

Case reports of old ectopic pregnancies with intrauterine devices

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Case Report

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Abstract

Background:Chronic ectopic pregnancy (CEP) is a rare form of ectopic pregnancy, usually characterized by low levels of serum β -human chorionic gonadotropin (β -hCG).

Case presentation:We report a case of CEP, presenting as a large and complex pelvic mass found in a 35-year-old woman four months after menstrual disorder, similar to a malignant ovarian tumor.

Discussion and Conclusions: This case highlights the diagnostic value of multiple tests and emphasizes that even if the serum β -hCG result is negative, the importance of CEP should still be considered in the differential diagnosis of patients with intrauterine devices.

Introduction

Ectopic pregnancy is defined as the implantation of a fertilized egg outside the uterine cavity, most commonly in the fallopian tube [1]. Patients usually experience amenorrhea, lower abdominal pain and vaginal bleeding. Chronic ectopic pregnancy (CEP) is a rare form of ectopic pregnancy. It refers to a chronic pathological state where the fertilized egg implants and develops outside the uterine cavity (ectopic pregnancy), and the embryo dies but is not absorbed or expelled in time, leading to the organization and fibrosis of the pregnancy tissue and the formation of adhesions with the surrounding tissues. The incidence of CEP in patients with ectopic pregnancy can reach 20% [2]. Histologically, the pathological features of CEP are persistent ectopic trophoblastic tissue outside the uterus, recurrent rupture of the small fallopian tubes, and the gradual formation of a pelvic hematoma from the accumulated blood [2]. However, laboratory tests suggest low or static levels of β -human chorionic gonadotropin (hCG) [3]. Due to its often non-specific clinical manifestations, apart from amenorrhea, the most common symptoms are abdominal pain (present in 80% of cases) and irregular vaginal bleeding [4], which overlap with non-specific pelvic inflammatory diseases, tubo-ovarian cystoma, endometriosis or ovarian malignant tumors, posing a significant diagnostic challenge to clinicians [5]. Unlike acute ectopic pregnancy, the progression of CEP is relatively slow and the clinical process is insidious, further increasing the complexity of diagnosis. At present, this disease is mostly diagnosed through laparoscopic surgery or pathological examination. If diagnosis is delayed or missed, it may lead to serious complications such as intra-abdominal hemorrhage, extensive pelvic adhesions, impaired fertility, and even unnecessary surgical intervention.

Case report

A 35-year-old female, G2P1, had one missed abortion, one cesarean section nine years ago, and an intrauterine device (IUD) was implanted for contraception three years ago. Her last menstrual period was on March 21, 2026. The patient experienced menstrual disorders four months ago, characterized by a shortened menstrual cycle from 30–35 days to 15–18 days, and an extended menstrual period from 5 days to over 10 days. At the beginning, there was a small amount of brown discharge, and later it returned to normal menstrual flow, accompanied by a large amount of blood clots. During the course of

the disease, there is occasionally a feeling of heaviness and distension in the lower abdomen, accompanied by frequent urination, urgent urination and incomplete urination. The patient's hemodynamics were stable, with a pulse rate of 56 beats per minute and a blood pressure of 109/63 mmHg. Abdominal examination showed no tenderness or rebound tenderness. Gynecological physical examination indicated that the uterus was of normal size without tenderness. A mass of approximately 7cmX6cmX5cm was palpated in the right front of the uterus, with mild tenderness. No mass was palpated in the left adnexal area, and there was no tenderness.

