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Case Report

Persistent low-level β-hCG with a hypervascular intrauterine mass after medical abortion mimicking GTN: a diagnostic dilemma

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ABSTRACT

Persistent elevation or plateau of serum beta-human chorionic gonadotropin (β-hCG) following abortion raises suspicion for gestational trophoblastic neoplasia (GTN). However, benign conditions such as retained products of conception (RPOC) and uterine vascular lesions may present with similar biochemical and imaging findings, creating a diagnostic challenge. A 27-year-old multiparous woman presented with persistent amenorrhea following unsupervised medical abortion. Ultrasound revealed heterogeneous intrauterine contents with increased vascularity. Serial β-hCG levels showed a plateauing trend. Due to suspicion of GTN, she received single-dose followed by multi-dose methotrexate therapy. Although β-hCG levels declined, they failed to normalize and imaging demonstrated a persistent hypervascular intrauterine mass. Considering the risk of haemorrhage with uterine instrumentation and the inability to exclude malignancy, total abdominal hysterectomy was performed. Histopathology revealed necrosed retained products of conception. Postoperatively, β-hCG levels became undetectable. Persistent low-level β-hCG with a hypervascular intrauterine lesion may mimic GTN. In selected patients with completed childbearing and diagnostic uncertainty, hysterectomy may serve as both a diagnostic and therapeutic intervention.

Keywords: Persistent β-hCG, Retained products of conception, Gestational trophoblastic neoplasia, Uterine vascular lesion, Medical abortion complication

INTRODUCTION

Gestational trophoblastic disease (GTD) represents a spectrum of disorders arising from abnormal proliferation of trophoblastic tissue, ranging from benign hydatidiform mole to malignant gestational trophoblastic neoplasia (GTN), which includes invasive mole, choriocarcinoma, placental site trophoblastic tumour and epithelioid trophoblastic tumour.[1] In clinical practice, persistence or plateauing of serum beta-human chorionic gonadotropin (β-hCG) following pregnancy termination often raises concern for GTN. However, this biochemical pattern is not specific and may also be seen in benign conditions such as retained products of conception (RPOC), subinvolution of the placental site or uterine vascular abnormalities.[2] Distinguishing between these entities is important because their management differs significantly. GTN is primarily treated with chemotherapy, whereas RPOC may require surgical evacuation. At the same time, when imaging demonstrates a highly vascular intrauterine lesion, uterine instrumentation such as curettage can be hazardous and may result in severe haemorrhage.[3] Further complexity arises from rare trophoblastic tumours such as placental site trophoblastic tumour and epithelioid trophoblastic tumour, which may present with relatively low β-hCG levels and are less responsive to chemotherapy, often necessitating surgical management.[4]

Therefore, the combination of persistent low-level β-hCG and a hypervascular intrauterine lesion following abortion

presents a diagnostic challenge. Overlap in clinical, biochemical, and imaging findings between benign and malignant conditions can make decision-making difficult, particularly when both over-treatment and unsafe interventions need to be avoided.

We report a case of persistent low-level β-hCG with a hypervascular intrauterine mass following medical abortion that closely mimicked GTN but was ultimately diagnosed as necrosed retained products of conception on histopathological examination. This case highlights the importance of careful evaluation and individualized management in such scenarios.

CASE REPORT

A 27-year-old woman, para 2, living 2, abortion 2 (P2L2A2), with two previous normal vaginal deliveries presented to our hospital. Her last menstrual period was on 25 February 2025. She performed a urine pregnancy test at home on 30 March 2025, which was positive. She subsequently took over-the-counter medical abortion pills on 1 April 2025 without medical supervision. Following this, she experienced vaginal bleeding for three days and then developed amenorrhea again. This history was initially not disclosed by the patient. She presented to our hospital on 11 May 2025 with an ultrasound report dated 10 May 2025, which showed a single intrauterine gestational sac corresponding to approximately 7 weeks and 3 days of gestation without a foetal pole, suggestive of a blighted ovum (Figures 1 and B).

