Case Report

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Intramyometrial Ectopic Pregnancy in a Patient with Adenomyosis: A Rare Case Report

Sefa Arlıer, Sibel Öncel Yavuz

University of Health Sciences Turkey, Adana City Training and Research Hospital, Clinic of Obstetrics and Gynecology, Adana, Turkey

ABSTRACT

Intramyometrial ectopic pregnancy (IMP) is an exceptionally rare form of ectopic gestation, representing <1% of cases. It poses diagnostic challenges as it often mimics leiomyoma or interstitial pregnancy on imaging. A 42-year-old woman with a history of adenomyosis and previous salpingectomy was admitted with acute abdomen and hypovolemic shock. Preoperative laboratory tests revealed hemoglobin (Hb): 9.2 g/dL, hematocrit: 28%, white blood cell: 12,300/mm^3, platelet: 210,000/mm^3, and beta-human chorionic gonadotropin: 65,000 mIU/mL. After emergency laparotomy for ruptured intramyometrial pregnancy, the postoperative Hb level was 7.4 g/dL; however, this value may have been relatively overestimated due to preoperative hemoconcentration. Transvaginal ultrasonography revealed a gestational sac embedded in the uterine fundal myometrium with fetal cardiac activity. Emergency laparotomy revealed a ruptured intramyometrial gestation with massive hemoperitoneum. Estimated intraoperative blood loss was 1800 mL, requiring transfusion of three units of red blood cells and two units of fresh frozen plasma. Total abdominal hysterectomy and salpingectomy were performed. Histopathological analysis confirmed intramyometrial pregnancy associated with adenomyosis. This case highlights the importance of considering IMP in the differential diagnosis of abnormal uterine masses, especially in patients with prior uterine surgery or adenomyosis. Early recognition and prompt surgical intervention are important to prevent catastrophic and potentially life-threatening hemorrhage.

Keywords: Intramyometrial pregnancy, ectopic pregnancy, adenomyosis, hysterectomy

INTRODUCTION

Ectopic pregnancy constitutes approximately 1-2% of all pregnancies, with the vast majority localized in the fallopian tubes. Intramyometrial ectopic pregnancy (IMP), defined as implantation of the gestational sac entirely within the myometrium without communication with the uterine cavity or fallopian tubes, is exceedingly rare (<1%). The pathogenesis, frequency, and natural history of intramural pregnancy, a rare ectopic pregnancy, are not well understood. Treatment varies based on symptom severity, pregnancy location, viability, and stage at diagnosis, with no consensus on ultrasound criteria for identification.[1] The clinical challenge of IMP lies in its diagnostic difficulty, since it can easily be mistaken for degenerating fibroid or interstitial pregnancy. Literature reports fewer than 100 cases worldwide, underlining the rarity of the condition.[2-4] Etiological factors include uterine trauma (dilatation and curettage, cesarean section, myomectomy), assisted reproductive techniques, adenomyosis (as an abnormal niche for implantation), and pelvic inflammatory disease.[2,5,6] Adenomyosis itself is associated with infertility, dysmenorrhea, menorrhagia, and may alter implantation through ectopic endometrial tissue within the myometrium.[6] Diagnostic modalities such as transvaginal ultrasonography (TVUS) and magnetic resonance imaging (MRI) are very helpful for differential diagnosis, as they allow distinction of IMP from fibroid degeneration or interstitial pregnancy.[2,7] Treatment options vary from conservative management (methotrexate, laparoscopic excision, hysteroscopic evaluation) to radical interventions such as emergency hysterectomy in hemodynamically unstable patients.[3,5]

Address for Correspondence: Sefa Arlıer, University of Health Sciences Turkey, Adana City Training and Research Hospital, Clinic of Obstetrics and Gynecology, Adana, Turkey

E-mail: sefaarlier@gmail.com **ORCID ID:** orcid.org/0000-0002-0019-8403

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The objective of this study was to contribute to the scarce literature and highlight the diagnostic and therapeutic challenge of IMP associated with adenomyosis, complicated by rupture and life-threatening hemorrhage.

