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Case Report
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Challenges and Pitfalls in the Diagnosis of Retained Products of Conception: A Case Report

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Abstract

Retained Products of Conception (RPOCs) are common after delivery or abortion. Diagnosis is usually based on clinical suspicion and ultrasound findings. Unfortunately, ultrasonographic features may not always differentiate between RPOCs and other differential diagnosis. Gold standard treatment is dilation and curettage; however, it is sometimes associated with incomplete evacuations. Hysteroscopy has thus been proposed as a superior treatment option with the additional benefit of identification and treatment of other uterine pathologies.

Keywords: Retained products of conceptions; Abortion; Hysteroscopy; Ultrasonography

Case Presentation

A 31-years old G1P0A1 lady was referred to our emergency department on March 11th, 2020 for persistent vaginal bleeding after an induced abortion followed by two dilation and curettage procedures. The patient had no past surgeries and was otherwise healthy. She underwent an uncomplicated induced abortion in a medical clinic on February 12th, 2020. Twenty days later, she presented at the abortion clinic with persistent heavy vaginal bleeding and hemoglobin of 80. Dilation and curettage were done for suspected Retained Products of Conception (RPOCs) and she was discharged with iron and oral contraceptives.

She presented again six days later, on March 9th at the same clinic for symptoms of anemia and ongoing bleeding. An ultrasound and a second dilation and curettage were done and she was referred to our hospital for further investigations. Examination in the ER revealed stable vitals, a normal physical exam and no heavy bleeding.

Hemoglobin was 79, BHCG was 6, coagulation profile and electrolytes were normal. She received 1 unit of pRBCs.

Pelvic endovaginal ultrasound was done on March 11th and showed a thickened endometrium

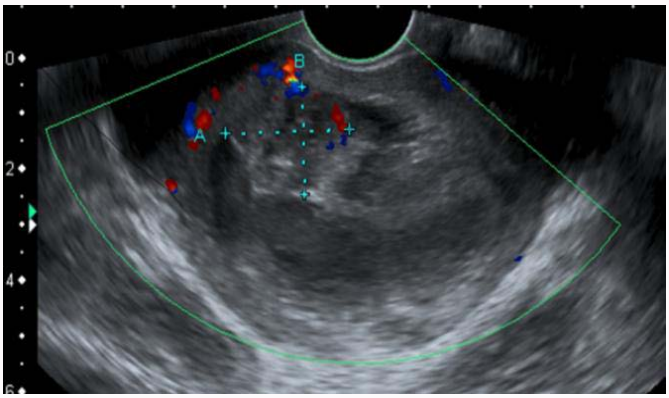

Figure 1: 31-year-old woman (case report) who presented with persistent vaginal bleeding after an induced abortion with two prior dilation and curettage procedures. Endovaginal ultrasound image in axial plane shows 2 cm × 2.5 cm heterogeneous endometrial mass (caliper A and B) with moderate vascularization (color Doppler).

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Table 1: Presenting the different differential diagnosis.

