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Case Report

A Case of Primary Ovarian Pregnancy

Uttara Aiyer Kohli[*1], Atul Kumar Sood[2], Anamika Sinha[3], Hrishikesh Magdum[1] and Madhusudan Dey[1]

[1]*Department of Obstetrics and Gynecology, Armed Forces Medical College Pune, India*
[2]*Department of Obstetrics and Gynecology; Command Hospital, Northern Command, Udhampur, India*
[3]*Department of Pathology, Command Hospital, Northern Command, Udhampur. India*

***Correspondence Info:**
Dr. Uttara Aiyer Kohli
Reader, Department of Obstetrics and Gynecology,
Armed Forces Medical College Pune, India
E-mail: uttara.aiyer@gmail.com

Abstract

Primary ovarian pregnancy is rare and accounts for only 0.5%to 3% of all ectopic pregnancies. The diagnosis is often made intraoperatively and confirmed histopathologically. We present a case of ruptured primary ovarian pregnancy who presented to the emergency services in shock and was initially diagnosed as a ruptured tubal ectopic. However at laparotomy the clinical findings suggested a ruptured ovarian ectopic pregnancy which was confirmed on histopathology. The discussion highlights the difficulty in pre operative diagnosis, role of conservative surgery and the importance of histopathology in the accurate diagnosis of this condition.

Keywords: Ovarian pregnancy; Ectopic Pregnancy, Rupture, Laparotomy, Histopathology

1. Introduction

Ovarian pregnancy is rare and accounts for less than 3% of all ectopic pregnancies. Clinical presentations of ovarian and tubal pregnancies are similar and differentiation can be made only at surgery and after microscopic examination of tissue specimens[1]. Awareness of possibility of ovarian pregnancy and closer histological examination of surgical specimens are vital to its diagnosis.

2. Case report

A 22 year old Para 2 lady with previous normal deliveries presented to casualty with acute onset pain abdomen and giddiness. Her last menstrual period was 56 days back with irregular bleeding persisting till fourteen days back. On examination her pulse was 130/min and blood pressure was 90/60 mmHg and she was pale. Her abdomen was distended and tenderness, guarding and percussion dullness were present. On pelvic examination, there was bilateral fornicial tenderness but no mass could be appreciated. Bedside ultrasonography was suggestive of massive hemoperitoneum and an empty uterine cavity. Her urine pregnancy test was positive and hemoglobin at admission was 3 gm%. A provisional diagnosis of ruptured tubal ectopic pregnancy was made.

On emergency laparotomy there was two litres of hemoperitoneum. There was a 1cm x1cm rent on the surface of ovary with active bleeding. A small tissue resembling chorionic tissue on gross appearance was lying in proximity to right ovary. The right tube was intact and free from the ovary. The left tube, ovary and the uterus were normal in appearance [fig1]. An intraoperative diagnosis of ruptured ovarian pregnancy was made, with a differential diagnosis of incomplete abortion with ruptured ovarian cyst. Wedge resection and repair of the right ovary was done, conserving the remaining ovary. Abdomen was closed with peritoneal drainage. Uterine evacuation was done. She was trans fused 4 units each of packed cell and fresh frozen plasma. Her postoperative recovery was uneventful. Her serum β hCG which at admission was 2658.27mIU/ml reduced to 68mIU/ml after one week. Histopathology of the specimen from the right ovary showed syntitiotrophoblast, cytotrophoblast and intermediate trophoblast cells confirmed by immunohistochemistry (IHC) for cytokeratin [fig2]. Tissue from peritoneal cavity suspected to be POC was confirmed as chorionic villi. The endometrial biopsy showed endometrium in proliferative phase with no decidual reaction or Arias Stella reaction. The histopathology thus confirmed the diagnosis of ruptured ovarian pregnancy.

Fig 1: Intraoperative image showing the affected right ovary after hemostasis (arrow). Swollen but intact right tube, and a normal left tube and ovary

