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Ruptured Partial Tubal Molar Pregnancy: A Case Report and Literature Review

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Abstract

Gestational trophoblastic diseases (GTDs) encompass a spectrum of clinical conditions characterized by significant polymorphic features in their clinical presentation and biological behavior, along with a potential risk for malignant transformation. Ectopic molar pregnancy, specifically the partial tubal subtype, is an exceptionally rare clinical entity that poses significant diagnostic challenges. We report the case of a ruptured partial tubal molar pregnancy in a patient presenting with an acute surgical abdomen and massive hemoperitoneum. The diagnosis was initially suspected peroperatively and subsequently confirmed by histopathological examination of the surgical specimen. Postoperative management and surveillance were conducted through serial quantitative plasma beta-human chorionic gonadotropin (β-hCG) monitoring to ensure complete resolution and screen for persistent gestational trophoblastic neoplasia. Although tubal molar pregnancies are rare and potentially life-threatening due to the risk of hemorrhage, they are associated with an excellent prognosis and high cure rates when managed with timely surgical intervention and specialized follow-up. This case underscores the importance of considering molar etiology in ectopic presentations and the necessity of systematic pathological analysis of all products of conception.

Subject Areas

Obstetrics/Gynecology

Keywords

Beta-HCG Monitoring, Ectopic Molar Pregnancy, Gestational Trophoblastic Disease, Partial Hydatidiform Mole, Salpingectomy

1. Introduction

Gestational trophoblastic disease (GTD) comprises a heterogeneous group of proliferative disorders originating from the trophoblast. This spectrum ranges from non-neoplastic hydatidiform moles to malignant gestational trophoblastic neoplasia (GTN). These conditions arise from the trophoblastic tissue, the embryonic precursor derived from the outer layer of the blastocyst, which plays a central role in the formation of the chorion and amnion.

GTD can manifest during or following any gestational event, whether the pregnancy is intrauterine or ectopic.

While ectopic pregnancies and hydatidiform moles are relatively common clinical entities when encountered independently, their coexistence as an ectopic molar pregnancy (EMP) remains exceptionally rare. To date, only a limited number of cases have been documented in the literature [1]. According to retrospective data from the Sheffield Trophoblastic Disease Center spanning 15 years, the incidence of EMP is estimated at approximately 1.5 cases per million births in the United Kingdom [2].

2. Case Presentation

A 36-year-old female (Gravida 5, Para 4), married to a 50-year-old partner, presented to the gynecological emergency department with a 24-hour history of diffuse abdomino-pelvic pain associated with vaginal bleeding and one month of amenorrhea. Her medical history was unremarkable, and she had been using oral contraception for over three years with regular menstrual cycles.

Upon clinical examination, the patient was conscious (Glasgow Coma Scale 15/15) and hemodynamically stable, with a blood pressure of 100/70 mmHg, a heart rate of 80 beats per minute, and a respiratory rate of 18 breaths per minute. Physical examination revealed diffuse abdomino-pelvic tenderness. Speculum examination showed a gravid cervix with minimal endocervical bleeding. Bimanual examination identified an enlarged uterus and exquisite tenderness in the pouch of Douglas (Proust's sign or "cry of the Douglas").

Pelvic ultrasonography revealed a significant hemoperitoneum, an empty uterus, and a heterogeneous left adnexal mass measuring 3.8 × 3.2 cm (**Figure 1**). Laboratory investigations showed a significantly elevated quantitative serum beta-human chorionic gonadotropin (β-hCG) level of 26,085 IU/L [75 - 2600 mUI/ml].

An emergency exploratory laparotomy was performed alongside resuscitative measures. Intraoperative findings confirmed a massive hemoperitoneum (aspirated volume of approximately 1000 mL) and a ruptured, hemorrhagic left fallo-

pian tube. Trophoblastic tissue with partial vesicular features was observed protruding through the rupture site (Figure 2). The ipsilateral ovary, contralateral adnexa, and the remainder of the peritoneal cavity appeared normal.