Diagnosis	Clinical presentation	Ultrasound findings
RPOCs	- Vaginal bleeding post abortion or delivery - May have associated pelvic pain and fever - Median time to presentation is 11 days -B-hCG levels are normal or near normal 2-3 weeks post-delivery or procedure	- Echogenic or heterogenous materiel in the cavity - May present as an endometrial mass - Blood flow has a high positive predictive value - Absence of blood flow does not exclude the diagnosis
Endometrial pathology (Figure 1)	- Abnormal uterine bleeding (Menorrhagia or menometrorrhagia) - B-hCH levels are normal	1) Polyp: - Usually homogenous and echogenic lesion, rarely present as a diffused endometrial thickening - One or two well-defined short echogenic linear echoes at the polyp borders (bright edge sign) - Rarely cystic spaces can be seen due to dilated glands - May be surrounded by endometrial fluid -Color doppler showing a single feeding vessel is 95% specific 2) Submucous fibroid: - Sub-endometrial mass distorting the endometrium - Solid mass with broad base and shadowing - Color Doppler may show multiple feeding vessels with circumferential flow
Blood clot	- Any condition that can lead to heavy bleeding - Menstrual type cramps can be present	- Echotexture varies depending on the stage of the clot, but is usually heterogeneous - Color doppler shows no flow
AVM malformation (Figure 2)	- Congenital (multiple arteries and numerous large veins merging in a central nidus) *vs.* acquired (fistulas between intramural arterial branches and the myometrial venous plexus) - Uncommon condition potentially fatal - Acquired cases usually follow history of uterine surgery, such dilation and curettage and cesarean section - Can be associated with AVMs of RPOCs - Vaginal bleeding that can manifest in the puerperal period or many years later. - B-hCG levels are normal	- Can be nonspecific - Can have a range of manifestations including a subtle myometrial inhomogeneity, tubular spaces within the myometrium, intramural myometrial mass (rather than endometrial as in the case of RPOC) - Color Doppler shows high flow velocity
Invasive mole (Figure 3)	- May arise from molar pregnancy, miscarriage of normal pregnancy - B-hCG are usually very high	- Mass that distorts uterus zonal structures - Boundaries between the mass and the myometrium are indistinct, may invade parametrial tissues - Color Doppler shows high impedance, low flow velocity
Focal and multifocal adenomyosis (Figure 4)	-Abnormal uterine bleeding (most common symptom), pelvic pain, dyspareunia and 1/3 asymptomatic - B-hCH levels are normal	- Sensitivity and Specificity of 86% - Signs: - Echogenic striations and/or nodules that extend from the endometrium into the inner myometrium - Junctional-zone thickening classic finding magnetic resonance but harder to appreciate by ultrasound - Color Doppler vascularity shows increased number of tortuous vessels that penetrate throughout the involved myometrium compared to circumferential flow in fibroids

(30 mm) without vascularization, with the exception of a focal 25 mm × 20 mm heterogeneous vascularized lesion (Figure 1), that was reported as compatible with blood clots and retained products of conception. Hysteroscopy was done on March 12th for suspected RPOCs. Intraoperatively, the uterus was found to be enlarged, containing a 3 cm type 1 posterior fibroid which was removed using morcellator (MyoSure®, Hologic, Canada). No evidence of retained products of conception was noted. Pathology report confirmed a diagnosis of fibroid.

Discussion

Retained Products of Conception (RPOCs) most commonly manifest as abnormal uterine bleeding following abortion or delivery. Diagnosis usually relies on clinical suspicion and ultrasound findings. Unfortunately, there is no consensus regarding the optimal sonographic criteria to rule out RPOCs.

Suggestive features include the presence of an endometrial mass, increased endometrial thickness and high endometrial vascularity [1]. The most sensitive predictor is the presence of a hyper echoic or mixed echogenic mass within the endometrium. The diagnosis is however unlikely when endometrial thickness is inferior to 10 mm and no endometrial mass is identified [2]. The absence of blood flow does not exclude the diagnosis of RPOCs [2].

Several challenges are encountered by radiologists when diagnosing RPOCs. The most common is differentiating RPOCs from blood clots [3]. Other less common mimickers include invasive moles, underlying endometrial abnormalities and Arteriovenous Malformations (AVMs).

These entities are not only mistaken for their radiologic appearance but also for their tendency to present with bleeding in the puerperal period.

The biggest pitfall is mistaking the marked vascularity of RPOCs for an AVM, which could result in life-threatening hemorrhage secondary to dilation and curettage [3].

Uterine AVM could be congenital or acquired, the latter is more common and usually follows a history of previous uterine surgery such as cesarean section and is also associated with retained POC and gestational trophoblastic disease [4]. It is believed to be part of the pathogenesis of Gestational Trophoblastic Disease (GTD) and can complicate any type of GTD. It may be evident at initial presentation or develop many months after treatment and may persist in up to 10% to 15% of patients even after complete resolution of GTD [5-7]. Therefore, even when a diagnosis of invasive mole is made, the presence or absence of AVM malformation cannot be easily ruled out.

