Case Report

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Unusual Manifestation of Retained Product of Conception in the Cervix: A Case Study

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Running Title Retained Product of Conception in the Cervix

ABSTRACT

Retained products of conception (RPOC) occur when fragments of the placenta or decidual tissue remain in the uterus, often leading to postpartum hemorrhage. Early and accurate diagnosis, aided by ultrasonography, is essential for appropriate management and prevention of complications. We report a case of a 22-year-old woman admitted to our tertiary medical department with irregular vaginal bleeding and abdominal pain. She had no significant past medical history. Abdominal ultrasonography revealed a normal-sized uterus with homogeneous myometrial echogenicity. However, a heterogeneous echogenic mass, exhibiting considerable vascularity and feeding vessels from the endometrial cavity, was observed in the cervix. Additionally, the patient's beta human chorionic gonadotropin (Beta-HCG) concentration was positive, with a titer of 201 μ/l, despite her claim of being a virgin. Subsequently, the patient underwent hysteroscopy, during which an infected and malodorous lesion was removed from the uterus, confirming the diagnosis of RPOC. In follow-up assessments, she experienced no complications. To the best of our knowledge, no cases of RPOC located in the cervix have been reported previously, as RPOC is typically expected to be found in the endometrial cavity. This study aims to share our experience in considering the differential diagnosis of RPOC as cervical lesions and highlights the importance of ultrasonography in early pregnancy management.

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Introduction

Retained products of conception (RPOC) refer to the condition where fragments of the placenta or other decidual tissues remain in the uterus following medical or surgical termination of pregnancy, as well as vaginal or cesarean delivery [1]. Over the past decade, its frequency has risen to 3 cases per 1000 deliveries, and it is closely linked to placenta previa and previous uterine surgeries [2]. It is a common cause of primary and secondary postpartum hemorrhage, making early detection and diagnosis crucial for effective management and prevention of complications [3].

Patients with RPOC typically experience symptoms such as abdominal or pelvic pain, vaginal bleeding,

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and occasionally fever. However, these clinical signs are not specific to RPOC, posing challenges in making an accurate and timely diagnosis [4]. Ultrasonography (US) plays a vital role in evaluating RPOC by examining the sonographic appearance of echogenic material within the uterus. However, distinguishing RPOC from necrotic decidua and blood clots can be difficult, necessitating the use of combined gray scale and color Doppler US to enhance the assessment [5].

Case presentation

On the 11th of December 2021, a 22-year-old female patient was admitted to our tertiary medical department with vaginal bleeding and abdominal pain that had been occurring for two weeks. The patient had no past medical history. Her condition was accompanied by irregular vaginal bleeding for the same duration. At the admission, she had a blood pressure of 120/70 mm Hg and a heart rate of 96 beats per minute. Her peripheral oxygen saturation was 97 percent and she had a respiratory rate of 18. The patient had visited the gynecology clinic two weeks earlier with the same symptoms and claimed to be a virgin and had no sexual intercourse despite having a partner. After reviewing the patient's laboratory tests (Table 1), we performed abdominal ultrasonography (US), which revealed a uterus measuring 90x37 mm.

A heterogeneous echogenic mass measuring 44x32x48 mm was observed, extending from the endometrial cavity into the cervical region. The mass exhibited significant vascularity with feeding vessels originating from the endometrial cavity, suggesting a cervical polyp. The endometrial and myometrial junction appeared normal, and the endometrial thickness was 4 mm. Both ovaries were of normal size with preserved parenchymal echogenicity, and no adnexal lesions or free fluid were detected in the posterior cul-de-sac.

The patient's condition worsened, with intensified

Table 1. Patient's relevant laboratory results at admission. ALT, alanine amino transferase; AST, aspartate amino transferase; LDH, lactate dehydrogenase; PCO2, partial pressure of carbon dioxide; PO2, partial pressure of oxygen; L, low.