The vaginal B-ultrasound result on July 29, 2026, indicated that the uterus was anterior, with a uterine body size of approximately 4.9cmX4.7cmX3.6cm. The endometrium was bilevel and about 0.5cm thick. The echo of the intrauterine device could be seen in the uterine cavity, and its position was normal. The structure of the right adnexal area is disordered, with a mixed echo ranging approximately 5.1cmX4.2cmX4.2cm. CDFI: Strip-shaped blood flow signals are seen within it, and some ovarian tissue seems to be seen around this mixed echo. The left ovary was visible, but no obvious abnormal echo was observed in the left adnexal area (Fig. 1A). Pelvic enhanced computed tomography (CT) results: Intrauterine device shadows were seen in the uterine cavity. In the right part of the pelvic cavity, there were irregular pat-like shadows approximately 6.5cmX5.3cm in size, with uneven density and unclear boundaries. There seemed to be segmentation within them. The enhanced scan was uneven, with mild enhancement, and the segmentation from the right adnexal area was unclear (Fig. 1B). The laboratory test results (as shown in Table 1) indicated that the patient's serum β -hCG was negative on the day of admission, ruling out active pregnancy. Cancer antigen 125 (CA-125), alpha-fetoprotein(AFP), carcinoembryonic antigen (CEA) and carbohydrate antigen 72 – 4 (CA72-4) are all within the normal range.

Table 1
Diagnostic laboratory data, tumor markers, and preoperative serological evaluation.

Parameter (units)	Preoperative results	Postoperative results	Reference range
Serum β -hCG (mIU/mL)	< 0.5		< 5.30(Negative)
CA-125 (Roche) (U/mL)	23.10		< 35.00
CA19-9(U/mL)	4.35		< 37.00
AFP(ng/mL)	1.28		< 6.65
CEA(ng/mL)	0.57		< 4.00
HE4(pmol/L)	77.80		< 60.53
CA72-4(U/mL)	1.71		< 7.00
HPV	Negative		
E2(pmol/L)	316.00		
FSH(mIU/mL)	6.315		
LH(mIU/mL)	9.155		
AMH(ng/mL)	2.44		
CRP(mg/L)		3.86	< 5.00
RBC($10^{12}/L$)		4.44	3.8–5.1
WBC($10^9/L$)		4.65	3.5–9.5
Hb (g/L)		134	115–150
Platelet count ($10^9/L$)		246	101–320

β -hCG: beta-human chorionic gonadotropin,CA-125: cancer antigen 125, CA19-9: Carbohydrate antigen 19 – 9, AFP:alpha-fetoprotein,CEA: carcinoembryonic antigen ,HE4: Human epididymis protein 4,CA72-4: Carbohydrate Antigen 72 – 4,HPV: human papillomavirus, E2:estradiol, FSH:follicle-stimulating hormone ,LH: Luteinizing Hormone,AMH: Anti-Müllerian Hormone ,CRP: high-sensitivity C-reactive protein, RBC: Red blood cell, WBC: white blood cell, Hb: hemoglobin .

After multidisciplinary discussions, considering the large size of the mass, and the need to rule out malignant tumors, we decided to perform exploratory abdominal mass resection. During the operation, it was observed that the uterus was anterior, with a uterine cavity depth of approximately 8cm. The ampulla of the right fallopian tube was cystic and solid, with a maximum diameter of about 5cm. A encapsulated effusion about 6cm in diameter formed between the right fallopian tube and the peritoneum on the right pelvic side, the anterior wall of the rectum, and the posterior wall of the right uterus, containing old blood clot-like tissue (Fig. 2A). After the separation of adhesions, it was found that

the appearance of the right ovary was normal, and there was edema on the mesentery of the right fallopian tube and the surface of the rectum. No abnormalities were found after examination of the left adnexa. Intraoperative frozen biopsy and paraffin section of tissue showed a small amount of degenerated villous tissue in the right fallopian tube, which was consistent with the changes of tubal pregnancy and confirmed CEP (Fig. 2B). Other findings include squamous differentiation of the endometrial tissue of the cervical canal, presenting chronic inflammatory changes. The postoperative recovery went smoothly and the patient was discharged from the hospital on the third day after the operation.

