

Successful treatment of ovarian pregnancy with laparoscopy-assisted local injection of etoposide

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Objective: To present a case of ovarian ectopic pregnancy successfully treated with laparoscopy-assisted local injection of etoposide.

Design: Case report.

Setting: University-affiliated teaching hospital.

Patient(s): A 33-year-old woman with the diagnosis of an ovarian pregnancy.

Intervention(s): Laparoscopically assisted local injection of etoposide.

Main Outcome Measure(s): Successful treatment of the ovarian ectopic pregnancy, with preservation of the ovary.

Result(s): The patient was successfully treated, and she had normal menstruation after surgery.

Conclusion(s): Treatment of ovarian ectopic pregnancy with a laparoscopy-assisted local injection of etoposide might be a less invasive choice that can circumvent the systemic side effects of the medication. (Fertil Steril® 2008;90:1200.e1–e2. ©2008 by American Society for Reproductive Medicine.)

Key Words: Etoposide, laparoscopy, ovarian pregnancy

Primary ovarian pregnancy is an uncommon form of ectopic implantation and represents 0.5%–3% of all ectopic pregnancies. The pathogenic mechanism is thought to be fertilization occurring outside the tube, followed by implantation within the ovary. Differential diagnosis of an ovarian pregnancy from a tubal pregnancy has been a challenge in the past. However, due to the improvement of high-resolution transvaginal ultrasound (TVS) and the availability of sensitive β -hCG assay, an early diagnosis of an ovarian pregnancy is now more feasible.

The traditional method for management of an ovarian pregnancy is surgical removal of the ectopic pregnancy, either by ipsilateral oophorectomy or wedge resection by laparotomy or laparoscopy (1). There have been sporadic case reports showing that ovarian pregnancy was successfully treated by systemic methotrexate (MTX) injection (2–4). However, all of those patients were simultaneously treated with a laparoscopic wedge resection of the ectopic site. Methotrexate is not a first-line treatment for ovarian pregnancy (5),

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even in candidates who meet the criteria for medical treatment (6). We report a novel case of ovarian pregnancy successfully treated by laparoscopy-assisted local injection of etoposide (VP-16; Teva Pharma B.V., Haarlem, The Netherlands).

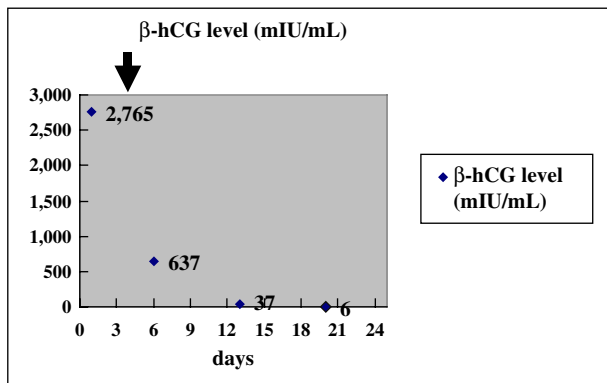
CASE REPORT

A 33-year-old woman, gravida 1, para 0, had presented with a 7-week history of gestational amenorrhea and lower abdominal discomfort. Her general condition was fair. The serum β -hCG level was measured at 2,765 mIU/mL. The TVS revealed an empty uterus and suggested an ectopic sac of 4.3 by 2.8 cm in diameter in the right ovarian region. The fluid in the Douglas pouch measured 2.0 × 1.8 cm in diameter. Based on these findings, an ovarian pregnancy was suspected.

A laparoscopy was then performed. One hundred milliliters of bloody fluid was collected from the cul-de-sac. The two fallopian tubes were intact, and the uterus and left ovary were normal. A 4-cm diameter bluish and hemorrhagic mass on the right ovary indicated the possibility of an ovarian pregnancy. Punch with aspiration and direct injection of 100 mg of etoposide (VP-16) into the ectopic sac was performed and the fluid aspirated from the hemorrhagic sac seen at laparoscopy was sent for pathologic examination, which showed scant chorionic villi and granulosa cells (GC) in support of the diagnosis of ovarian pregnancy. The patient was discharged in good condition on the second day.

FIGURE 1

The serum β -hCG levels and clinical course of the patient with primary ectopic ovarian pregnancy. Arrow shows the time of laparoscopy-assisted local injection of 100 mg of etoposide.



Juan. Laparoscopic etoposide therapy. *Fertil Steril* 2008.

The patient was followed up with serial TVS and checking of β -hCG levels. The TVS showed a progressive shrinkage of the adnexal mass, and the β -hCG levels declined continuously to 37.34 mIU/mL 8 days after surgery and 6.01 mIU/mL 1 week later (Fig. 1). The patient menstruated 25 days after the procedure.

DISCUSSION

The traditional treatments for ovarian pregnancy, including oophorectomy or wedge resection either by laparoscopy or laparotomy, are considered more invasive procedures for ovarian parenchyma preservation. In addition, ovarian pregnancies are diagnosed definitively at the time of surgical exploration (5). Therefore, how to select one of the less invasive but powerful procedures to diagnose and treat these rare ectopic pregnancies simultaneously is important. In 2003 Mittal and colleagues (7) used a laparoscopy-guided MTX injection to treat successfully an ovarian pregnancy. In addition, based on the finding that etoposide (VP-16) was more effective and had fewer side effects in the management of low-risk gestational trophoblastic tumor, compared to MTX treatment (8), direct injection of etoposide for ovarian preg-

nancy may be another consideration. We have used a laparoscopy-guided local injection of etoposide as a rescue method to treat relatively advanced interstitial pregnancy (12-week gestational age) successfully after the failure of multiple-dose systemic MTX treatment (9). Taken together, a local injection of etoposide might be a good choice for ovarian pregnancy.

Etoposide (VP-16), an antineoplastic agent, can produce cytotoxic effects by damaging DNA, thereby inhibiting or altering DNA synthesis. The drug appears to be cell-cycle dependent and cycle-phase specific, inducing G₂ phase arrest and killing cells in the G₂ and late S phases.

Laparoscopy-assisted local injection of etoposide not only offers a definite diagnosis by punch or aspiration, which is a minimally invasive procedure with minimal traumatic injury for ovarian pregnancy, but also has greater bioavailability and bypasses the systemic side effects of etoposide. Based on this, a laparoscopic local injection of etoposide might be a consideration for women with ovarian pregnancy suitable for medical treatment.

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