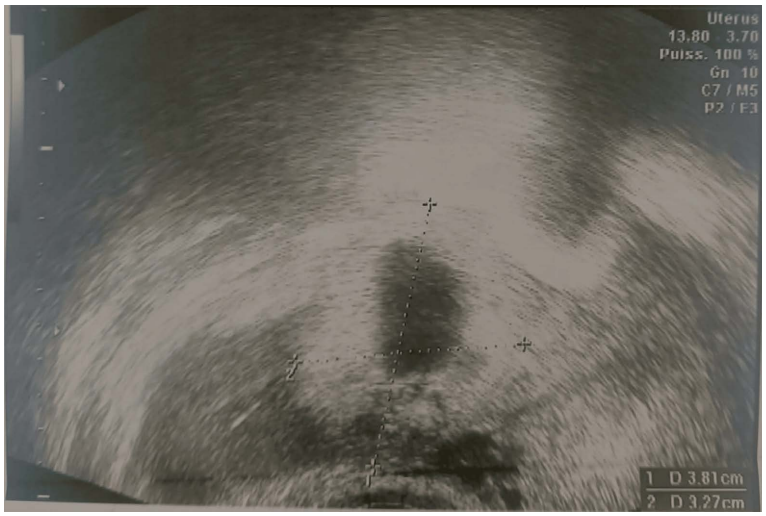

Figure 1. Pelvic ultrasonography image. The image demonstrates a heterogeneous left adnexal mass (lateral to the uterus) associated with signs of hemoperitoneum.

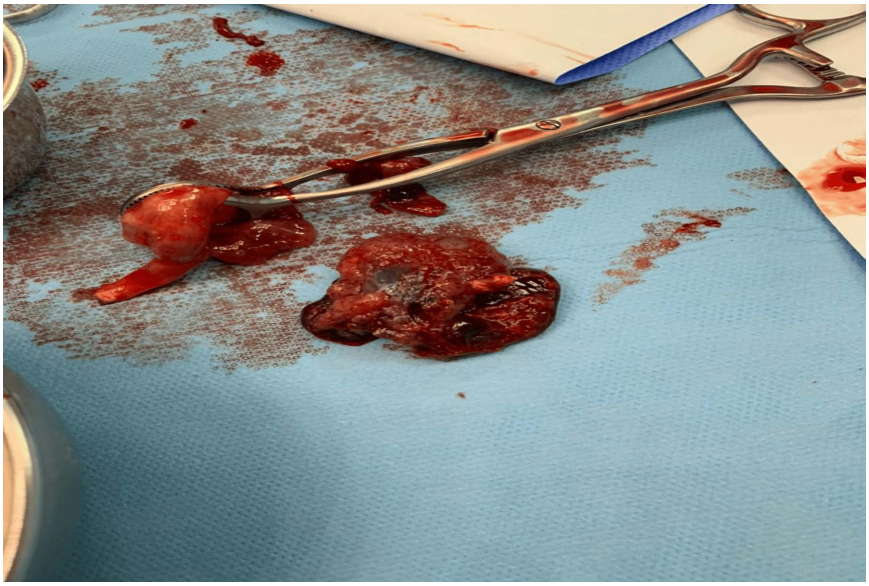

Figure 2. Macroscopic view of the surgical specimen. Left salpingectomy specimen showing ruptured tubal walls with protruding partially vesicular trophoblastic tissue.

Due to the extent of tubal damage, a left salpingectomy was performed, followed by thorough peritoneal lavage.

Pathological examination of the surgical specimen revealed a tubal wall distorted by hemorrhagic suffusion and a fibrinous-leukocytic infiltrate (Figure 3). The specimen contained chorionic villi of varying sizes, exhibiting both normal morphology and distinct abnormalities. These included a generally regular trophoblastic lining with focal hyperplasia, areas of hydropic change (Figure 4), and

trophoblastic inclusion cysts (Figure 5). These morphological features were consistent with a partial hydatidiform mole within a ruptured tubal pregnancy.