CASE REPORT

A 42-year-old multiparous woman (G6P4Y4) with a prior right salpingectomy due to ectopic pregnancy and a history of adenomyosis presented to the emergency department with acute abdominal pain, hypotension, and tachycardia. The diagnosis of adenomyosis had previously been made by TVUS due to menorrhagia and dysmenorrhea. She had missed her menstrual period and reported progressive abdominal distension and weakness. On admission, vital signs were: blood pressure 100/72 mmHg, heart rate 100/min, respiratory rate 21/min, and temperature 37.2 °C. Abdominal examination revealed diffuse tenderness, guarding, and rebound. Preoperative laboratory findings were: hemoglobin 9.2 g/dL; hematocrit 28%; white blood cell count 12,300/mm³; platelet count 210,000/mm³; and beta-human chorionic gonadotropin (β-hCG) 65,000 mIU/mL. Renal and liver function tests were normal. Imaging by TVUS showed a gestational sac in the uterine fundus, measuring approximately 46 mm, corresponding to 11+3 weeks, with positive fetal cardiac activity Figure 1. Free fluid with clots (~500 cc) was noted in the Pouch of Douglas and in the perisplenic and perihepatic regions. MRI was not performed due to the emergency clinical condition. Emergency laparotomy revealed 5 × 5 cm ruptured intramyometrial pregnancy localized to the fundus with massive hemoperitoneum Figures 2. Right fallopian tube was absent, left adnexa were normal. Estimated blood loss was 1800 mL. Total abdominal hysterectomy and left salpingectomy were performed, and three units of packed red blood cells plus two units of fresh frozen plasma were transfused intraoperatively. Subsequent histopathological examination confirmed IMP with necrotic decidual tissue and chorionic villi infiltrating the myometrium, alongside adenomyotic foci. The patient was monitored in the intensive care unit for 24 hours, recovered uneventfully, and was discharged on

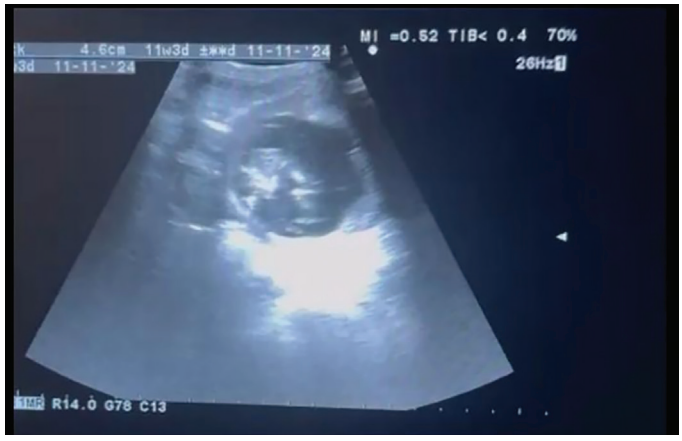

Figure 1. Transvaginal ultrasonographic appearance of an intramyometrial ectopic pregnancy located in the uterine fundus

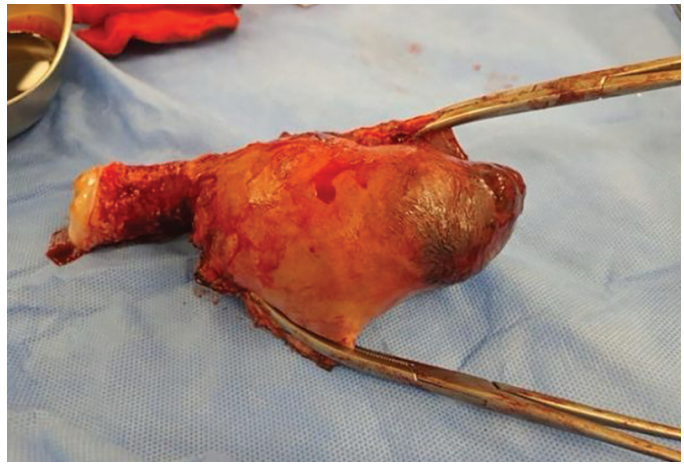

Figure 2. Gross intraoperative view of the ruptured intramyometrial pregnancy specimen following emergency hysterectomy

postoperative day five in a stable condition. Written informed consent was obtained, and institutional University of Health Sciences Turkey, Adana City Training and Research Hospital Ethics Committee approval was secured for publication of this report (approval number: 629, date: 10.07.2025).

