Case Report

Primary ovarian pregnancy

Mariam Mathew, MD, MRCOG, *Aisha M. Al-Hinai*, MD.

ABSTRACT

Primary ovarian pregnancy is a rare type of ectopic pregnancy, which is difficult to diagnose clinically and even intra operatively. Here we present a case of a 20-year-old woman with ruptured right ovarian pregnancy and dermoid cyst of left ovary.

Keywords: Primary ovarian pregnancy.

Saudi Med J 2002; Vol. 23 (1): 93-95

Primary ovarian pregnancy is a rare form of ectopic pregnancy in which the gestational sac is implanted in the ovary. Fertilization probably occurs outside the ovary followed by implantation within the ovary.[1] Secondary ovarian pregnancy, where primary nidation occurs within the tube and ovarian attachment results from tubal abortion is more common. The incidence of ovarian pregnancy ranges from one in 40000 to one in 7000 deliveries.[2,3] Ovarian pregnancy represents 0.5–3% of all ectopic pregnancies.[3]

In 1878, Spiegelberg established 4 criterias which are still the "gold standard" for diagnosis of ovarian pregnancy: an intact tube on the affected side separate from the ovary, a gestational sac occupying the position of the ovary; ovary connected to the uterus by the ovarian ligament; and ovarian tissue histologically demonstrated in the sac wall.[4]

Case Report. A 20-year-old woman, gravida – 2- Para –1, admitted with vaginal bleeding for 4 days and sudden right iliac fossa pain with dizziness for a few hours. She had regular menstrual cycles. Her last menstrual period was 15 days prior to the admission and lasted for 7 days. She was on oral contraceptive pills for one year and 3 months, which were discontinued 3 months prior. There was no history of previous abdominal surgery or pelvic inflammatory disease. Clinical examination revealed rigidity and tenderness over the right iliac fossa with evidence of intraperitoneal fluid. Vaginal examination showed normal sized uterus, tenderness in the right fornix and cervical excitation. Transvaginal ultrasonography demonstrated an empty uterus with endometrial thickness of 7.5 mm and a mixed echoeic mass of 4x4 cm in the right adnexa. There was free fluid in the pouch of douglas. The patient was booked for laparotomy, which demonstrated normal uterus and fallopian tubes. Right ovary showed a ruptured cyst with blood clots, and the left ovary contained a dermoid cyst measuring 5x5 cm. There was 700 ml of blood and clots in the abdominal cavity. Bilateral ovarian cystectomy with reconstruction of ovaries was performed.

The postoperative course of the patient was uneventful and serum β-hCG (human chorionic gonadotropin) titre dropped from 1489 iu/l to 124 iu/l within 48 hours of surgery. Histopathological examination identified ovarian stroma and fresh hemorrhage in the excised right ovarian cyst wall (**Figure 1**). Presence of chorionic villi among the blood clots covering the ruptured ovarian cyst is consistent with ovarian pregnancy (**Figure 2**).

From the Department of Obstetrics and Gynecology, Sultan Qaboos University Hospital, Sultanate of Oman.

Received 28th April 2001. Accepted for publication in final form 30th July 2001.

Address correspondence and reprint request to: Dr. M. Mathew, Department of Obstetrics and Gynecology, Sultan Qaboos University Hospital, PO Box 38, Sultanate of Oman. Tel/Fax. +968 513951. E-mail: mathewz@omantel.net.om.

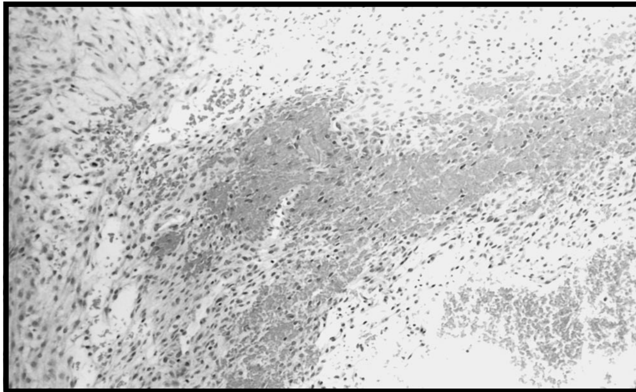

Figure 1 - Photomicrograph showing ovarian stroma and fresh hemorrhage. Hematoxylin Eosin x 200.

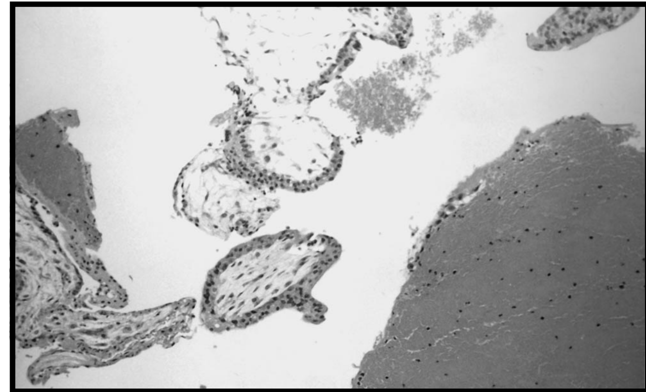

Figure 2 - Photomicrograph showing chorionic villi with blood clot. Hematoxylin Eosin x 100.