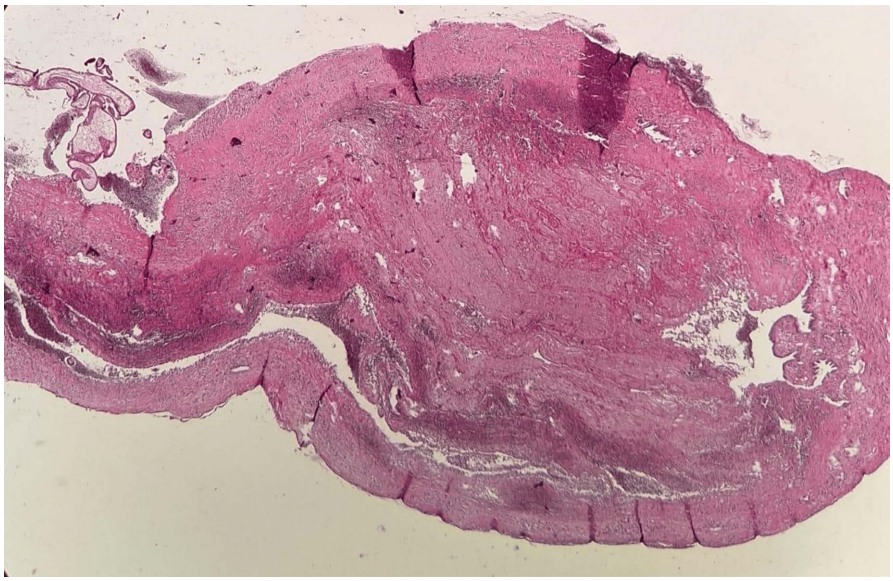

Figure 3. Histopathological section of the fallopian tube (H&E, ×10). The tubal wall is distorted by hemorrhage, showing residual tubal fimbriae on the right and pathological chorionic villi on the left.

