal Pregnancy: A Case Report

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Abstract

Broad ligament pregnancy is a rare event and always delays in diagnosis. A pregnant woman in early twenties presented for our center. Routine ultrasonography revealed a first trimester abdominal pregnancy. Broad ligament pregnancy was diagnosed intraoperation and treated with laparoscopic resection successfully. The patient has a history of right tubal pregnancy 2 years ago and terminated with Laparoscopic Salpingostomy. According to the long term followed-up for the patient, we found that she had recurrent right tubal pregnancy 5 months after the broad ligament ectopic pregnancy. She received the salpingectomy laparoscopically. We presented the case to discuss the clinical management of broad ligament ectopic pregnancy and options of surgical treatments of tubal pregnancy to reduce the risk of recurrent.

Keywords

Broad Ligament, Ectopic Pregnancy, Tubal Pregnancy

1. Introduction

The overall rate of ectopic pregnancy is 1% - 2% in the general population and 2% - 5% among patients who have utilized assisted reproductive technology [1] [2] [3] [4] [5]. Abdominal ectopic pregnancy may occur in any part of the abdomen, the rate is extremely low (1 in 10,000 pregnancies) [3] [6]. Abdominal pregnancy in the broad ligament is a rare abdominal pregnancy, in which the gestational sac or fetus develops within the leaves of the broad ligament [4] [7]. The maternal mortality rate in these cases has been reported to be as high as 20%

[5] [8], because of the risk of excessive haemorrhage from partial or total placental abruption [6]. The complications of broad ligament pregnancy include abdominal pain, rupture of the gestational sac with hemorrhage into the peritoneal cavity, vaginal bleeding, an abnormal lie, placental insufficiency, and pseudo labor followed by fetal death [9]. The management of pregnancy in the broad ligament requires early diagnosis by routine ultrasound followed by surgical removal of the gestational sac or fetus and placenta.

The fallopian tube, especially in the ampullary region, is the most common location of ectopic pregnancy [10]. Many studies suggest that tubal ectopic pregnancy stems from abnormal embryo transport and an alteration in the tubal environment, such as inflammation, which leads to abnormal implantation. Laparoscopic salpingostomy and laparoscopic salpingectomy are two surgical procedures commonly recommended to treat tubal pregnancy. Various surgical procedures may contribute to the risk of developing recurrent ectopic pregnancies.

We present the case of a woman diagnosed with broad ligament pregnancy with a history of tubal pregnancy. We discuss the clinical management of a broad ligament pregnancy with regard to prevention, surgical treatment, and prognosis. Informed consent was obtained from the patient both for her clinical management as well as scientific reporting of her case.

2. Case Report

A 24-year-old G₂P₀E₁ woman presenting with amenorrhea for the past 16 days and lower abdominal pain was admitted to our center (18 April 2015). The woman had a history of a right tubal pregnancy which was treated with laparoscopic salpingostomy and bilateral oviduct cysts that treated by cystectomy and neosalpingostomy 2 years (Nov 2013) prior to the present admission. The patient was otherwise in good health. Transvaginal ultrasonography (18 April 2015) revealed an empty uterus and a 20 mm × 16 mm right adnexal mass located near and closely related to the right ovary. Free fluid was found in the Pouch of Douglas, the ultrasonic thickness of which was approximately 20 mm. Her serum β -hCG (β -human chorionic gonadotrophin) concentration was 348.33 IU/L. Laparoscopy was performed, and a 1 cm × 1 cm broken hole was found in the right broad ligament (**Figure 1(a)**) with a massive hemoperitoneum of approximately 2800 ml (**Figure 1(b)**). The location of the abdominal pregnancy was distinct from the uterus, fallopian tube, ovary, and round ligament (**Figure 1(c)**). Both sides of the fallopian tubes were morphologically normal (**Figure 1(d)**). The abdominal pregnancy was excised and removed via a lap sac through the umbilical port site. Two units of packed red blood cells were administered intraoperatively. No complications were encountered during surgery. Pathological biopsy confirmed the presence of an ectopic pregnancy in the right broad ligament. The patient discharged 1 days later, and was medically well at the short-term (4 weeks) follow-up.

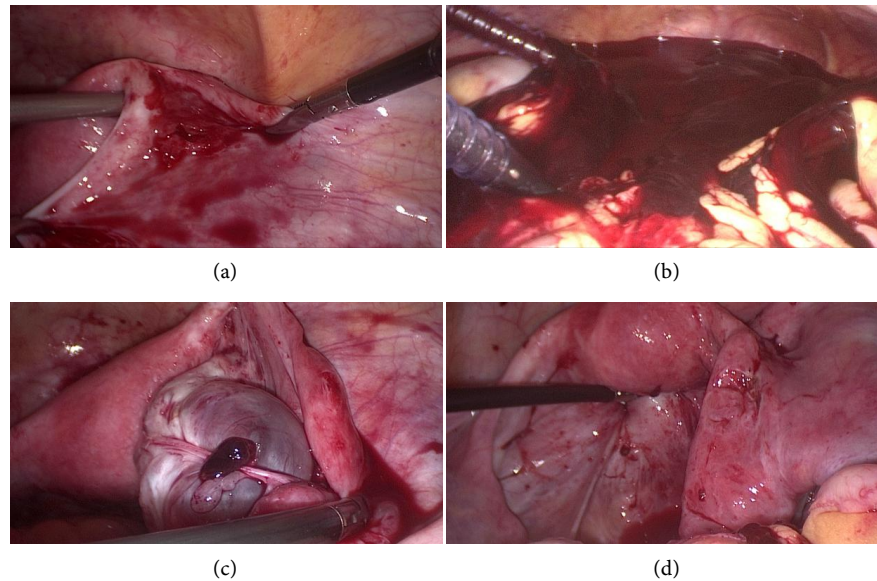


Figure 1. Showing the ectopic pregnancy on the right broad ligament during the Laparoscopy. A broken hole (1 cm × 1 cm) was found in the right broad ligament (a) with a massive hemoperitoneum of approximately 2800 ml (b). The gestational sac was found in the abdominal cavity (c). Both sides of the fallopian tubes were morphologically normal (d).

