Misdiagnosed advanced interstitial pregnancy - A case report

Anupa Singhal, Sumi Garg, Prachi Renjhen, Dolly Chawla

From Department of Obstetrics and Gynaecology, Dr. Baba Saheb Ambedkar Hospital and Medical College, New Delhi, India

Correspondence to: Dr. Sumi Garg, Flat No 44, 2nd Floor Navvikas Apartment Rohini, Sector-15, New Delhi – 110 085, India. Phone: +91-9930264811. E-mail: sumygarg13@gmail.com

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ABSTRACT

Interstitial pregnancy is a rare and dangerous form of ectopic pregnancy that can be mistaken for a normal intrauterine pregnancy on ultrasonography leading to catastrophic results. Gynecologist should be aware of the potential for mistaking an interstitial pregnancy for intrauterine pregnancy. We present a case of 14 weeks interstitial pregnancy misdiagnosed on abdominal ultrasonography as intrauterine pregnancy with ascites. She was treated as sub-acute intestinal obstruction with severe anemia in pregnancy for 2 days. The correct diagnosis was first made at emergency laparotomy which showed hemoperitoneum and rent involving the right superolateral end of the uterus, with fetus and placenta lying in pouch of Douglas. Wedge resection of the right superolateral end of uterus along with repair done. Lack of suspicion and lack of expertise are a common cause for missing this rare ectopic pregnancy.

Key words: *Ectopic pregnancy, Interstitial, Ultrasonography*

Interstitial pregnancy is a rare but one of the most hazardous types of ectopic gestation. It accounts for 2–4% of all ectopic pregnancies with a mortality rate in the range of 2.0–2.5%. Interstitial pregnancies often present late due to the distensibility of surrounding myometrium tissue, thus symptoms manifest later, and pregnancies are more advanced when they rupture. As the pregnancy occurs at the most richly vascularized area of the female pelvis, the junction of the uterine and ovarian vessels, rupture usually causes profound and sudden shock [1]. Interstitial pregnancy is easily mistaken for a normal intrauterine pregnancy on ultrasonography, leading to catastrophic results [2]. Early diagnosis using ultrasonography can prevent complications such as massive hemorrhage and uterine rupture.

CASE REPORT

A 24-year-old woman G_2A_1 presented to a casualty of tertiary care hospital with a history of 3½ months of amenorrhea (14.4 weeks' pregnancy by dates) with chief complaints of pain in the abdomen, abdominal distension, bleeding per vaginam, and vomiting for 1 day. She had visited the emergency department twice before with similar complaints 1 week back and was being treated as a case of threatened abortion. She reported with two ultrasound report done 1 week apart showing intrauterine pregnancy of 14 weeks. The patient had a history of spontaneous abortion 2 years back of 2 months gestational age for which dilatation and evacuation were done. The present pregnancy was a spontaneous conception.

On clinical examination, she had pallor (hemoglobin 4.5 g/dl), pulse rate 130/min, and blood pressure 90/60 mmHg. On per abdomen examination, there was soft distension along with tenderness and guarding. On auscultation, bowel sounds were sluggish. On per speculum examination, cervix was healthy with external os closed and minimal bleeding was seen. On per vaginum examination, uterus size could not be made out due to distension and tenderness. Whole abdomen ultrasound was repeated which showed single live intrauterine fetus of 13 weeks 6 days, moderate ascites with prominent bowel loops, and sluggish peristalsis. Provisional diagnosis of 14-week pregnancy with severe anemia with subacute intestinal obstruction was made.

The patient was managed conservatively and 3 units of blood transfused. The patient condition improved in 2 days (hemoglobin 7.7 g/dl; pulse rate 96/min; and blood pressure 90/60 mmHg). However, next morning, the patient collapsed suddenly. The patient became hemodynamically unstable with cold clammy extremities, pallor, low volume pulse, tachycardia (pulse rate 150/min), and systolic blood pressure of 60 mmHg. On per abdomen examination, the abdomen was tense, tender and guarding was present. The patient was resuscitated and paracentesis was done which revealed hemoperitoneum, and decision of exploratory laparotomy was made. 2 L of hemoperitoneum along with rent of about 5 cm involving right superolateral angle of body of the uterus was noted. Fetus of 13–14 weeks size and placenta were found lying in the pouch of doughlas. Isthmic, ampullary, infundibulum portion of fallopian tubes and ovaries were found normal on both the sides (Figs. 1 and 2).