Discussion

This case highlights the diagnostic challenge of CEP, which presented as a large, complex pelvic mass detected following menstrual irregularities, resembling ovarian malignancy. The key clinical implication is that CEP should remain within the differential diagnosis of complex adnexal masses, even when serum β -hCG levels are negative. Our patient had one missed abortion, one cesarean section, and had an IUD placed for three years. Unlike the common symptoms of sudden abdominal pain and hypovolemic shock in acute ectopic pregnancy, chronic ectopic pregnancy may present with persistent abnormal uterine bleeding, mild pelvic pain, or an adnexal mass of unknown origin [6]. Initial ultrasound on admission demonstrated a mixed-echo mass in the right adnexal region, alongside a low β -hCG level, leading to no initial suspicion of CEP.

Imaging plays an important role in the diagnostic assessment of CEP [5]. Ultrasound remains the first-line diagnostic method, but since CEP may present as heterogeneous masses accompanied by extensive bleeding and inflammatory changes, it may not be possible to clearly distinguish CEP from ovarian tubular abscesses, histological hematoma, endometriosis or malignant ovarian tumors. In such scenarios, CT can provide supplementary anatomical detail and strengthen diagnostic confidence when conventional imaging and laboratory findings are inconclusive. However, imaging alone is still insufficient to make a definite diagnosis, and a single examination method cannot clearly identify this disease either. The final diagnosis is usually determined by histopathology, presenting as bleeding, thrombosis, tubal lesions, chronic inflammatory changes and villous degeneration [7]. These overlapping clinical and imaging features emphasize the importance of combining radiology, surgery, laboratory and histopathology to jointly discover CEP.

This report emphasizes that CEP should be considered in the differential diagnosis of adnexal masses and persistent abnormal uterine bleeding in reproductive-age women, even in the setting of low β -hCG levels and a history of contraceptive procedures. Recommendations include: (1) obtaining a detailed medical history to identify prior episodes of abnormal uterine bleeding or menstrual disturbances; (2) utilizing a multimodal diagnostic approach to improve differential diagnosis; and (3) raising clinical awareness of CEP. The initial evaluating department should avoid making conclusions based solely on overt symptoms, as this may lead to delayed management.

Conclusion

Chronic ectopic pregnancy is a rare but clinically significant disease due to its concealed manifestations and the possibility of confusion with other gynecological diseases. This report clearly presents the diagnostic challenges, especially in the context of low β -hCG levels and those who have undergone birth control surgery. Even without the typical symptoms of acute ectopic pregnancy, the presence of persistent abnormal uterine bleeding and attached masses should prompt the consideration of this disease. Therefore, for women of childbearing age with uncertain pelvic imaging results, it is crucial to maintain a high clinical suspicion index and include chronic ectopic pregnancy in the differential diagnosis.

Abbreviations

CEP
chronic ectopic pregnancy
 β -hCG
 β -human chorionic gonadotropin
IUD
intrauterine device
CT
computed tomography
CA-125
cancer antigen 125
CA19-9
carbohydrate antigen 19 – 9
AFP
alpha-fetoprotein
CEA
carcinoembryonic antigen
HE4
human epididymis protein 4
CA72-4
carbohydrate Antigen 72 – 4
HPV
human papillomavirus
E2
estradiol
FSH
follicle-stimulating hormone
LH
luteinizing Hormone

AMH
anti-Müllerian Hormone
CRP
high-sensitivity C-reactive protein
RBC
red blood cell
WBC
white blood cell
Hb
hemoglobin

Declarations

Ethics approval and consent to participate:

The studies involving humans were approved by the Medical Ethics Committee of Zigong First People's Hospital. The studies were conducted in accordance with the local legislation and institutional requirements.

Consent for publication:

This patient has given written informed consent that personal or clinical details as well as any images will be published in this study.

Competing interests:

The authors declare no competing interests.

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Author Contribution

XMH collected the data. XMH and SLW analyzed the data and drafted the manuscript. JLX revised the draft manuscript. All authors have read and approved the final manuscript.

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Availability of data and materials

The datasets supporting the conclusions of this article are included within the article.