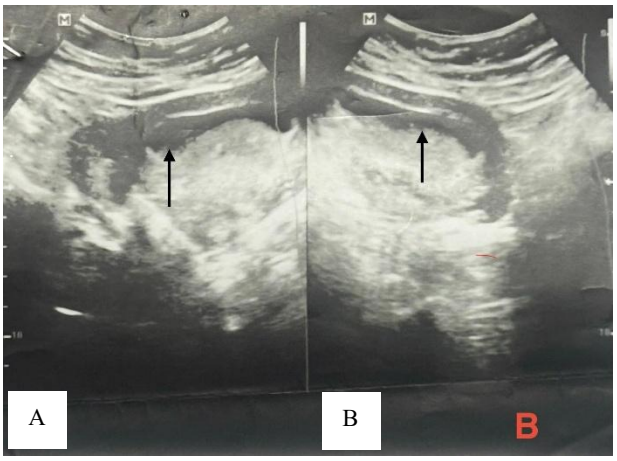

Figure 1 (A and B): Ultrasound performed on 10/05/2025 showing an intrauterine gestational sac corresponding to approximately 7 weeks and 3 days of gestation without visualization of a foetal pole, suggestive of an anembryonic pregnancy (blighted ovum).

Routine investigations were advised. As the history of prior unsupervised medical abortion was not known at that time, the patient was counselled regarding both medical and surgical termination options. She opted for supervised medical abortion at our institution and was administered on 23 May 2025. She was advised to return in case of heavy bleeding or absence of bleeding and to undergo follow-up ultrasound to confirm completion of abortion. However, the patient did not attend follow-up and returned one month later 23 June 2025 with persistent amenorrhea. Ultrasound examination revealed a Heterogeneous echogenic content within the endometrial cavity with Endometrial thickness of 16.8 mm and Increased vascularity on doppler imaging within the lesion. Bilateral adnexa normal and no free fluid in the pouch of Douglas (Figures 2 A and B).

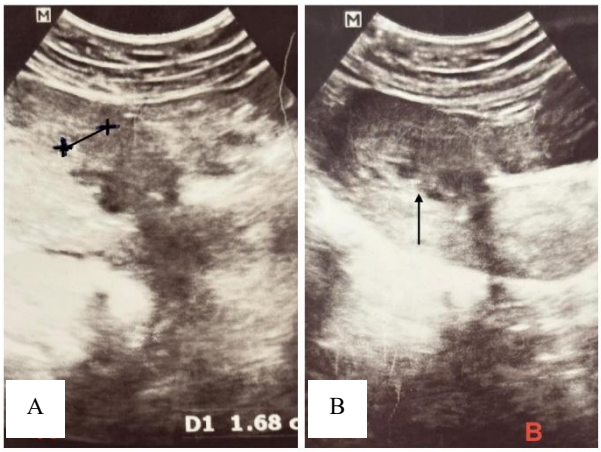

Figure 2: (A) ultrasound performed on 23/06/2025 demonstrating an endometrial thickness of 16.8 mm and (B) heterogeneous echogenic content with internal vascularity is seen within the endometrial cavity. Bilateral adnexa appear normal and no free fluid is noted in the pouch of Douglas.

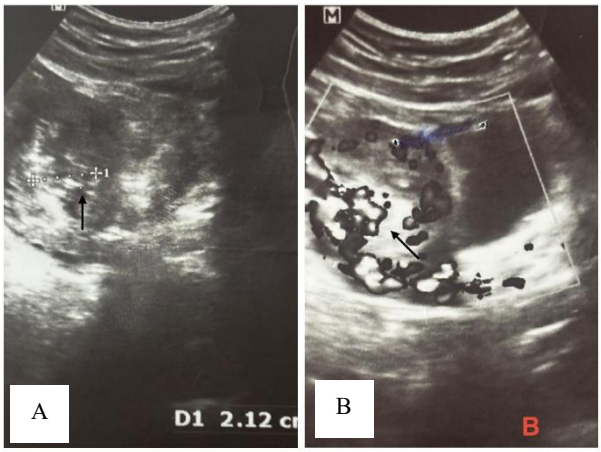

Figure 3: Follow-up ultrasound performed on 14/08/2025: (A) endometrial thickness measures 21.2 mm and (B) a normal-sized uterus with increased vascularity in the myometrium is noted. Heteroechoic intrauterine contents are seen, suggestive of retained products of conception or blood clot.