Wedge resection of right superolateral end of the uterus done and uterine cavity was not entered. The uterus was repaired in two layers. Abdominal cavity was explored by the surgeon. 2 unit of whole blood and 4 unit of fresh frozen plasma were given in intraoperative period. The patient was shifted to Intensive Care Unit and was on inotropes for 24 h and recovered. After 3 days, she was shifted to ward and discharged on the 10th day.

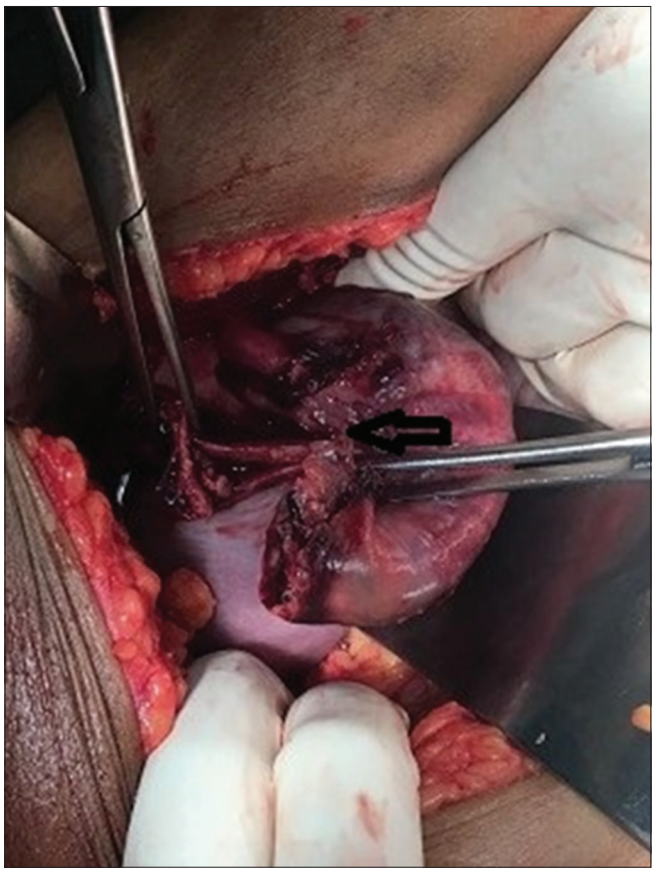

Figure 1: Intraoperative picture showing ruptured right superolateral angle of body of the uterus

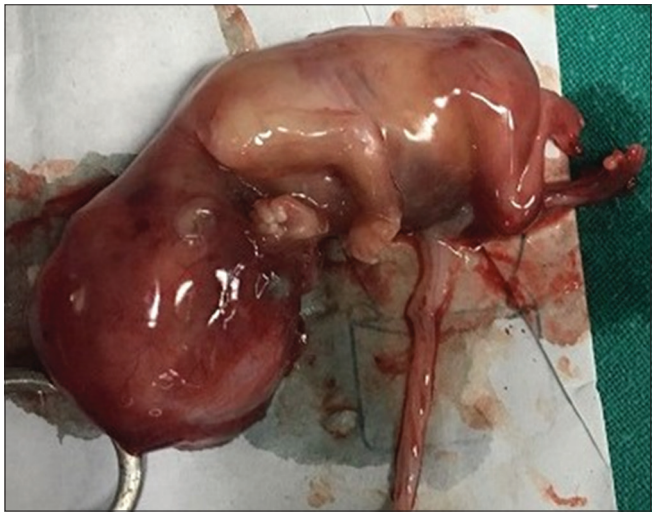

Figure 2: Fetus of 14-week size which was found lying in pouch of douglas

Histopathology of the resected part of uterus showed chorionic villi infiltrating into the wall of the fallopian tube. The wall of fallopian tubes showed hemorrhage, edema, and inflammation.

DISCUSSION

Interstitial ectopic pregnancy occurs when the embryo implants in the interstitial or intramural portion of the fallopian tube. The medical literature includes references that use the term "cornual pregnancy" and "interstitial pregnancy" interchangeably [3]. The interchangeable use of these two terms in clinical practice can create problems for clinicians interpreting ultrasound reports, as the clinical course and management differ markedly between intrauterine cornual gestations and ectopic interstitial gestations. Cornual ectopic pregnancy should be used for pregnancies which occur in rudimentary uterine horn, a unicornuate uterus, cornual region of a septate uterus, bicornuate uterus, or a uterus didelphys. An interstitial pregnancy is suspected when ultrasonography demonstrates an eccentric implantation of gestational sac at superior fundal level of the uterus. The eccentric location of the embryo may create difficulty in distinguishing an interstitial pregnancy from a cornual pregnancy. Three sonographic criteria can be used for the diagnosis of interstitial pregnancy: (a) empty uterine cavity, (b) chorionic sac separated 1 cm from the most lateral edge of the uterine cavity, and (c) thin myometrium layer surrounding the chorionic sac [3].