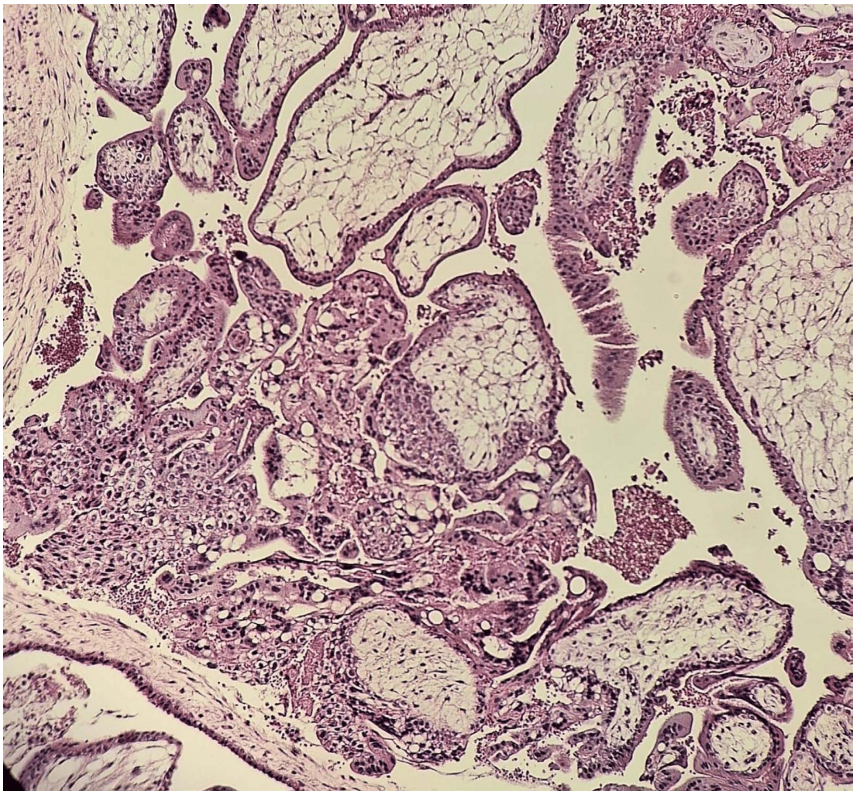

Figure 4. Microscopic examination of the trophoblastic tissue (H&E, ×20). Detailed view showing two distinct populations of chorionic villi with focal trophoblastic hyperplasia and hydropic (vesicular) change.

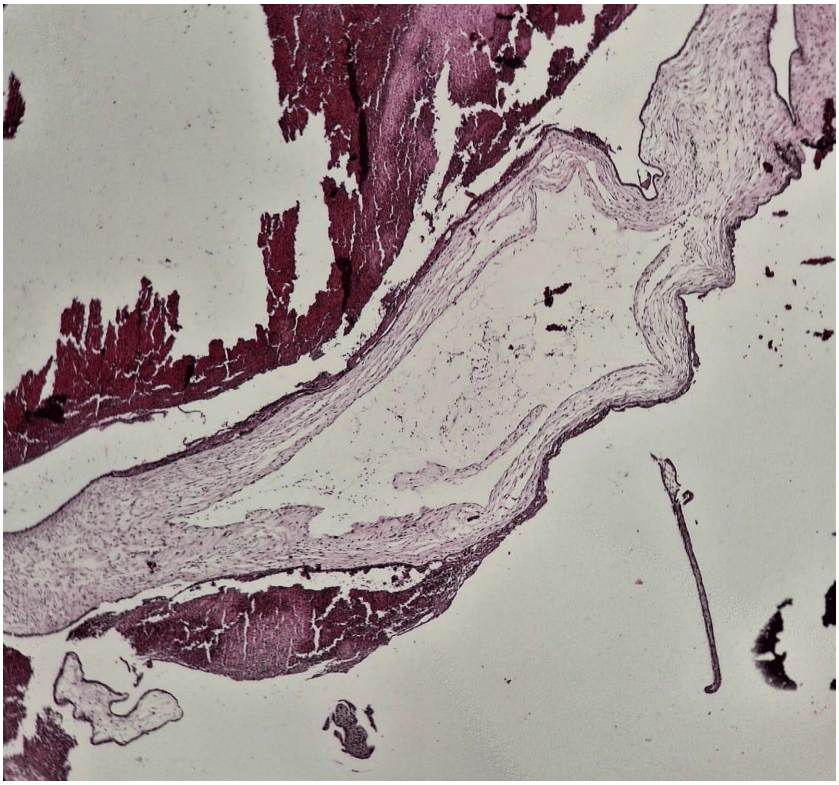

Figure 5. High-magnification microscopic view (H&E, ×40). A large chorionic villus featuring a characteristic trophoblastic inclusion cyst, consistent with a partial molar pregnancy.

The postoperative course was uneventful, and oral contraception was re-established. Systematic surveillance of serum β-hCG levels showed a rapid decline, starting at 1056 IU/L during the first weekly check and achieving complete clearance (undetectable levels) within four weeks. Follow-up ultrasonography confirmed an empty uterine cavity. Following three consecutive negative weekly titers, monthly monitoring was maintained for six months. Serum levels remained undetectable, confirming complete clinical and biological remission.

3. Discussion

Ectopic pregnancy (EP) is a relatively common condition, with an estimated incidence ranging from 4.5 to 16.8 per 1000 pregnancies. In contrast, tubal hydatidiform moles are exceptionally rare. To date, approximately 132 cases have been reported worldwide [1] [2]. The incidence of molar pregnancies varies considerably across geographic regions, reaching approximately 1 in 100 to 200 pregnancies in low-resource countries, compared with 1 in 2000 to 3000 pregnancies in developed countries, particularly in Europe and North America [3].