A failed medical abortion with retained products of conception was suspected. Serial serum β-hCG

measurements were performed at 48-hour intervals which were 210 mIU/ml on 24/06/2025 and 198 mIU/ml on 26/06/2025. These findings demonstrated plateauing trend. Considering the persistent β-hCG levels and a vascular intrauterine lesion, a single intramuscular dose of methotrexate 50 mg was administered on 1 July 2025. She presented again in August 2025 with persistent amenorrhea and a β-hCG level of 58 mIU/ml on 5 August 2025. Repeat ultrasound on 14 August 2025 showed a normal-sized uterus with increased myometrial vascularity suggestive of enhanced vascular flow. Heteroechoic intrauterine contents suggestive of retained products or clot, Endometrial thickness was 21.2 mm and Bilateral ovaries normal (Figures 3A and B).

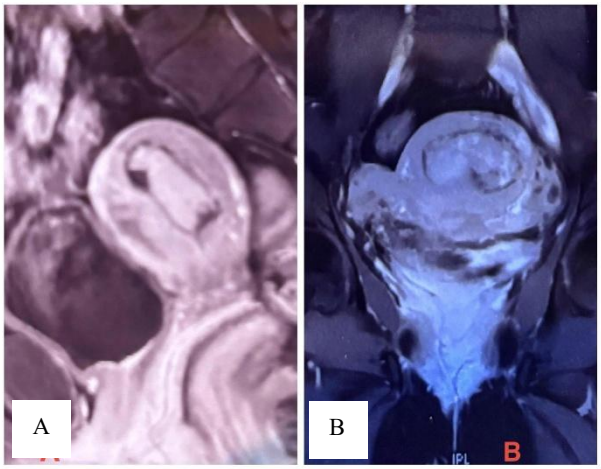

Figure 4: MRI pelvis demonstrating an intrauterine lesion: (A) sagittal view showing a distended endometrial cavity containing hyperintense contents with an ill-defined hypo enhancing area in the anterior uterine wall, with preservation of the endomyometrial interface. Prominent uterine vessels are noted and (B) coronal view showing a mildly bulky uterus with prominent vascular channels within the myometrium and heterogeneous intrauterine contents, suggesting uterine arteriovenous malformation or gestational trophoblastic disease.

Differential diagnosis considered were retained products of conception, uterine arteriovenous malformation, gestational trophoblastic disease, placental site trophoblastic tumour, epithelioid trophoblastic tumour.

MRI pelvis was therefore advised and was performed 18 August 2025 showing mildly bulky uterus with endometrial cavity distended with hyper-intense contents, ill-defined hypo-enhancing area in the anterior uterine wall, endomyometrial junction maintained, prominent serpiginous vessels within the posterior myometrium suggestive of increased vascular flow (Figures 4 A and B). Radiological differential diagnoses included uterine AVM and gestational trophoblastic disease. Considering the persistent amenorrhea, plateauing β-hCG levels, and imaging findings, a provisional diagnosis of post-abortal GTD or persistent trophoblastic disease was made. The patient was started on multi-dose methotrexate chemotherapy with leucovorin rescue: multi-dose methotrexate regimen with leucovorin rescue was administered from 12 August to 19 August 2025and weekly follow up with serial β-hCG was done. Serial β-hCG levels showed declining but persistent values of 21.6 mIU/ml on 26/08/2025 and 15 mIU/ml on 02/09/2025.