Five months later (13 September 2015), the same patient presented with 50 days of amenorrhea and irregular vaginal bleeding and was readmitted to our center. Transvaginal ultrasonography revealed an empty uterus and a 21 mm × 18 mm right adnexal mass with well-defined borders. Her serum β -hCG concentration was 17458.34 IU/L, and her serum progesterone level was 51 ng/ml. Laparoscopy was performed, and a 2.5 cm × 2 cm bulge was found in the ampullary region of the right fallopian tube; the diameter of broken hole/or rupture was approximately 0.5 cm. There were inflammatory adhesions at the contralateral (the left side) tubal ostium. Laparoscopic salpingectomy of the right side and salpingoplasty on the left side were performed. No complications were encountered during surgery. An ectopic pregnancy in the right fallopian tube was confirmed by laparoscopy and pathological examination. Spontaneous intrauterine pregnancy didn't occur till the telephone follow-up six months later (March 2016). Hysterosalpingography (May 2016) showed that the contralateral tubal patency obstructed that the semen examination for her husband and the assisted reproductive technique were recommended.

3. Discussion

Broad ligament ectopic pregnancy was first described in 1816 by Loschge [11]. In most cases of abdominal pregnancies, a surgeon might prefer to use laparotomy, which improves the intraperitoneal view and allows for easy detection of intraoperative hemorrhage, and the severe complications such as reupture, perforation can also be avoided [12]. Laparoscopic management of abdominal pregnancies at unusual sites, such as the uterovesical fold or a cesarean section scar [13]

[14], has been associated with less blood loss, lower surgical morbidity, and a faster recovery. Laparoscopic management is recommended in cases of a small broad ligament pregnancy [15].

In our case, the ultrasonography revealed a 20 mm × 16 mm right adnexal mass that was hemodynamically stable with no sign of rupture, therefore, a laparoscopic excision was performed. Vasopressin, bipolar and monopolar cautery were used during our surgery to prevent massive haemorrhage. There were no complications during the surgery and no need for conversion to laparotomy as our patient didn't present with a large ectopic pregnancy or exhibits signs of hemodynamic instability.

Laparoscopic salpingostomy or laparoscopic salpingectomy is recommended for the surgical management of tubal ectopic pregnancy. The risk of recurrent ectopic pregnancy is not affected by treatment modality or surgical procedure [16]. A recent randomized controlled study showed that the recurrence rate for ectopic pregnancy was similar after salpingostomy (8%) and salpingectomy (5%) [17] and was 18.5% overall [3]. Following salpingectomy, if the final pathologic analysis of the fallopian tube demonstrates evidence of tubal gestation, no follow-up β -hCG levels or other assessments are needed. The risk of recurrence of tubal ectopic pregnancy ranges from 5% - 25% [16] [17] [18] [19].

Our patient had a history of right tubal pregnancy and bilateral oviduct cysts, and accepted the surgical treatment 2 years ago. For the prior surgery, the condition of the fallopian tube were not clearly recorded that the possibility of primary infertility were not excluded. The patient was diagnosed recurrent ipsilateral tubal pregnancy and received laparoscopic salpingectomy (Sept. 2015). During these laparoscopic exploration, we found that the left tubal ostium was semi-closed which may caused by chronic pelvic inflammation. We considered the condition of this contralateral tube shouldn't render future pregnancy unlikely so that the salpingoplasty were assigned. After the operation, the patient had not yet successfully conceived by natural conception at the six-month follow-up. Hysterosalpingography was performed as we considered that the possibility of the contralateral tubal obstruction was high. The semen examination for her husband and the assisted reproductive technique were recommended as follow.

We hypothesize that chronic pelvic inflammation increased the risk of ectopic pregnancy recurring in this case. For the laparoscopic salpingostomy, the retention of the ipsilateral fallopian tube could contribute to the contralateral tubal obstruction. Conversely, the patient's occluded left oviduct, which may have been caused by tubal damage from infection or surgery, contribute to the recurrent ectopic pregnancies on the other side. The long-term clinical effectiveness of laparoscopic salpingectomy would be better than that of salpingostomy due to pathologic changes in the fallopian tube. Ipsilateral salpingectomy could decrease risk factors, prevent the recurrence of ectopic pregnancy and the incidence of complications such as massive haemorrhage. However, further clinical studies are needed to explore the prevention, surgical management, and progno-

sis of tubal ectopic pregnancy.

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Disclosure of Interests

The authors declare that they have no conflicts of interest.

Details of Ethics Approval

The patient was admitted to the Guangzhou Institute of Obstetrics and Gynecology, The Third Affiliated Hospital of Guangzhou Medical University, Guangzhou, People's Republic of China. The Ethics Committee of Guangzhou Medical University approved the case report. The patient provided written informed consent concerning her clinical management as well as written permission for her case to be presented.

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