

# Primary Intrafollicular Ovarian Pregnancy - Preoperative Diagnosis: Case Report

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## ÖZET

### Primer İntrafolliküler Ovaryel Gebelik – Preoperatif Tanı (Olgu Sunumu)

Primer overyel gebelik nadir bir ektopik gebelik formudur. Pre-intraoperatif tanısı oldukça zor olup rüptüre hemorajik korpus luteum ile karıştırılabilir. Biz transvajinal ultrasonografi ve beta-hCG ile preop tanısını koyduğumuz böyle bir vakayı sunduk. Laparotomide ovarian wedge rezeksiyon uygulandı.

**Anahtar Kelimeler:** Ovaryel gebelik, Preoperatif tanı, Transvajinal ultrasonografi

## SUMMARY

Primary ovarian pregnancy is a rare form of ectopic pregnancy. Its preoperative or intraoperative diagnosis is difficult and it can be misdiagnosed as ruptured corpus luteum hemorrhagicum. We present a case with primary ovarian pregnancy in which preoperative diagnosis was made by transvaginal ultrasonography and beta-hCG. At laparotomy, ovarian wedge resection was made.

**Key Words:** Ovarian pregnancy, Preoperative diagnosis, Transvaginal ultrasonography

## Introduction

Ovarian pregnancy is rare variant of ectopic implantation. Its incidence ranges from 1 in 7000 to 1 in 60,000 deliveries and accounts for 1-3% of all ectopic pregnancies (1). Presenting symptoms typically include the triad of pelvic mass, abdominal pain and abnormal vaginal bleeding. There is scant information on the ultrasonographic appearance of ovarian pregnancies. We reviewed the ultrasonographic and clinical findings of ovarian ectopic pregnancy.

## Case Report

A 38 years old woman, gravida 5, para 2, was admitted to hospital with vaginal bleeding and sudden lower abdominal pain. Abdominal examination revealed tenderness. She had appendectomy. She had used intrauterine device (IUD) for contraception. There were cervical movement tenderness and fullness of the fornices on vaginal examination. Her blood pressure was 100/80 mmHg, pulse rate of 100 beats per minute body temperature of 37.1 degree Celcius and rectal temperature of 38 degree Celcius. Her laboratory findings were hematocrit of 41.5%, hemoglobine of 12.1%, white blood cell count of 14,500%, and 229.000 platelets. Serum beta-hCG level was 5071 mIU/ml. Transvaginal ultrasonogram showed an empty uterus, a 2.0x2.1x2.3 cm right adnexal double hyperechogenic ring surrounding a small hypoechogenic field (Fig.1), and free fluid in the cul-de-sac.

At laparotomy, there was 100 ml of blood in the cul-de-sac. Both the tubes, the uterus, and the left ovary were normal. Right ovary was bleeding with ruptured 2x2 cm sized mass. Ovarian wedge resection

was done. The result of histopathologic analysis was chorionic villi and trophoblastic cells inside the corpus luteum (Fig.2). Serum beta-hCG concentrations declined rapidly after surgery, becoming negative (<1 mIU/ml) after 10 days.



Figure 1. A right adnexal double hyperechogenic ring surrounding a small hypoechogenic field.

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Figure 2 Histopathology picture of the specimen taken from the ovarian mass, showing chorionic villi and trophoblastic cells inside the corpus luteum (H&E, x25).

## Discussion

The common predisposing factors of primary ovarian pregnancy are thought to be pelvic inflammatory disease (especially oophoritis) and IUD usage (2-4). There is strong association between multiparity and IUD usage in the cases of ovarian pregnancies. The predisposing factor in the present case was IUD usage.

Primary ovarian pregnancy could be classified histologically into two distinct forms; intrafollicular and extrafollicular (4). Intrafollicular development is extremely rare. Intrafollicular fertilization may take place following failure of ovum extrusion after follicular rupture, and thus implantation occurs within the corpus luteum.

The diagnostic criteria described by Spiegelberg in 1878 for ovarian pregnancy are 1) the fallopian tube on the affected side must be intact, 2) the gestational sac must occupy the normal position of the ovary, 3) the ovary must be attached to the uterus through the utero-ovarian ligament, and 4) ovarian tissue must be located in the gestational sac wall (5). These are surgical criteria. Unfortunately, none of these criteria can be established by ultrasonography.

The specific sonographic features of ovarian pregnancy for preoperative diagnosis are the following: a) empty uterus (in all cases), b) ovarian cystic mass with a wide echogenic outside ring, c) double hyperechogenic ring surrounding a small hypoechogenic field on sonographic evaluation of the ovary, d) a visible gestational sac and fetal heart beat within the ovary, and e) free fluid (6-8).

Clinical findings mimic a ruptured corpus luteum. However, ultrasound performed above the discriminatory threshold of 1.200 mIU/ml beta-hCG did not show an accompanying intrauterine gestation. The echogenic ring of a corpus luteum on ultrasound tends to be less marked than that of an ovarian gestation but more marked than that of a tubal gestation (7).

In conclusion, although primary ovarian pregnancy is rare and difficult to diagnose clinically and

intraoperatively, it can be detected early with the use of combined transvaginal ultrasonography and serum beta-hCG. The standard of care is conservative treatment in order to preserve the patient's fertility.

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