Figure 5: Ultrasound showing a persistent hypervascular intrauterine mass (02/09/2025): (A and B) a heteroechoic intrauterine mass measuring approximately 2.5×4.2×3.8 cm is noted and (C) increased vascularity in the myometrium, predominantly in the subendometrial region, is seen. A right ovarian simple cyst measuring approximately 2.3×1.8 cm is also noted.

Repeat ultrasound on 2 September 2025 revealed Persistent heteroechoic intrauterine mass measuring 3.8×4.2×2.3 cm with increased vascularity in the myometrium predominantly in the subendometrial region and right ovarian simple cyst measuring 2.3×1.8 cm (Figures 5A, B and C).

During follow-up, β-hCG levels plateaued again and ultrasound demonstrated increasing vascularity of the intrauterine lesion. Because of the possibility of chemotherapy-resistant GTN, PSTT, or ETT, surgical

management was considered. Instrumentation such as curettage or hysteroscopy was avoided due to the risk of catastrophic haemorrhage associated with vascular uterine lesions. The patient and her family were counselled in detail regarding the diagnostic uncertainty, potential risk of severe haemorrhage with uterine instrumentation and the implications of definitive surgical management before proceeding with hysterectomy. Baseline investigations including LFT, KFT, TFT, and chest X-ray were normal. A whole-body PET scan showed no evidence of metastatic disease. After detailed counselling the patient and her relatives opted for definitive surgical management. A total abdominal hysterectomy with bilateral salpingectomy and right ovarian cystectomy was performed.

Intraoperative findings

Uterus enlarged to approximately 10-week size and Soft in consistency. A right ovarian cyst approximately 4×4 cm was present and right fallopian tube adherent to ovary. Left tube adherent to ovary and left ovary normal.

Cut section findings

Intrauterine mass measuring approximately 4×4 cm was present. Lesion adherent to the posterior uterine wall and Multiple dilated vessels present within the myometrium (Figures 6A and B).

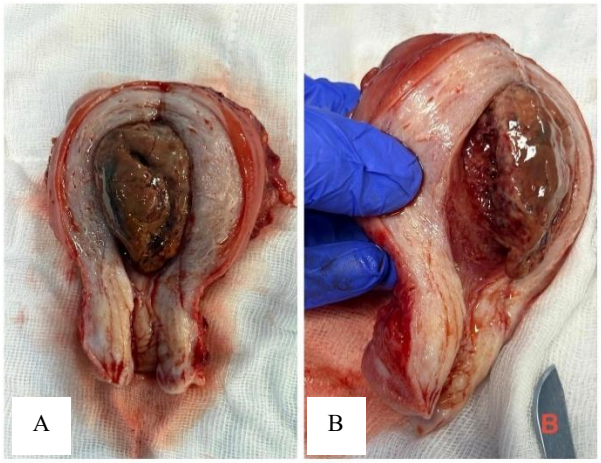

Figure 6: Cut section of hysterectomy specimen: (A) intrauterine mass measuring approximately 4×4 cm is seen within the endometrial cavity and (B) the mass is adherent to the posterior uterine wall with associated dilated vascular channels within the myometrium.

Histopathology

Histopathological examination revealed necrosed chorionic villi consistent with retained products of conception (Figures 7A-E).

Immunohistochemistry findings: p53- negative, cyclin D - negative and cyclin E not performed due to laboratory limitations These findings did not support a diagnosis of trophoblastic neoplasia. Following surgery, serum β-hCG levels became negative (2.27 mIU/ml), and the patient remained asymptomatic on follow-up.