In a 10-year retrospective study, Burton *et al.* confirmed the rarity of tubal hydatidiform moles while emphasizing a significant risk of overdiagnosis [4]. This diagnostic challenge arises from the histopathological similarities between early molar changes and the trophoblastic proliferation observed in conventional ectopic pregnancies. Conversely, Leung *et al.* suggested that the incidence of ectopic

molar pregnancies may be underestimated in developing countries due to the lack of routine histopathological examination of salpingectomy specimens [5]. In our institution, histopathological analysis is performed systematically, thereby ensuring diagnostic accuracy.

Hydatidiform moles result from abnormal fertilization. Complete moles are typically diploid and consist exclusively of abnormal placental tissue, without embryonic development. In contrast, partial moles are most often triploid, resulting from dispermic fertilization or fertilization by a diploid sperm. Partial moles may contain both normal and abnormal placental tissue, and although transient embryonic development may occur, it is invariably nonviable [6].

Several risk factors have been associated with molar pregnancy, including a diet deficient in vitamin A and animal fats, advanced maternal age, a history of recurrent spontaneous miscarriages, blood group A, multiparity, prolonged use of oral contraceptives, irregular menstrual cycles, and advanced paternal age [3] [7]. In our case, the patient presented with multiple risk factors, including blood group A, multiparity, and a paternal age of 50 years.

Clinically, ectopic molar pregnancy (EMP) is indistinguishable from conventional ectopic pregnancy. Disease severity depends primarily on the anatomical location of the ectopic pregnancy, the size of the trophoblastic mass, and the extent of hemoperitoneum, as observed in our patient. Although ultrasonography is less specific for EMP than for intrauterine molar pregnancy-where the classic "snowstorm" appearance is typically described-it remains an essential diagnostic tool. Ultrasound allows identification of both direct and indirect signs of ectopic pregnancy, including an empty uterus, an adnexal mass, and the presence of free intra-abdominal fluid.

Postoperative histopathological examination remains the gold standard for the diagnosis of hydatidiform mole. However, distinguishing early molar changes from non-molar trophoblastic proliferation in ectopic locations remains challenging [4]. Therefore, correlating clinical findings with histopathological features and complementary techniques such as DNA flow cytometry for ploidy analysis is recommended to improve diagnostic accuracy and reduce overdiagnosis [6].

Management of ectopic pregnancy primarily depends on its anatomical location and the feasibility of conservative treatment [8]. Laparoscopy is currently the surgical approach of choice for most ectopic pregnancies. Cheng *et al.* recommended salpingotomy as the first-line treatment in hemodynamically stable patients in order to preserve fertility [9]. However, in cases of tubal rupture or hemodynamic instability, salpingectomy remains mandatory, as in our patient.

Post-treatment follow-up with serial serum β-hCG measurements is essential to detect persistent trophoblastic disease and to exclude progression to malignant gestational trophoblastic neoplasia [10]. Effective contraception is recommended during follow-up, as a new pregnancy may interfere with the interpretation of β-hCG levels and delay diagnosis [8]. The diagnosis of persistent trophoblastic disease is based on either a plateau or an increase in β-hCG levels, defined as a $\geq 10\%$

rise over three consecutive weekly measurements within 14 days, or a plateau over four weekly measurements within 21 days [8] [10].

In our case, weekly serum β-hCG monitoring was continued until three consecutive negative results were obtained. No clinical or biological recurrence was observed after six months of follow-up, confirming a favorable outcome.

4. Conclusion

Partial ectopic molar pregnancy is an exceptionally rare and likely underdiagnosed clinical entity. Systematic histopathological examination of all salpingectomy specimens, where available, remains the cornerstone for definitive diagnosis. Following surgical intervention, rigorous longitudinal monitoring of serum β-hCG levels is imperative to ensure complete resolution and to facilitate the early detection and prevention of potential gestational trophoblastic neoplasia.

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

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