



Case Report

Spontaneous Myometrial Pregnancy: A Rare Ectopic Gestation Diagnosed on Ultrasonography – A Radiological Case Report

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Received: 15-01-2026

Accepted: 10-02-2026

Available online: 18-02-2026

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Medical and Pharmaceutical Research

ABSTRACT

Myometrial pregnancy is an exceptionally rare form of ectopic pregnancy characterized by implantation of the gestational sac completely within the myometrium, without communication with the endometrial cavity or fallopian tubes [1,2]. Owing to its rarity and nonspecific clinical presentation, diagnosis is often delayed, leading to serious complications such as uterine rupture and massive hemorrhage [3]. Ultrasonography plays a pivotal role in early detection and differentiation from other uterine pathologies [4]. We report a rare case of spontaneous myometrial pregnancy diagnosed on transvaginal ultrasonography and confirmed surgically and histopathologically, highlighting the critical role of radiological imaging in diagnosis and management planning.

Keywords: Intramyometrial pregnancy; Ectopic pregnancy; Transvaginal ultrasonography; Color Doppler; Radiological diagnosis.

INTRODUCTION

Ectopic pregnancy refers to implantation of a fertilized ovum outside the endometrial cavity, most commonly in the fallopian tube [5]. Myometrial pregnancy, also known as intramyometrial pregnancy, represents one of the rarest forms, accounting for less than 1% of ectopic pregnancies [1,6]. It is defined by complete implantation of the gestational sac within the myometrium, with no communication with the uterine cavity, fallopian tubes, or serosa [2].

Due to overlapping imaging features with degenerating fibroid, adenomyosis, and cornual pregnancy, diagnosis is challenging and often delayed [3,7]. Early radiological diagnosis is crucial to prevent uterine rupture and preserve fertility [4]. Transvaginal ultrasonography, supplemented by Doppler evaluation, is the primary imaging modality for diagnosis [8].

CASE REPORT

A 32-year-old female, G2P1L1, presented with two months of amenorrhea and a positive urine pregnancy test. The patient had conceived spontaneously and had a previous lower segment caesarean section four years prior. She was initially evaluated elsewhere and diagnosed as incomplete miscarriage, following which suction and evacuation was attempted; however, products of conception were not retrieved.

The patient was referred for further evaluation. She was hemodynamically stable, with no active vaginal bleeding. On per vaginal examination, the uterus was retroverted, approximately 6–8 weeks in size, with mild posterior fornix tenderness.

USG Findings

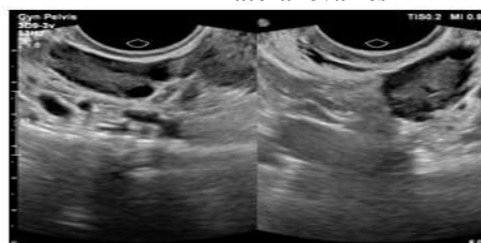
Transvaginal ultrasonography demonstrated an irregular gestational sac measuring approximately 5.5 × 4.5 cm, eccentrically located within the posterior myometrium near the left cornual region [4,8]. The uterine cavity was empty, with an endometrial thickness of 6 mm. The gestational sac was completely surrounded by myometrial tissue, with no communication with the endometrial cavity or cervical canal—an essential imaging criterion for myometrial pregnancy [2,7].

Color Doppler evaluation showed peripheral vascularity around the gestational sac, while both adnexa appeared normal and no free fluid was noted in the pelvis [9]. These findings favored a diagnosis of intramyometrial pregnancy

Ectopic gestational sac



Bilateral ovaries



Empty uterine cavity with interstitial line sign

Other Investigations

Serial serum β -hCG levels showed a slow and plateauing rise, inconsistent with normal intrauterine pregnancy and suggestive of ectopic gestation [10]:

- Day 1: 1381 IU/L
- Day 3: 1708 IU/L
- Day 5: 1769 IU/L

Blood Investigations

Routine hematological and biochemical investigations were within normal limits, excluding acute hemorrhage or infection. Normal hemoglobin levels and stable vitals suggested absence of rupture at presentation [6].

Histopathology Report

Histopathological examination revealed chorionic villi and trophoblastic tissue infiltrating the myometrial fibers, confirming the diagnosis of myometrial pregnancy [1,3]



Intraoperative Findings

Exploratory laparotomy revealed a uterus of approximately 8 weeks size with a focal bulge on the posterior aspect near the left cornua. Both fallopian tubes and ovaries were normal, excluding tubal or cornual ectopic pregnancy [2,5]. The gestational sac was embedded entirely within the myometrium and was excised en-sac. Passage of a uterine sound confirmed no communication between the gestational bed and the endometrial cavity, fulfilling diagnostic criteria for intramyometrial pregnancy [7].

DISCUSSION

Intramyometrial pregnancy is one of the rarest ectopic gestations, with fewer than 50 cases reported in literature worldwide [1,6]. Proposed etiologies include deep trophoblastic invasion, microscopic myometrial defects, abnormal uterine peristalsis, and previous uterine surgery, though spontaneous cases without risk factors have been reported [3,11].

From a radiological perspective, transvaginal ultrasonography is the first-line diagnostic modality [4,8]. Key imaging features include an empty uterine cavity, a gestational sac completely surrounded by myometrium, and absence of adnexal pathology [2,7]. Color Doppler helps differentiate myometrial pregnancy from degenerating fibroids and adenomyotic cysts by demonstrating trophoblastic vascularity [9].

MRI may be used as a problem-solving tool when ultrasound findings are inconclusive, providing superior delineation of myometrial involvement and ruling out scar pregnancy or invasive placentation [12]. Early diagnosis allows conservative or fertility-preserving surgical management, while delayed diagnosis significantly increases the risk of uterine rupture and hemorrhage [3,6].

Recent Indian case reports published in NMC-indexed national journals emphasize that meticulous transvaginal ultrasonography in early pregnancy significantly improves diagnostic accuracy for rare ectopic implantations such as myometrial pregnancy. Early imaging diagnosis helps avoid inappropriate uterine evacuation procedures, which may precipitate uterine rupture. Doppler assessment of peritrophoblastic vascularity is highlighted as an important adjunct in differentiating this entity from other myometrial lesions. Increased awareness among radiologists is essential to ensure timely diagnosis. A multidisciplinary, imaging-guided approach leads to better maternal outcomes



Thickened endometrium with ectopic gestational sac



Ectopic Myometrial Pregnancy

CONCLUSION

Myometrial pregnancy is a rare but potentially life-threatening form of ectopic pregnancy. Radiologists play a crucial role in early diagnosis through meticulous transvaginal ultrasonographic evaluation. Awareness of its imaging characteristics and differentials is essential for timely diagnosis, optimal management, and preservation of fertility.

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