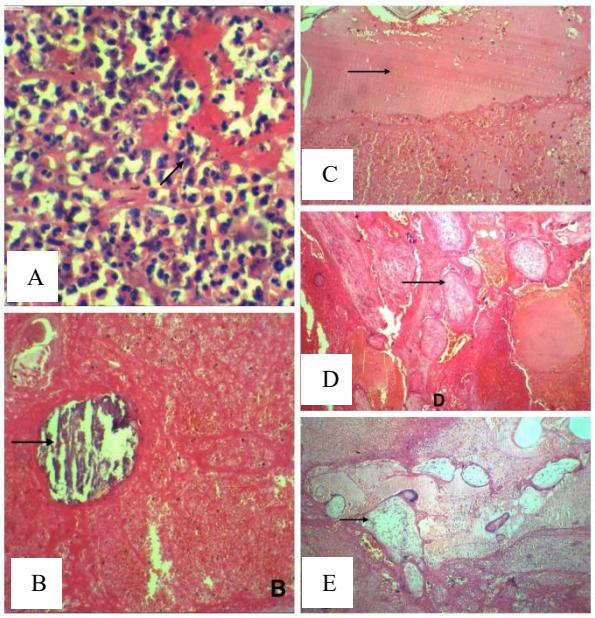

Figure 7: Histopathology findings: (A–E) photomicrographs demonstrating retained products of conception with associated haemorrhage, fibrinoid necrosis, dystrophic calcification and inflammatory cell infiltrate.

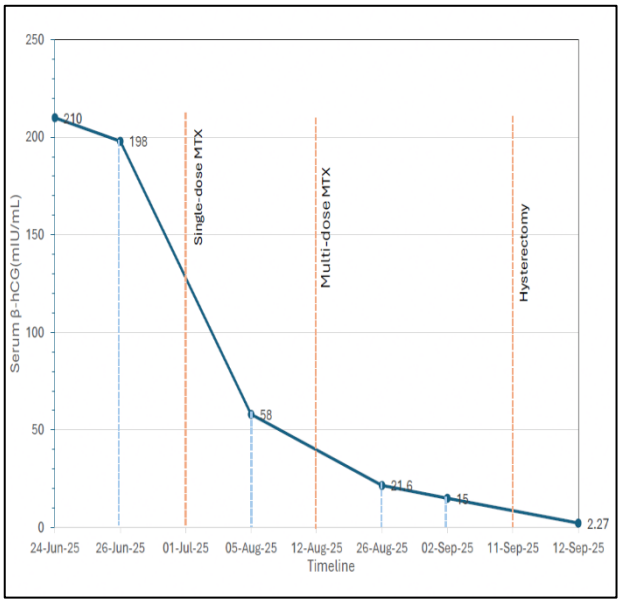

Figure 8: Trend of serial serum β-hCG levels during the patient's clinical course, demonstrating an initial plateau followed by gradual decline after methotrexate therapy and complete normalization after hysterectomy.