In addition, despite advancement in radiologic detection of molar

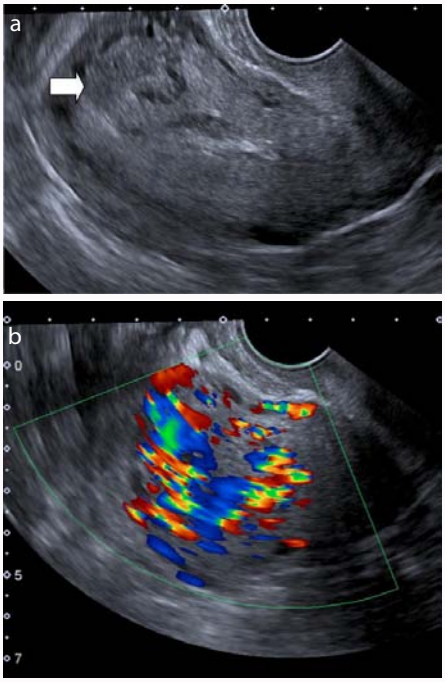

Figure 2: 23-year-old woman who presented with persistent vaginal bleeding after an abortion with two prior dilation and curettage procedure; the differential diagnostic of an arterio-venous fistula was ruled out by a magnetic angiography resonance who was more consistent with an arterio-venous malformation related to RPOC. (a) Endovaginal ultrasound image in sagittal plane shows poorly delineated heterogeneous mass at endometrial-myometrial junction (arrow) (b) Endovaginal ultrasound image with color doppler shows a highly vascularized mass.

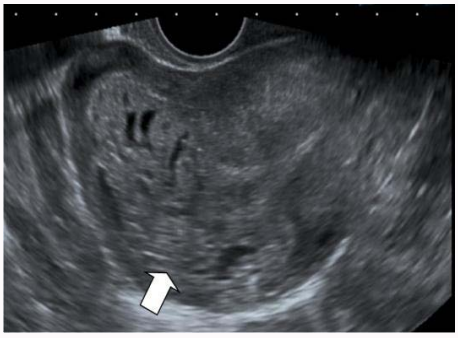

Figure 3: 24 year-old woman who presented 9 week pregnant with vaginal bleeding and a hCG level at 872 749; subsequent pathology report from a dilatation and curettage material confirmed a complete molar pregnancy. Endovaginal ultrasound image in sagittal plane shows widely enlarged endometrial cavity with heterogeneous, mostly hyperechoic content and posterior delineation between endometrium and myometrium is lost (arrow).

pregnancy, patients with partial moles are less likely to be diagnosed before uterine evacuation, and the diagnosis is usually made with histologic analysis of curettage specimens. Therefore, when the pathology results are not yet available, the diagnosis of invasive mole can be easily overlooked.

Similarly, the ability to distinguish endometrial abnormalities from RPOCs can be extremely difficult, especially when the former manifest as an endometrial mass with increased vascularity [3].

Conclusion

Clinical and radiologic features of RPOCs can overlap, making

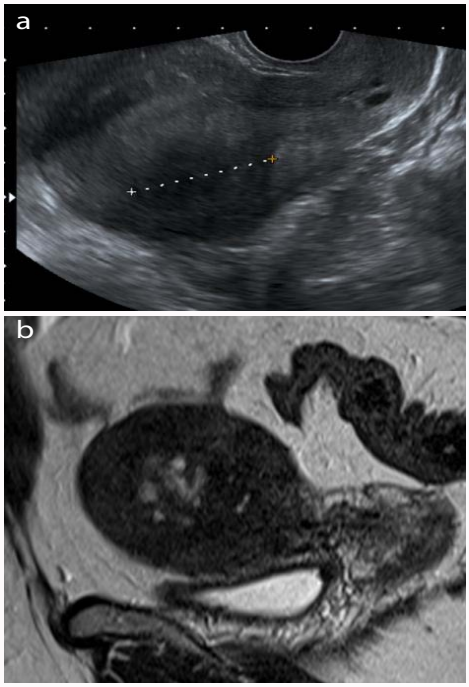

Figure 4: 49-year-old woman who presented for a ultrasound control of an ovarian cyst (a) Endovaginal ultrasound image in sagittal plane shows poorly delineated heterogeneous mass at endometrial-myometrial junction (caliper) Endovaginal ultrasound image with color doppler showed very little vascularization (b) Sagittal T2W magnetic resonance image shows mass like effect at endometrial-myometrial junction with multiple hyperintense T2 foci and enlarged junctional line corresponding to focal adenomyosis.

