

Primary Ovarian Pregnancy with intrauterine device(IUD) : a case report and reviews of the literature

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(Received May 23, 2013; Revised May 30, 2013; Accepted June 7, 2013)

Abstract

Ovarian pregnancy is a rare form of ectopic pregnancy, with a reported incidence of approximately 3% of all ectopic pregnancies. We report a primary ovarian pregnancy in a 29-year-old woman with a history of intrauterine device. The patient was admitted to the emergency department with signs and symptoms of acute abdomen with hemoperitoneum. Diagnostic laparoscopy and pelviscopic right ovarian cystectomy were performed. On histopathological examination, products of conception embedded in the ovarian tissue were seen, which were confirmatory of primary ovarian pregnancy. This article is to describe a case of ovarian pregnancy and to discuss reviews of the literature. (J Med Life Sci 2013;10(1):54-57)

Key Words : Primary ovarian pregnancy, Ectopic pregnancy, Intrauterine device(IUD)

Introduction

Ovarian pregnancy is a rare form of ectopic pregnancy, with a reported incidence of approximately 3% of all ectopic pregnancies¹⁾. The diagnostic criteria were described in 1878 by Spiegelberg²⁾. Confused with a corpus luteum cyst, misdiagnosis can reach around 75%³⁾. Unlike the tubal gestation, ovarian pregnancy is associated with neither pelvic inflammation disease(PID) nor infertility. The only risk factor associated with the development of ovarian pregnancy is the current use of IUD⁴⁾. Usually, the first clinical presentation is a shock with hemoperitoneum requiring emergency surgery. In recent years, the incidence rate of ovarian pregnancy has increased because of the assisted reproductive techniques and wider use of IUD.

Case Report

A 29-year-old, G1 P1 A1 woman was admitted to the emergency department with lower abdominal pain for 1 day. Her previous menstrual cycle was regular with average flow and no dysmenorrhea.

On examination, pulse 90/min, BP 120/70 mmHg and tenderness in whole abdomen were observed. She had

received dilatation and evacuation, and removed the intrauterine device(IUD) eighteen days ago. She had a copper intrauterine device(IUD) for about 32 months.

On investigation, the urine pregnancy test was positive, hemoglobin was 8.1 g/dL, total leukocyte count was 10,700/ μ L, platelet count was 153,000/ μ L and the blood group was O positive.

On ultrasonography, no gestational sac was seen inside the uterus but a right adnexal mass 4.4 cm \times 3 cm was seen with fluid collection in the posterior cul de sac 1.5cm and anterior cul de sac 3.6cm.

A CT image showed a feature of slightly high density peritoneal fluid collection suggesting hemoperitoneum. A heterogeneous high density mass lesion 6.5 \times 3.8cm was noted in right adnexa with blood in cul de sac. There was no ascites in the abdominopelvic cavity. The assessment was that there was hemoperitoneum due to a corpus luteum cyst rupture, or rupture of ectopic pregnancy (Figure 1). Serum β human chorionic gonadotropin (β -hCG) was 16,770 mIU/mL. A decision for diagnostic laparoscopy was taken because of the hemoperitoneum.

Intra-operatively, the uterus was a normal size, both fallopian tubes were normal, but had massive hemoperitonium (Figure 2). Grossly, right ovary was swollen with a hematoma like mass about 4cm sized and ruptured in part with oozing of blood from the surface of the mass (Figure 2, 3). A diagnostic laparoscopy and pelviscopic right ovarian cystectomy were performed and the contents were evacuated and sent for histopathology. On histopathological

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examination, products of conception embedded in the ovarian tissue were seen, which were confirmatory of primary ovarian pregnancy (Figure 4).

The patient was discharged from the hospital on the 6th postoperative day without any complication. The β -hCG level was 20 mIU/mL on the 22nd postoperative day.



Figure 1. Right ovarian cystic rupture

A CT image showed a feature of slightly high density peritoneal fluid collection suggesting hemoperitoneum. And heterogeneous high density mass lesion 6.5 × 3.8cm is noted in right adnexa with blood in cul de sac. There was no ascites in the abdominopelvic cavity. The assessment was hemoperitoneum due to a corpus luteum cyst rupture, or rupture of ectopic pregnancy.



