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Ruptured and Torsed Ovarian Ectopic Pregnancy: A Rare Presentation

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Abstract: Ectopic pregnancy (EP) constitutes a prevalent medical-surgical emergency in gynecology. While the fallopian tube remains the predominant site of ectopic pregnancies (EPs) in 93% of cases, the ovary represents the second most common location. Ovarian pregnancy (OP) accounts for 3% of all EPs and occurs in approximately 1 in 2100 to 1 in 7000 pregnancies. OP denotes a distinct form of pregnancy where implantation occurs within the ovarian tissue. Notably, OP may manifest differently from other EPs, with reports of pregnancies progressing to the second trimester or even reaching full term. The twisted nature of ovarian pregnancy makes it exceptional. In this case study involving a 29-year-old primigravida who presented with acute severe pain to the emergency department, leading to the diagnosis of ectopic pregnancy (EP) with ovarian localization, we aim to examine the factors influencing ovarian pregnancy (OP). Our objectives include elucidating the clinical, etiological, histopathological, and evolutionary features of OP, as well as outlining diagnostic criteria and therapeutic strategies for managing this specific condition.

Keywords: Ectopic pregnancy, Ovarian pregnancy, Torsion, Syncopal, Ovarian conservation

1- INTRODUCTION

Ectopic pregnancy (EP) represents a significant medical and surgical emergency in gynecology. While the fallopian tube is the most common site of EP (93% of cases), ovarian pregnancy (OP) accounts for 3% of all ectopic pregnancies, occurring in 1/2100 to 1/7000 pregnancies.

Its pathogenesis remains unclear. Unlike other EPs, GO can progress to the second trimester or term.

This study aims to analyze GO's determinants, clinical features, and treatment options.

2- Case Study

Mrs. XX, aged 29, gravida 1, para 1, presented with acute pelvic pain of severe intensity (rated 10 on the visual analog scale), unresponsive to analgesics and localized to the right side. She reported associated symptoms of asthenia and episodes of lipothymia, along with a 12-week amenorrhea. There were no significant past medical history (PMH) reported.

The patient had previously used an intrauterine device for contraception, which was removed six months prior. On admission, she was conscious (Glasgow Coma Scale: 15) with stable hemodynamics and respiratory parameters, normotensive (blood pressure: 120/90 mm Hg), with a normal heart rate (80 beats/min), and eupneic (respiratory rate: 14 cycles/min).

Physical examination revealed tenderness in the right iliac fossa, and pelvic examination revealed impaction of the cul-de-sac of Douglas.

Pelvic ultrasound demonstrated an empty uterus with a rounded, heterogeneous, right latero-uterine mass, devoid of clear walls, along with moderate intra-abdominal fluid accumulation.

figure 1 : Ultrasound image in longitudinal section showing a fetus with placenta

figure 2 : Ultrasound image in a cross-section of empty uterus with endometrium, a heterogeneous image,right latero-uterine

Based on the clinical presentation, an emergency laparotomy was conducted, with a suspected diagnosis of ruptured ectopic pregnancy (EP).

Intraoperative examination revealed a twisted right-sided latero-uterine mass (with two twists) in connection with a twisted right ovarian EP.

Trophoblast resection was performed, with preservation of the ovary. Histopathological analysis confirmed the diagnosis.

Postoperatively, human chorionic gonadotropin (HCG) levels normalized within one week, and the patient's recovery was uneventful.

Figure 3 : Intraoperative image: a: 2-turn ovarian EP b: EP

Figure 4 macroscopic appearance after opening

3- DISCUSSION

Ovarian pregnancies (OPs) are rare and often the initial site of ectopic pregnancies, accounting for 3% of case, and were first suspected in 1614 by Mercureus in 1614 and proved by other works cited by Grall [1].

The pathophysiology involves reflux of a fertilized egg into the ovary, supported by cases post in vitro fertilization. Implantation usually occurs at the follicular scar rich in fibrin and neo-capillaries.

Our case involved a single pregnancy implanted on the corpus luteum side. Unlike tubal ectopic pregnancies, tubal pathology and surgery don't seem to increase the risk of OP. The role of pelvic inflammatory diseases in OP genesis is debated.

The population at risk for ovarian pregnancies (OPs) differs from that of tubal ectopic pregnancies (EPs), as it mainly affects young, fertile women, often multiparous and using intrauterine devices (IUDs) [2].

Riethmeller et al. reported two cases of OP in older, infertile women without IUDs [3].

IUD use is particularly associated with OPs [2,4]. In several series of 7 to 26 cases of OP, proportions of patients with IUDs ranged from 57% to 90%, compared to only 14% to 30% in other EPs [1, 3, 4, 5, 6, 7, 8, 9].

The role of the IUD may be due to its effect on tubal motility, facilitating implantation in the ovary [4]. Our patient had a history of IUD use.

The clinical presentation of OP is often nonspecific, with abdominal pain, delayed menstruation, and vaginal bleeding being common [7, 8].

Pain typically occurs due to rupture of the ovarian capsule by the OP, leading to hemoperitoneum [9, 10].

Most patients present in an emergency setting with significant hemoperitoneum or even hypovolemic shock, but in our case, the clinical presentation was consistent with adnexal torsion.

Similar findings were reported by Pan et al. [11].

Depending on the gestational age, various ultrasound findings have been documented in the existing literature [12].

Several ultrasound criteria strongly suggest an ovarian pregnancy: the presence of a round anechoic image with a hyperechoic corona on the ovarian surface, the presence of ovarian parenchyma (such as a corpus luteum or follicle) surrounding the mass, and higher echogenicity of the mass compared to the ovary [12].

The primary differential diagnoses include a corpus luteum cyst or a hemorrhagic cyst. In such instances, three-dimensional (3D) ultrasonography has demonstrated the capability to differentiate between these conditions through its cross-sectional planes [12, 13]. However, energy Doppler imaging does not appear to provide significant diagnostic value [12, 14].

In our case, ultrasound examination revealed a gestational sac within the ovary, accompanied by a foetus lacking cardiac activity, as well as a placenta and umbilical cord.

Surgery is the preferred treatment for gestational ovarian (GO) cases.

Laparoscopy with conservative measures is increasingly favored.

Laparotomy is reserved for cases of severe hemoperitoneum and unstable hemodynamics. Surgical options include wedge resection, enucleation, cystectomy, or curettage with hemostasis, aiming to preserve the ovary. We chose total preservation of the ovary for our patient.

8- Conclusion:

Ovarian pregnancy, a rare condition and its twisted nature, make it an exeptionnal pathology with distinctive features compared to other ectopic pregnancies (EPs), notably its syncopal nature.

Diagnosis is relatively less challenging than that of a typical ovarian pregnancy and relies on ultrasound and intraoperative findings. Its therapeutic management remains exclusively surgical.

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