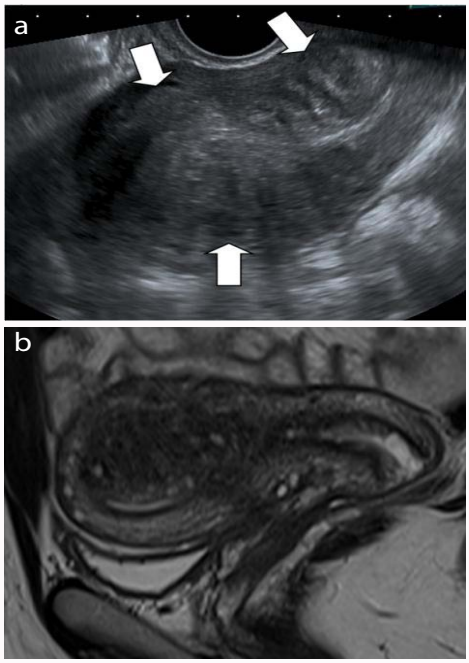

Figure 5: 41-year-old woman who presented with lower right abdominal quadrant pain and infertility (a) Endovaginal ultrasound image of uterus in sagittal plane shows multiple poorly delineated mass effects (arrows) at endometrial-myometrial junction. Endometrium seems preserved. Endovaginal ultrasound image with color Doppler showed very little vascularization (b) Sagittal T2W magnetic resonance image shows mass like effect at endometrial-myometrial junction with multiple hypointense T2 mass like effect at endometrial-myometrial junction with multiple hyperintense T2 foci and enlarged junctional line corresponding to multifocal adenomyosis.

the diagnosis challenging. As for the treatment of RPOCs, although dilation and curettage remain the gold standard, hysteroscopy has been proposed as a superior treatment option with the additional benefit of identification and treatment of other uterine pathologies as in this case report. Compared to blind curettage, hysteroscopic evacuation of RPOC is associated with fewer incomplete evacuations (29% *vs.* 1%) and intrauterine adhesions (30% *vs.* 13%) [8]. Physicians should therefore consider hysteroscopy for the treatment of RPOCs when the diagnosis is not certain or when a previous D&C was unsuccessful.

References

1. Foreste V, Gallo A, Manz A, Riccardi C, Carugno J, Spiezio Sardo AD. Hysteroscopic management of retained products of conception. Gynecol Minim Invasive Ther. 2021;10(4):203-9.
2. Durfee SM, Frates MC, Luong A, Benson CB. The sonographic and color Doppler features of retained products of conception. J Ultrasound Med. 2005;24(9):1181-6.
3. Sellmyer MA, Desser TS, Maturen KE, Jeffrey Jr RB, Kamaya A. Physiologic, histologic, and imaging features of retained products of conception. Radiographics. 2013;33(3):781-96.
4. Hashim H, Nawawi O. Uterine arteriovenous malformation. Malays J Med Sci. 2013;20(2):76-80.
5. Shaaban AM, Rezvani M, Haroun RR, Kennedy AM, Elsayes KM, Olpin JD, et al. Gestational trophoblastic disease: Clinical and imaging features. Radiographics. 2017;37(2):681-700.
6. Struble J, Reid S, Bedaiwy MA. Adenomyosis: A clinical review of a challenging gynecologic condition. J Minim Invasive Gynecol. 2016;23(2):164-85.
7. Evans A, Gazaille RE, McKenzie R, Musser M, Lemming R, Curry J, et al. Acquired uterine arteriovenous fistula following dilatation and curettage: An uncommon cause of vaginal bleeding. Radiol Case Rep. 2017;12(2):287-91.
8. Hooker AB, Aydin H, Brölmann HAM, Huirne JAF. Long-term complications and reproductive outcome after the management of retained products of conception: A systematic review. Fertil Steril. 2016;105(1):156-64.e1-2.