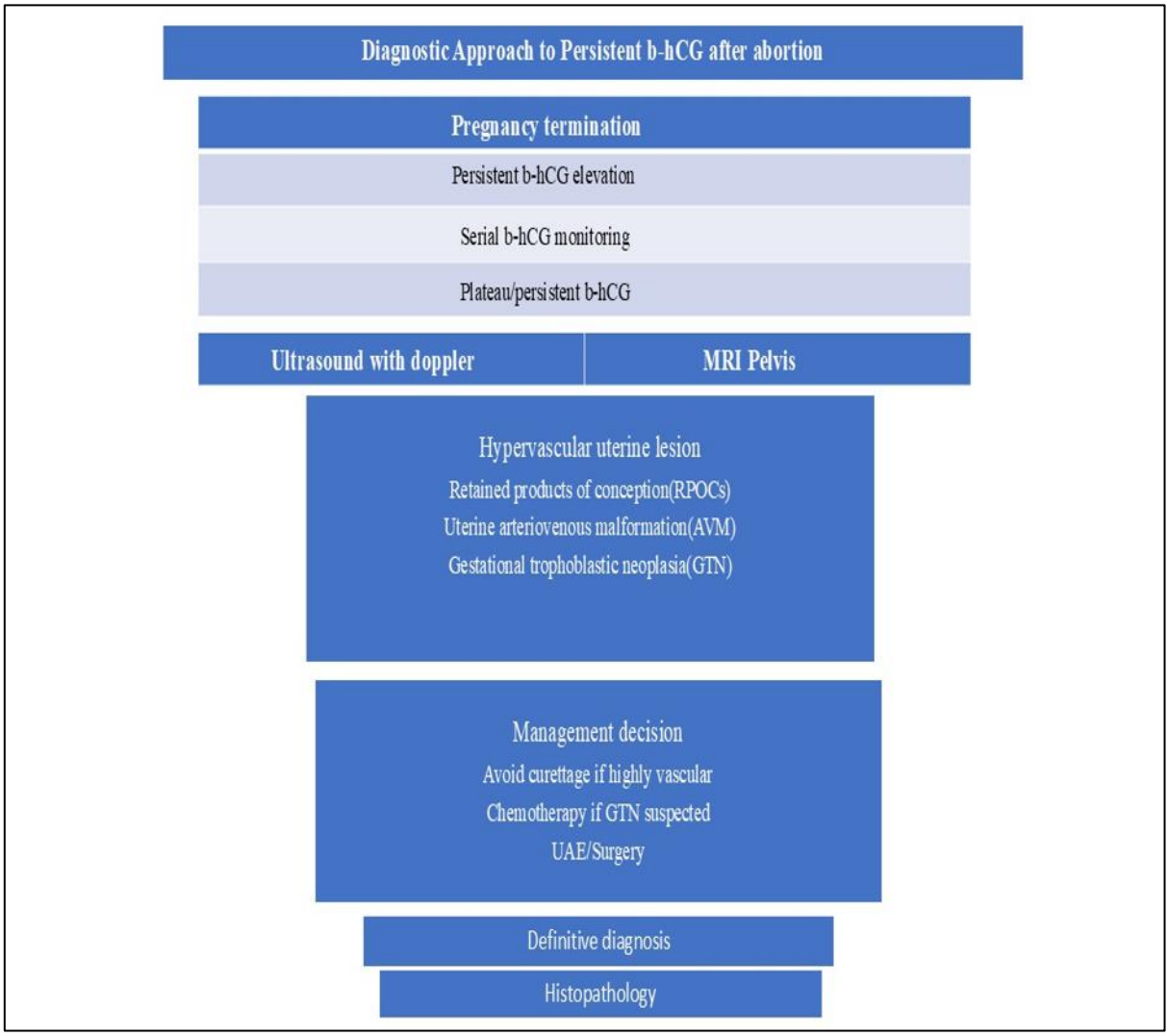

Figure 9: Diagnostic approach to persistent β-human chorionic gonadotropin (β-hCG) following abortion.

Table 1: Timeline of clinical events, investigations and management.

Date	Clinical event/investigation	β-hCG levels
25/02/2025	Last menstrual period	-
30/03/2025	Home urine pregnancy test positive	-
1/04/2025	Unsupervised intake of MTP pill	-
10/05/2025	USG showing intrauterine gestational sac without foetal pole suggestive of blighted ovum	-
23/05/2025	Medical abortion administrated at hospital	-
23/06/2025	Follow-up USG showing heterogeneous intrauterine content with increased vascularity	-
24/06/2025	Serum β-hCG measurement	210 mIU/ml
26/06/2025	Repeat β-hCG measurement showing plateau	198 mIU/ml
1/07/2025	Single dose methotrexate administered	-
5/08/2025	Follow-up β-hCG measurement	58 mIU/ml
14/08/2025	Ultrasound showing persistent intrauterine lesion with increased vascularity	-
18/08/2025	MRI pelvis showing hyper vascular uterine lesion	-
12-19 August	Multi-dose methotrexate with leucovorin rescue administered	-
26/08/2025	β-hCG measurement	21.6 mIU/ml

Continued.