Laboratory findings	Patient	Normal
Arterial blood gas		
PH	7.39	7.35–7.45
PCO_2	37.90mmhg/L	75–100 mmHg/L
Bicarbonate	22.70	23–29 mmol/L
Base excess	-2.00	-3 – 3 mmol/L
PO_2	54.60	35–45 mmHg/L
Venous blood sample		
WBC	9.9	4.5–11 mmol/L
RBC	3.42 L	4.35–5.65 mmol/L
Hemoglobin	7.3	12-16 mg/dl%
Hematocrit	22.8 L	37-47 mg/dl%
Platelets	319	150 to 400 × 109/L
INR	1.17	11–14.5%
RDW-CV	12.9	2.5–7.0×10^9/L
Neutrophil	90	1.5 – 8.0×10^9/l
Lymphocyte	5 L	
Monocyte	2	1.0–4.0×10^9/L
Eosinophil	3	
Sodium	142	135–145 mmol/L
Potassium	3.8	3.5–4.5 mmol/L
SGOT/AST	18	0–40 U/L
SGPTALT	26	0–34 U/L
LDH	144	0–247 U/L
Urea	11	15–45 mg/dl
Creatinine	0.8	0–5 mg/L
Calcium	9.0	8.6-10.3 mg/dl
Urine		
Ketones	1+	Negative
Glucose	Negative	Negative
Protein	Trace	Negative
Blood	Trace	Negative
Bilirubin	Negative	Negative
Nitrite	Negative	Negative
PH	5	4.6-8

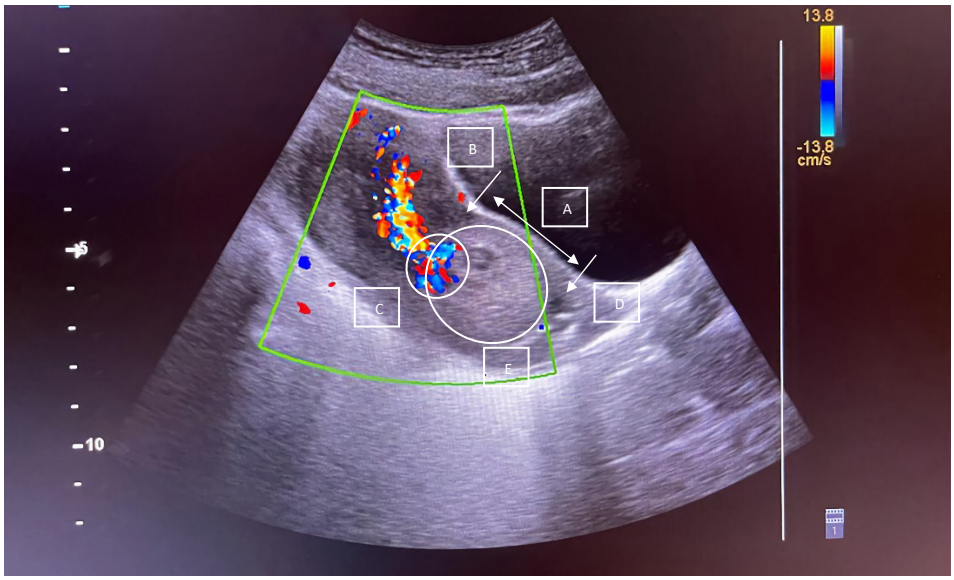

Fig. 1. Longitudinal abdominal combined gray-scale and color Doppler ultrasound (US) image reveals a heterogeneous echogenic mass measuring 44 x 32 mm within the cervix. The mass demonstrates considerable vascularity, with feeding vessels originating from the endometrial cavity. A. The length of the arrow indicates the cervix. B, C. The arrow point showing the internal os exhibits a vascular pedicle originating from the endometrial cavity, suggesting the vascular supply to the mass. D, E. The external os is shown, along with the clear delineation of the mass margin

vaginal bleeding followed by hypovolemic shock and a hemoglobin level of 7.3 g/dl. Initially, she received 500 cc of normal saline, and packed cells were infused.

In addition, despite her own opinion about not engaging in sexual activity, the patient's beta human chorionic gonadotrophin (Beta-HCG) concentration was positive, with a titer of 201 µ/l. Longitudinal endovaginal color Doppler US of the cervix was also performed with no significant changes compared to the previous abdominal US study that was performed outpatient in our clinic (Figure 1).

Subsequently, the patient underwent hysteroscopy, and the infected and malodorous lesion was removed from the uterus. After pathological examination, a specimen consisting of a brown polypoid soft tissue measuring 5x4x3 cm was observed in the macroscopic view. Decidual tissue and chorionic villi, accompanied by hemorrhage and inflammation, were revealed.