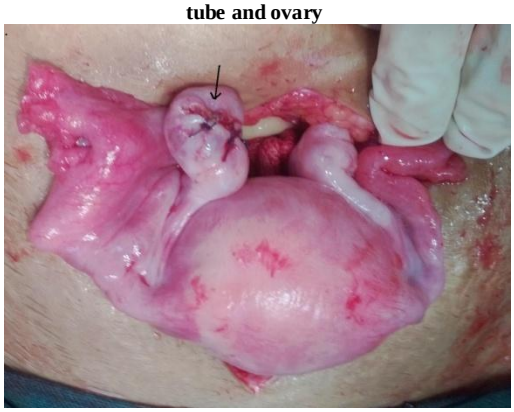
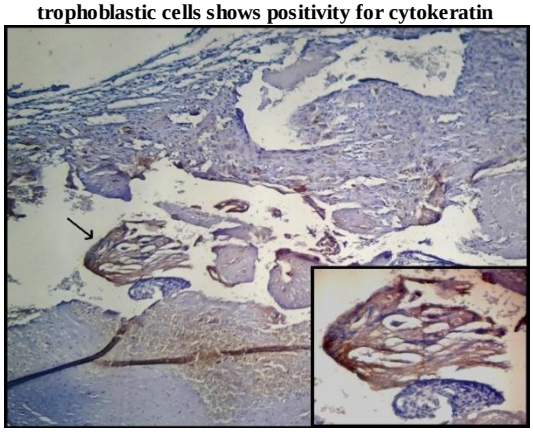


Fig 2: Immunohistochemistry (100x): Trophoblastic cells highlighted by cytokeratin immunostain (arrow). Inset (1000x): cytoplasm of trophoblastic cells shows positivity for cytokeratin



3. Discussion

Ovarian pregnancy is a rare form of ectopic pregnancy, its incidence being around 1 in 7000 pregnancies[1]. The widespread use of transvaginal ultrasonography and serum β hCG assays have improved the preoperative diagnosis of ectopic pregnancies, however diagnosing ovarian pregnancy remains a challenge and even intraoperatively it may be misdiagnosed as hemorrhagic ovarian cyst. Histopathology helps in clinching the diagnosis.

In 1878 Spiegelberg described four criteria for diagnosing ovarian pregnancy[2] - (i) an intact ipsilateral tube, clearly separate from the ovary, (ii) a gestation occupying the normal position of the ovary, (iii) a gestational sac connected to the uterus by the utero-ovarian ligament and (iv) ovarian tissue in the wall of the gestational sac. Other criteria confirming ovarian pregnancy are (i) serum β-hCG level > or = 1000 IU/l, (ii) uterine vacuity at vaginal ultrasonography, (iii) ovarian implication confirmed by surgical exploration, with bleeding, visualization of chorionic villi or presence of an atypical cyst on the ovary, (iv) normal tubes and (v) absence of serum β-hCG after treatment of the ovary[3]. In his study of 25 cases of ovarian pregnancy Hallat showed that inability to distinguish an ovarian pregnancy from a hemorrhagic ovary or ruptured corpus luteum was the most significant finding and that the correct diagnosis was made clinically only in 28% of cases, the remaining being diagnosed on histopathology[4]. Our case presented in shock and thus was difficult to distinguish preoperatively from ruptured tubal pregnancy. Intraoperatively the presence of intact tubes and bleeding from the ovary and a positive pregnancy test gave a strong clinical suspicion of ruptured ovarian pregnancy which was confirmed on histopathology and immunohistochemistry.

In an analysis of 49 cases Choi et al. found that the most common risk factors were endometriosis (16 patients) and a history of abdominal surgery (19 patients)[5]. Another study by Joseph et al showed fertility treatments (18.1%) and intrauterine contraceptive devices (19.3%) remain important associated risk factors[6]. However there may be no risk factors like in the case presented here.

For morphologic identification, the products of conception are divided into three components: (i) the villi and their trophoblast (cytotrophoblast and syntitiotrophoblast), (ii) extravillous trophoblast and (iii) fetal tissues. Identifying any one of these is essential for confirming the diagnosis of pregnancy[7]. Though the tissue obtained from the peritoneal cavity showed well formed chorionic villi, the ovarian stroma showed groups of cytotrophoblast and syntitiotrophoblast only. No fetal parts or well formed villi were identified in the ovarian stroma. Trophoblastic cells express a number of proteins of which cytokeratin are the most ubiquitous[7]. Hence we demonstrated immunohistochemical expression of cytokeratin in these groups of trophoblastic cells embedded in the ovarian stroma. This established, beyond doubt, our diagnosis of ovarian pregnancy.

Laparoscopy with ovarian wedge resection is the surgical treatment of choice[6]. The extent of surgery varies according to the amount of tissue destruction that has occurred. Follow up with serum β-hCG levels and treatment with methotrexate is recommended if persistent trophoblastic tissue is suspected. Medical management has shown some success in cases with a confirmed preoperative diagnosis[8], however ovarian pregnancies may rupture early and even if the serum β-hCG levels are very low[9].

4. Conclusion

Ovarian pregnancy remains a rare entity and a diagnostic challenge. Ultrasonography may improve preoperative diagnosis. Conservative surgery is the treatment of choice. Histopathology remains the key to confirming the diagnosis.

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