Case Report

Rare Case of Intramural Pregnancy

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Abstract

Intramural pregnancy is a very rare form of ectopic gestation. There are very few cases published in the literature. The management strategies differ with respect to severity of presentation, average gestational age, and viability of the pregnancy at the time of diagnosis. Here, we report a case of intramural pregnancy, which was managed conservatively with review of data on this rare condition, with respect to its etiology, diagnosis, and treatment.

Keywords: Intramural Pregnancy, Ectopic Pregnancy, Medical treatment of Intramural Pregnancy

Introduction

Intramural gestation is a very rare form of ectopic pregnancy having implantation within the uterine wall away from the endometrial cavity. Early and prompt radiologic diagnosis aids in conservative management avoiding surgical intervention.

Case Report

A 32-year-old female gravida 3 para 1 presented to our hospital after a positive pregnancy test and vaginal spotting. Physical examination revealed a normal-sized uterus without tenderness, a closed cervical os, and no adnexal pathology. Medical history revealed that the patient had one full-term cesarean delivery in 2015. She further underwent medical termination of early pregnancy in February 2017 by surgical dilatation and curettage. She was taking metformin for diabetes and was on thyronorm 75 mg for hypothyroidism. Serum beta-human chorionic gonadotropin (b-HCG) was done 15 days before.

Sonographic examination revealed an empty uterine cavity [Figure 1]. Endometrium was thin with a thickness of 5.3 mm. Both adnexa were unremarkable with no localized probe tenderness on either side. No free fluid was seen in the abdominal and peritoneal cavity. Scar from the previous cesarean section was noted in the lower segment. A heterogeneous predominantly hypoechoic intramural space-occupying lesion measuring approximately 3.0 cm × 3.2 cm × 2.7 cm; volume 14.1 cc was noted in the region of left posterolateral wall of the mid uterine corpus [Figure 2]. This lesion was inferior and posterior to the left side cornua, at a distance approximately 1.6 cm away from it. It was seen embedded in the myometrial wall, away from the uterine cavity with no communication with the endometrial lining. Florid intralesional and peripheral vascularity was seen within it with a high-velocity and low-resistance waveform [Figures 3 and 4]. No definite evidence of any cystic appearing gestational sac seen with it. Further, evaluation with b-HCG was advised. In view of high b-HCG values (i.e., 7052 mIU/ml) with nonvisualized intrauterine or extrauterine gestational sac and solid myometrial lesion with intense peripheral vascularity, a possibility of intramural pregnancy was given.

Diagnostic laparoscopy revealed a focal bulge (3 cm × 4 cm) on posterolateral wall of the uterine body surrounded by myometrium [Figure 5]. Localized increased vascularity noted on the serosal surface of the bulge. Dilatation and curettage were done on ultrasonographic guidance. Dilator or curette could not reach the site of the lesion. Bilateral fallopian tubes and both ovaries were apparently normal. No

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evidence of ectopic gestation was noted elsewhere. Decision was made for medical management with close monitoring and follow-up by serum b-HCG levels. Single-dose regime of systemic methotrexate was given (90 mg) as calculated by the body surface area on June 25, 2017. Thereafter, serial b-HCG levels were done. The first two consecutive readings on July 1 and July 8 revealed a downward trend [Table 1]. However, b-HCG done later on July 15 showed a rise in level. Hence, the second dose of systemic methotrexate was administered on July 18, 2017, at b-HCG levels of 3430 mIU/ml. Steady downstream fall was then noted with b-HCG value <0.71 by September 11th.

**DISCUSSION**

Intramural ectopic pregnancy is a very rare pathology[1,2] with only few reported cases in literature. The gestational sac and trophoblastic reaction were implanted within the myometrial wall distinct from the endometrial cavity. This may occur due to defective decidual reaction and lysis by syncytiotrophoblast which leads to intramyometrial implantation of the conceptus. The gestational sac implanted within the uterine wall was not seen to communicate with the endometrial cavity nor with the fallopian tubes. The cause is attributed to the previous history of surgery, dilatation, and curettage or a history of uterine manipulation including embryo transfer.[3] Rarely, it can occur in patients with adenomyosis. This form of ectopic gestation is distinct

**Figure 1:** Ultrasonographic image of the uterus revealed retroverted uterus showing a previous lower segment cesarean scar on the anterior wall. The endometrial cavity was empty with no gestational sac seen within

**Figure 2:** Transvaginal sonography showed the lesion to be confined within the myometrial wall having no communication with the uterine cavity. The lesion is well seen inferior to the left side uterine cornua, embedded within the uterine wall

**Figure 3:** The lesion appeared heterogeneous on ultrasound showing mixed solid cystic components

**Figure 4:** Doppler evaluation revealed significant intralesional and perilesional vascularity with low-resistance waveform
from the cesarean scar pregnancy and the cervical ectopic pregnancy, where the conceptus is implanted at or below the level of internal os. The radiological diagnosis of intramural pregnancy is often difficult, and the only definitive sign is demonstration of a live fetus in a gestational sac embedded within the uterine wall outside the endometrial cavity. Memtsa et al. have proposed the diagnostic criteria for intramural pregnancy as gestational sac implanted within the myometrium above the level of internal os or below the interstitial part of the fallopian tube. Increased trophoblastic flow and lack of decidual reaction at the site of implantation are also suggestive of this pathology.

The management strategy varies depending on the clinical presentation, duration, and location. Complications such as uterine rupture, adherent placenta, and massive hemorrhage can occur due to delay in radiological diagnosis. For partial intramural pregnancy, the surgical evacuation by dilatation and curettage under ultrasound guidance could be offered. Complete intramural pregnancy is, however, not accessible to surgical approach, and hence, it could be managed medically with local or systemic methotrexate and intracardiac potassium chloride. Early ultrasound diagnosis of intramural pregnancy permits conservative medical management which preserves the woman’s future fertility. In our reported case, the intramural pregnancy was completely embedded within the myometrial wall; hence, it was not accessible surgically through dilatation and curettage. Laparoscopy resection of the mass could be done but in view of significant intralesional and perilesional vascularity, the risk of intraoperative blood loss was high. Hence, the medical management was attempted by systemic methotrexate administration. Early and prompt ultrasound diagnosis favored conservative management significantly reducing the maternal morbidity.

**Conclusion**

Intramural pregnancy is a very rare form of ectopic gestation. High index of suspicion with prompt diagnosis by the transvaginal ultrasound is crucial for conservative management. Early radiological diagnosis facilitates in medical management, and thus avoiding surgical intervention.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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**Table 1: Serial beta-human chorionic gonadotropin levels**

| Date       | Beta HCG (mIU/ml) |
|------------|-------------------|
| July 1, 2017 | 4669              |
| July 8, 2017 | 2914              |
| July 15, 2017 | 3430             |
| July 17, 2017 | 2767             |

HCG: Human chorionic gonadotropin
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