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Figures

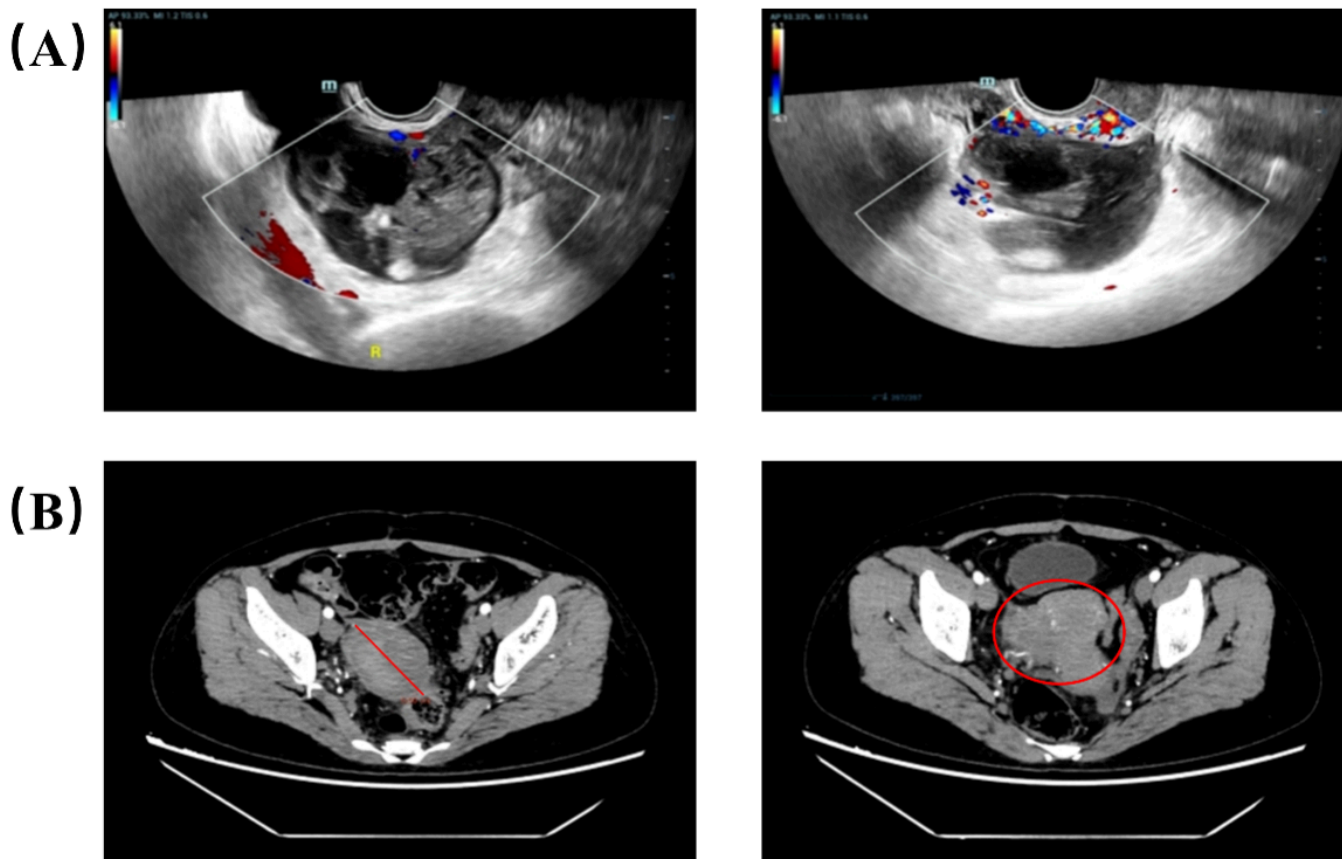
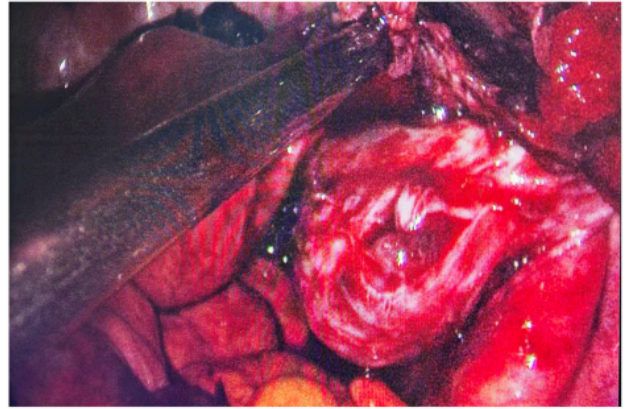
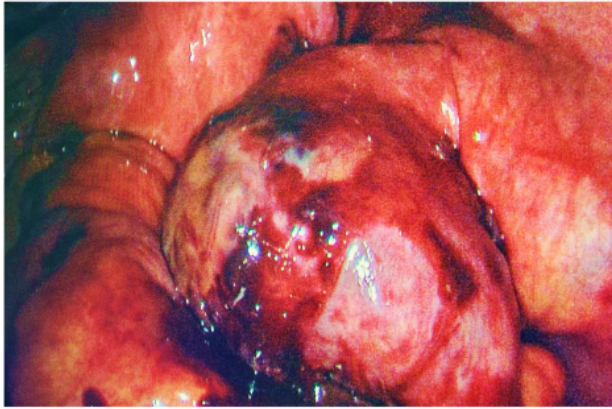