DISCUSSION

IMP remains one of the rarest and most diagnostically challenging types of ectopic gestation, with <1% incidence and fewer than 100 reported cases worldwide.[1,2] Because of its rarity, it is frequently misdiagnosed as fibroid degeneration, interstitial pregnancy, or adenomyosis.[3,5,7] The precise etiology of IMP is not fully understood. Well-established risk factors include uterine trauma from prior procedures such as dilatation and curettage, cesarean section, or myomectomy.[1,2] Assisted reproductive technologies, particularly in vitro fertilization and intrauterine insemination, have also been associated with intramyometrial implantation.[4] Pelvic inflammatory disease and perimetrial inflammation have also been implicated.[2,5] Adenomyosis has recently been proposed as a possible predisposing factor Shi et al.[6] suggested that endometrial tissue located within adenomyotic foci can undergo decidualization in response to estrogen and progesterone, thereby creating an abnormal receptive environment for blastocyst implantation deep within the myometrium.[6] Similarly, Aburayyan et al.[2] highlighted adenomyosis as one of the plausible mechanisms predisposing to intramyometrial pregnancy. In the presented patient, histopathological examination confirmed the coexistence of adenomyosis and intramyometrial pregnancy. This observation supports the hypothesis that adenomyotic foci may provide a niche for abnormal implantation. This case may therefore represent one of the first histopathologically confirmed reports of adenomyosis as an etiological factor in IMP. Diagnostic challenges of IMP are as follows. Clinical presentation is nonspecific. Amenorrhea, abdominal pain, and abnormal uterine bleeding are common but overlap with other types of ectopic pregnancy.[3,4] Serum β-hCG levels are variable and have variously been reported as elevated, normal, or declining, thus making them

unreliable.[1,6] Ultrasonography may show a gestational sac embedded in the myometrium with an empty cavity, but misdiagnosis as leiomyoma is frequent.[1,5,7] Three-dimensional ultrasonography and MRI improve accuracy, but intraoperative findings and histopathology remain the gold standard. Management of IMP depends on hemodynamic stability, gestational age, and desire for future fertility. Conservative options include methotrexate therapy and laparoscopic excision with uterine repair.[4,6] In hemodynamically unstable patients, as in the present case, emergency hysterectomy is life-saving.[3] Prognosis for IMP is also variable. Fertility-preserving approaches may be possible in selected and stable patients but risk persistent ectopic tissue. Hysterectomy, although definitive, ensures survival. Early suspicion, individualized treatment, and awareness of adenomyosis as a potential factor may improve outcomes.

CONCLUSION

IMP is a rare but potentially life-threatening condition. The presented case demonstrates that adenomyosis may provide a physiological niche for abnormal implantation, representing a possible new etiological risk factor for IMP. Early diagnosis with TVUS/MRI, awareness of differential diagnoses, and timely surgical intervention are essential to reduce morbidity and mortality. The present case adds novel evidence to the literature and highlights the importance of considering adenomyosis in the pathogenesis of intramyometrial pregnancy.

Ethics

Ethics Committee Approval: The study was approved by the University of Health Sciences Turkey, Adana City Training and Research Hospital Ethics Committee (approval number: 629, date: 10.07.2025).

Informed Consent: Written informed consent was provided by the patient.

Footnotes

Authorship Contributions

Surgical and Medical Practices: S.A., S.Ö.Y., Concept: S.A., S.Ö.Y., Design: S.A., S.Ö.Y., Data Collection or Processing: S.A., S.Ö.Y., Analysis or Interpretation: S.A., S.Ö.Y., Literature Search: S.A., Writing: S.A., S.Ö.Y.

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