Figure 2. Intra-operatively, the uterus was a normal size, both fallopian tubes were normal, but had massive hemoperitonium. Grossly, right ovary was swollen with a hematoma like mass about 4cm sized and ruptured in part with oozing of blood from the surface of the mass.



Figure 3. Right ovary showing primary ovarian pregnancy.



Figure 4. (A) Low-power view of specimen shows chorionic villi and trophoblastic tissue in hemorrhagic background (H&E, x40)



Figure 4. (B) Ovarian stroma show corpus luteal changes (H&E, x100) On histopathological examination, products of conception embedded in the ovarian tissue were seen, which were confirmatory of primary ovarian pregnancy.

Discussion

The precise etiology of ovarian pregnancy is not known. In contrast to patients with tubal pregnancies, traditional risk factors, such as pelvic inflammatory disease and prior surgical procedure upon the pelvis, may not play a role in the etiology⁴. There appears to be a link to the intrauterine device(IUD)^{3,4}. Some have suggested that patients who

undergo in vitro fertilization(IVF) are at higher risk for ovarian pregnancy⁵.

Ovarian pregnancy is usually understood to begin when a mature egg cell is not expelled or picked up from its follicle. A sperm enters the follicle and fertilizes the egg. It gives rise to an intrafollicular pregnancy⁶. It has also been debated that an egg cell fertilized outside of the ovary could implant on the ovarian surface, perhaps aided by a decidual reaction or endometriosis⁹. Ovarian pregnancy rarely goes longer than 4 weeks; nevertheless, there is the possibility that the trophoblast finds further support outside the ovary and thus may affect the tube and other organs⁶. In very rare occasions, the pregnancy may find a sufficient foothold outside the ovary to continue as an abdominal pregnancy, and an occasional delivery has been reported⁶.

The signs and symptoms of ovarian pregnancy are similar to those of disturbed tubal pregnancy, conditions most commonly confused with ruptured hemorrhagic corpus luteum and chocolate cyst or tubal ectopic pregnancy⁷. Presenting symptoms typically include the triad of pelvic mass, abdominal pain, and abnormal vaginal bleeding. But, the classic triad of pelvic pain, abnormal bleeding and a palpable pelvic mass is more frequently associated with a tubal ectopic gestation than an ovarian gestation⁸.

Out of the modern methods, ultrasonography, laparoscopy and estimation of Serum β human chorionic gonadotrophic (β -hCG) levels have been used in conjunction with repeated clinical evaluation in the diagnosis and management of extrauterine pregnancies^{9,10,11,12}.

To be diagnosed as ovarian pregnancy, four diagnostic criteria suggested by Spiegelberg^{1,3} must be met. It is as follows:

- (1) The tube on the affected side must be intact.
- (2) The fetal sac must occupy the position of the ovary.
- (3) The ovary and sac must be connected to the uterus by the utero-ovarian ligament (ligamentum proprium ovary).
- (4) Definite ovarian tissue must be present in the sac wall

Traditionally, an explorative laparotomy was performed, including the removal of the pregnancy. Today, the surgery can often be performed via laparoscopy¹³. The extent of surgery varies according to the amount of tissue destruction that has occurred. Patients with ovarian pregnancy have a good prognosis for future fertility. Therefore conservative surgical management is advocated¹⁴. To preserve ovarian tissue, the procedure removing gestational sac with relative sparing of normal tissue is performed¹³. This can be

accomplished by an ovarian wedge resection¹⁵.

Ovarian pregnancy have been successfully treated with methotrexate since it was introduced in the management of ectopic pregnancy in 1988¹⁷.

Ovarian pregnancy can develop together with a normal intrauterine pregnancy; such a heterotopic pregnancy will call for expert management as not to endanger the intrauterine pregnancy.

Ovarian pregnancy is a rare condition but has specific features. Its diagnosis is difficult and relies on criteria based on the intra-operative findings and the histopathological examination. Therefore, Spiegelberg criteria are quite important in making the diagnosis of ovarian pregnancy. Every clinician treating women of reproductive age should keep this diagnosis in mind.

This presented case was confirmed to meet criteria suggested by Spiegelberg.

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