Discussion. Ovarian pregnancy is not associated to any significant degree with pelvic inflammatory disease, infertility or endometriosis.[3,5] The patient tends to be younger than those with a tubal pregnancy. Lehfeldt and Hallat showed a significant association between the incidence of ovarian pregnancy and intrauterine device (IUCD) use.[2,6] Lehfelt's study showed that IUCD is effective in preventing intrauterine pregnancy in 99.5% and tubal pregnancy in 95%, but it has little effect on ovarian pregnancy. The occurrence of ectopic pregnancy in the presence of an intrauterine contraceptive device should increase the clinician's index of suspicion as to the existence of ovarian gestation.

These patients complain of pain and abnormal bleeding, but tend to have a more abrupt onset of symptoms than the woman with a tubal pregnancy and are more likely to be in shock when first seen.[6,7] Ovarian pregnancies are found equally on both sides although earlier reports suggested a propensity for the right ovary.[5,7] Our patient presented with vaginal bleeding, acute abdominal pain with hemoperitoneum and the ectopic in the right ovary was ruptured. In a review of 25 ovarian pregnancies, the correct diagnosis was made surgically in only 28% of cases and an embryo was identified in only 12% of cases. Several authors have stressed that ovarian pregnancy is often misdiagnosed as hemorrhagic corpus luteum.[6]

Sonographically the appearance of ovarian pregnancies vary widely. They may present as an empty uterus with a cystic mass containing partially solid area, a complex adnexal mass associated with free fluid or a definite gestational sac in the adnexa.[1] Our case demonstrated an empty uterus with mixed echoeic mass in the right adnexa and free fluid in the pouch of douglas. Color doppler may show increased peritrophoblastic flow within the ovary. The postoperative diagnosis of primary ovarian pregnancy may also be difficult due to the increased tissue destruction as the pregnancy progressed and conservative surgery resulting in a lesser amount of tissue available for microscopic evaluation. Traditionally, the standard treatment has been ipsilateral oophorectomy. Recently, conservative ovarian surgery: ovarian wedge resection or ovarian cystectomy has become the established standard, especially for fertile patients who desire further child bearing.[1] Laparoscopic treatment of ovarian pregnancy is a new possibility.[8] If the diagnosis of ectopic pregnancy with an intact normal appearing fallopian tube and hemorrhagic ovarian cyst is made at laparoscopy, a laparoscopic cystectomy should be tried.[5] Currently methotrexate has become an increasingly popular method of treatment for ectopic pregnancies.[9] Treatment with methotrexate may be particularly helpful in preserving the ovary in patients with unruptured ovarian pregnancy.

In summary, although primary ovarian pregnancy is a rare entity, its consequences can be catastrophic. The advances in the field of ultrasonography for early diagnosis and early intervention in the form of conservative surgery or medical treatment, hold great promise for the future.

References

1. Cheng CC, Shih JC, Hwang JL. Primary ovarian pregnancy. *Int J Gynecol Obstet* 2000; 71: 177-179.
2. Lehfeldt H, Tietze C, Gorstein F. Ovarian pregnancy and the Intrauterine device. *Am J Obstet Gynecol* 1970; 108: 1005-1009.
3. Vasilev SA, Sauer MV. Diagnosis and modern Surgical Management of Ovarain Pregnancy. *Surg Gynecol Obstet* 1990; 170: 395-398.
4. Spiegelberg O. Casusistik der ovarialschwangerschaft. *Arch Gynecol* 1878; 13: 73.
5. Boronow RE, McElin TW, West RH, Buckingham JC. Ovarian pregnancy report of four cases and a thirteen year survey of the English literature. *Am J Obstet Gynecol* 1965; 91: 1095.

6. Hallatt JG. Primary Ovarian Pregnancy: a report of twenty five cases. *Am J Obstet Gynecol* 1982; 143: 55-60.
7. Grimes HG, Nosal RA, Gallagher JC. Ovarian Pregnancy: a series of 24 cases. *Obstet Gynecol* 1983; 61: 174-180.
8. Russell JB, Cutler LR. Transvaginal ultrasonographic detection of primary ovarian pregnancy with laparoscopic removal: A case report. *Fertil Steril* 1989; 51: 1055-1056.
9. Annunziata N. Ovarian Pregnancy treated with methotrexate. *Panminerva Med* 1996; 38: 190-192.