Discussion

After medical or surgical termination of pregnancy, as well as vaginal or cesarean delivery, there is a possibility of incomplete removal of the placenta or other decidual tissues from the uterus. This condition is referred to as Retained Products of Conception (RPOC) [3, 6, 7]. RPOC is a common cause of primary and secondary postpartum hemorrhage [8]. Patients with RPOC typically present with symptoms such as abdominal or pelvic pain, vaginal bleeding, and fever. While these clinical manifestations are not straightforward, early diagnosis is crucial for managing bleeding and preventing associated complications [5]. US plays a significant role in assessing RPOC, relying on the sonographic appearance of echogenic material within the uterus [9].

However, differentiating necrotic decidua and blood clots from RPOC can occasionally be challenging, even with transvaginal sonography [10]. To overcome this limitation, combined gray scale and color Doppler US can enhance the assessment of suspected RPOC, allowing real-time evaluation of uterine structures and blood flow. Kamaya et al. reported that the presence of vascularity has a 96% positive predictive value for RPOC [11].

Nevertheless, it is paramount to note that this presentation is nonspecific, and relying solely on clinical diagnosis leads to a high false-positive rate, reaching up to 40% [12]. Dilation and curettage (D&C) and hysteroscopy are the two primary methods employed for the treatment of RPOC. However, it is important to note that the utilization of D&C entails potential risks of severe complications, including uterine bleeding, infection, perforation, adhesions, and infertility [6]. Therefore, careful consideration must be given when opting for D&C as a treatment approach for RPOC. It is vital to rule out other potential diagnoses, including ectopic pregnancy, dysfunctional

uterine bleeding, or hematometra, to sidestep the complications associated with unnecessary D&C [4].

One of the essential pitfalls in diagnosing RPOC that can be considered was the endometrial polyp, appearing with an ultrasonic appearance equivalent to RPOC, while the pathological examination was able to differentiate them. [13] Considering that the site of the endometrial polyp is also in the endometrial cavity, despite the polypoid lesion in the cervical canal of our patient, the primary diagnosis of the cervical polyp by believing that the patient claimed virginity was raised.

In the following, according to the positive beta-HCG concentration, hysteroscopy and lesion removal were performed, and our pathology examination results indicated the final diagnosis of RPOC.

Degenerated blood clot formation as another differential diagnosis for RPOC was excluded due to the absence of clot vascularity in Doppler US, similar to our case.

Since the lesion was observed in the cervix, the differential diagnosis of cervical lesions, including cervical polyp, cervical myoma, carcinoma, and blood clot, was appointed. In view of the fact that the mentioned lesion in our case had a significant feeding vessel from the endometrial cavity into the cervix, and considering that the patient claimed virginity, our first diagnosis was regarded as a polyp. However, after hospitalization and beta-HCG examination with positive result report in addition to color Doppler US performed, inevitable miscarriage, and ectopic pregnancy were also incorporated in the differential diagnosis. Placental polyp, as our other differential diagnosis was ruled out due to not witnessing regenerated endometrium in the pathology findings.

After performing a hysteroscopy and draining the lesion, the pathology results were reported by two expert pathologists. Assuming the expected location of RPOC, which is in the endometrial cavity, no case of RPOC in the cervix has been reported heretofore.

Ultimately, our primary differential diagnosis was the remnants of cervical ectopic pregnancy, which due to the absence of initial US in the patient, we could not wholly reject, highlighting the importance of early US after beta-HCG concentration was positive.

Conclusion

In summary, we report a case of retained products of conception, presenting atypically in the cervix, accurately diagnosed using pathology examination despite our experience that all RPOC were observed in the endometrial cavity. The purpose of this study is to report our experience in considering the differential diagnosis of RPOC as a cervical lesion and the importance of ultrasonography in early pregnancy. The patient was eventually discharged in good health condition.

Ethical Considerations

Ethical approval and consent to participate

The study and all experimental protocols were approved by the Professional Ethics Committee of the Golestan University of Medical Sciences. All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

A written informed consent was obtained from the patient to participate in the study and dissemination of the information in accordance with the principles of confidentiality.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Not applicable.

Conflict of Interests

The authors declare no competing interests.

Role of the Funder/Sponsor

The funder had no role in the design and conduction of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and the decision to submit the manuscript for publication.

Author contributions

A.F: Patient's data collection, Manuscript writing and supervision.

S.L: Radiologic analysis and interpretation, Manuscript writing.
M.J: Gynecological assessment.

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Abbreviations

RPOC: Retain product of conception
Beta-HCG: Beta human chorionic gonadotrophin
US: Ultrasonography
D&C: Dilation and curettage

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