The "interstitial line sign" is an echogenic line that extends into the upper regions of the uterine horn and borders and the margin of the intramural gestation sac. It represents either the interstitial portion of the tube or endometrium, and it depends on the age and size of the gestation. The interstitial line sign has 80% sensitivity and 98% specificity for the diagnosis of interstitial ectopic pregnancy. However, these criteria are reproducible only in the first trimester and diagnosis becomes more difficult and equivocal when the gestation enlarges in the second trimester (Fig. 3) [4].

The three-dimensional (3D) transvaginal scans are very useful in obtaining the coronal scans of the fundal region of the uterus, giving a better overview of the cornual regions of the uterus. This eccentric location and superior and lateral myometrial stripes are better and easily visualized on coronal scans generated through 3D TVs, an infrequent achievement with two-dimensional scans [5]. Possible risk factors associated with the higher incidence of interstitial ectopic pregnancy include uterine anomalies, previous ectopic pregnancy or salpingectomy, pelvic inflammatory disease, previous intrauterine instrumentation, *in vitro* fertilization, and ovulation induction [6]. In the present case, there is a history of previous dilatation and evacuation which may have predisposed to this condition. The abdominal pain was clinically misinterpreted with subacute intestinal obstruction and also intraperitoneal bleed was misdiagnosed as ascites on ultrasound. On paracentesis, hemoperitoneum was diagnosed and decision of laparotomy taken. The similar case study was reported by Christian and Poul where abdominal pain was clinically misinterpreted as cholecystitis and intraperitoneal bleed for ascites and paracentesis revealed hemoperitoneum and laparotomy showed uterine rupture [7].

Interstitial pregnancies can be mistaken for normal intrauterine pregnancies because of its unique position. In 2003, Chan *et al.* reported 36 cases of interstitial ectopic pregnancies where 44.4% of cases were mistaken as intrauterine pregnancy on initial diagnosis. Rupture of interstitial pregnancy occurred in 40% of these women and in two cases, at an advanced gestation

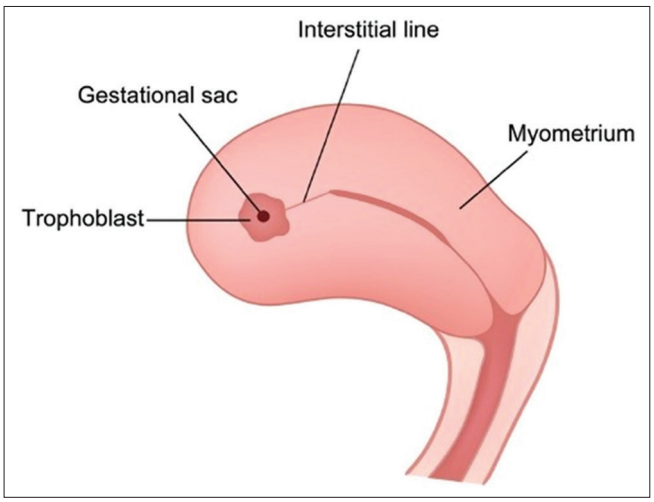

Figure 3: Diagram of the interstitial pregnancy and interstitial line sign

of 18–20 weeks [8]. Abbott *et al.*, in 1990, illustrated 10 common pitfalls in the diagnosis of ectopic pregnancy and found the delay in diagnosis and treatment occurred in 28 of 65 patients. Ultrasound was only helpful for half of the diagnosis and was misinterpreted in 27% [9].

Early diagnosis in the first trimester allows conservative management with methotrexate; however, if the diagnosis is made later in gestation, as in our patient, a surgical treatment with cornual resection and repair can be done by laparotomy/ laparoscopically.

CONCLUSION

Interstitial type is an uncommon type of tubal ectopic pregnancy and delay in diagnosis result in high maternal morbidity and mortality. However, an early diagnosis using ultrasonography at an early stage of pregnancy before rupture may prevent complications such as massive hemorrhage and uterine rupture. Although we have got latest diagnostic modalities, the history of typical triad of ectopic pregnancy pain, bleeding, and vomiting should not be overlooked and that one needs to think "Ectopic to diagnose ectopic."

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