Figure 1

Imaging examination results

⌘A⌘The B-ultrasound result of the adnexal mass.(B)The pelvic CT result of the adnexal mass.The red line on the left indicates the diameter of the mass.The right picture indicates that the mass is not clearly distinguished from the right adnexal area.

(A)



(B)

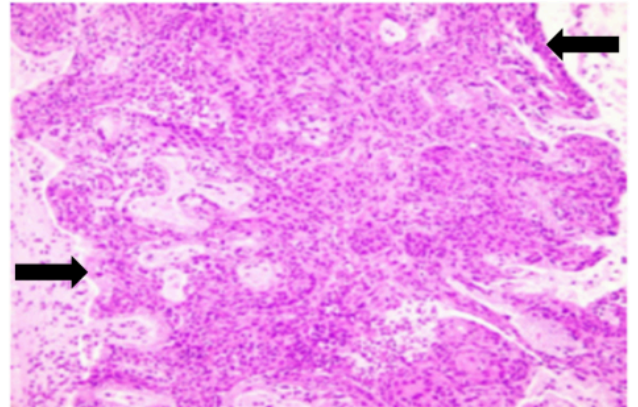
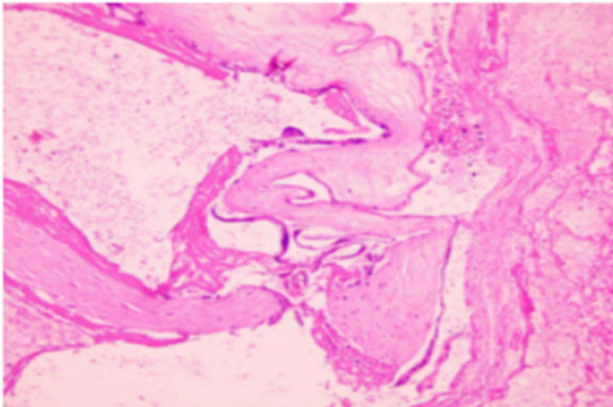


Figure 2

Intraoperative and postoperative mass images

During the operation, a encapsulated effusion about 6cm in diameter was observed behind the right fallopian tube (left), which contained old blood clot-like tissue (right). (B) The results of intraoperative frozen biopsy and paraffin section of tissue show that the black arrow indicates the fallopian tube wall. The fallopian tube lumen is filled with degenerated villi, thrombi and fibrosis