Date	Clinical event/investigation	β-hCG levels
2/09/2025	β-hCG measurement and ultrasound showing persistent intrauterine mass	15 mIU/ml
11/09/2025	Total abdominal hysterectomy with bilateral salpingectomy performed	-
Post operative period	Serum β-hCG normalised	2.27 mIU/ml

DISCUSSION

Persistent low-level elevation or plateauing of serum β-hCG following abortion represents a clinically challenging scenario that requires careful interpretation. Although GTN is a key concern, several benign conditions including retained products of conception (RPOC), subinvolution of the placental site and uterine vascular malformations can present with similar biochemical and radiological findings.[1-3] The distinction is critical because management strategies differ significantly, with GTN primarily treated with chemotherapy, whereas benign conditions may require surgical or expectant management.[4]

This diagnostic overlap has been widely recognized as a major clinical challenge, particularly in low-resource or real-world settings where clinical history and follow-up may be suboptimal.[5]

Imaging plays a central role in evaluation, with transvaginal ultrasound and doppler as first-line modalities. Hypervascular RPOC typically appear as echogenic intrauterine material with increased vascularity, whereas uterine arteriovenous malformations (AVMs) are characterized by serpiginous vascular channels with high-velocity turbulent flow.[6-8] However, these distinctions are not always clear-cut. GTN can also manifest as a hypervascular intrauterine lesion with or without myometrial invasion, resulting in significant diagnostic overlap, particularly in the post-abortal uterus.

Magnetic resonance imaging (MRI) can further delineate myometrial involvement and vascular architecture, but its ability to reliably distinguish benign from malignant trophoblastic conditions remains limited.[9] In the present case, both ultrasound and MRI demonstrated a hypervascular intrauterine lesion with prominent myometrial vessels, yet failed to provide a definitive diagnosis, thereby reinforcing the limitations of imaging alone.

Serial β-hCG measurement remains a cornerstone of evaluation; however, its interpretation must be contextual. A plateauing or slowly declining β-hCG level, as observed in our patient, does not reliably differentiate GTN from benign etiologies.[10] In cases of RPOC, particularly when the trophoblastic tissue is necrotic or degenerating, low-level β-hCG production may persist despite the absence of active proliferative disease. This may also explain the partial biochemical response to methotrexate observed in this case.

An additional layer of complexity arises from rare trophoblastic tumours such as placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour (ETT), which are known to produce relatively low levels of β-hCG and demonstrate reduced sensitivity to chemotherapy, often requiring surgical management.[9]

Management decisions must also consider procedural risk. Uterine instrumentation, including dilation and curettage or hysteroscopy, carries a significant risk of severe haemorrhage in the presence of a highly vascular lesion.[11,12] Consequently, conservative uterine evacuation was avoided in our patient.

In the present case, persistent intrauterine mass, plateauing β-hCG levels, inconclusive imaging findings, and incomplete response to methotrexate collectively raised a strong suspicion for trophoblastic neoplasia. Given the patient's completed childbearing and the inability to exclude chemotherapy-resistant disease, definitive surgical management was considered appropriate. Histopathological examination ultimately revealed necrosed retained products of conception, confirming a benign etiology. This finding underscores an important clinical principle: declining or low-level β-hCG does not exclude persistent intrauterine pathology and reliance on biochemical trends or imaging alone may be misleading.

To our knowledge, only limited cases have reported hypervascular RPOC presenting with persistent low-level β-hCG and closely mimicking GTN to the extent of necessitating hysterectomy, highlighting the clinical relevance of this case. Overall, this case emphasizes the need for an individualized, multidisciplinary approach in patients with persistent β-hCG following abortion, ensuring accurate diagnosis while minimizing the risk of both overtreatment and life-threatening complications.

CONCLUSION

Persistent low-level β-hCG associated with a hypervascular intrauterine lesion following abortion can closely mimic gestational trophoblastic neoplasia. Careful evaluation and individualized management are essential to avoid misdiagnosis and prevent potentially life-threatening complications. In selected patients with completed childbearing and persistent diagnostic uncertainty, hysterectomy may serve as both a diagnostic and therapeutic intervention.

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