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CASE REPORT

Ultrasound and MRI diagnosis of clinically unsuspected advanced abdominal pregnancy- A rare case

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ABSTRACT
Ectopic pregnancy accounts for approximately 2% of all pregnancies with the fallopian tube being the most common site for ectopic implantation. Abdominal ectopic pregnancy is very rare, thought to represent ~1% of all ectopic pregnancies with an estimated incidence of 1:1000-10,000 births (1). Abdominal pregnancy can be classified as being primary or secondary. Primary abdominal pregnancy is extremely rare and occurs when a fertilized ovum implants itself initially in the abdominal cavity. Most cases of abdominal pregnancy are secondary in that the fertilized ovum first implants in the fallopian tube, ovary or uterus and subsequently escapes through a rupture into the peritoneal cavity. There are reported cases of abdominal pregnancy developing to term with delivery of a live fetus through an abdominal incision. There is a significant risk of maternal intra-peritoneal hemorrhage with fatal consequences. The overall fetal survival rate remains low (2).

CASE REPORT

A 29-year-old multi-gravida at gestation of 34 weeks (based on LMP) with history of two previous vaginal deliveries came to ourhospital with mild abdominal pain and discomfort. The patient had no prior complaints, no other previous imaging. On clinical examination fetal bradycardia was detected and an emergency obstetric sonography scan was done to rule out fetal distress/impending fetal demise.

On Obstetric sonography a fetus of 32 weeks mean gestational age was found to be completely extrauterine (Figure 1) in location occupying the right maternal flank without surrounding uterine mantle in breech presentation. The uterus was seen separately and appeared bulky and showed normal decidual reaction and changes associated with pregnancy, but the endometrial cavity was empty (Figure 2). The placenta was also visualized outside the uterus in the peritoneal cavity and was abutting the fundus of the uterus. The placental shape appeared irregular on imaging. The fetus was viable with a heart rate of 118 beats per minute at the time of scan and on detailed examination was found to have moderate ventriculomegaly (Figure 1). The posterior fossa was poorly formed and there was corpus callosal agenesis. Liquor was completely absent. A diagnosis of abdominal pregnancy was made.

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Figure 1, 2: Ultrasound Images depicting extrauterine fetal head with Ventriculomegaly and an empty uterine cavity

Figure 3,4: T2 weighted Coronal and axial MR images depicting the completely extrauterine fetus lying in right maternal flank. Note the irregular, bulky placenta occupying most of the left abdominal quadrants

The patient was counselled regarding the abnormalities of the pregnancy and the fetus and the risk of carrying the pregnancy to term and the patient agreed for the termination of pregnancy via surgery.

As part of further workup before the surgery and to determine the vascular supply of the placenta and for the relation of the placenta and the fetus to the adjoining abdominal viscera, an abdomino- pelvic MRI scan was done.The MR confirmed the imaging findings of ultrasound and additionally showed that the placenta abnormally thick (Figure 3,4) and was adherent to the mesentry and received its blood supply from enlarged mesenteric vessels and left external iliac artery. The placenta was reaching upto the left fallopian tube.Based on MR findings, suspicion of ruptured tubal ectopic with secondary abdominal pregnancy was given**.** On surgery all the imaging findings were confirmed on the table. The surgery was performed via a midline incision and the fetus and the placenta were extracted from the peritoneal cavity. The fetus was alive when removed but expired after 30 minutes due to respiratory distress (Figure 5).

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Figure 5: Fetus removed from the right maternal flank. The fetus expired 30 minutes after delivery due to respiratory distress.

Figure 6: Abnormally large placenta extracted from the peritoneal cavity. Intraoperatively the placenta was found to have its's blood supply from the mesentric vessels as depicted on MR Imaging.

DISCUSSION

The above case is unique as there are very few documented viable abdominal pregnancy cases with such advanced gestational age.A high index of suspicion is important for making a diagnosis of abdominal pregnancy and its timely management after correct diagnosis (3).The imaging modalities in this case played a very important role as the obstetrician did not have any suspicion of an extrauterine pregnancy even at such an advanced stage as there was no such previous history or clinical symptoms. Whereas ultrasound played a key role as a first line imaging modality and gave a brief layout and idea about the anatomical defects associated with the fetus and the location, MR gave detailed anatomical details about the placenta, fetus and the vascular supply of the placenta which was determined to be from the inferior mesenteric and external iliac vessels which was crucial to the surgeon intraoperatively to control bleeding after the placental extraction.

The role of MRI is to locate the placenta and identify its adherence to any vital organs, including the liver and spleen. MRI not only helped confirm the diagnosis, but it delineated the exact anatomical localization of fetal parts and placental tissue as well as the adhesions to the uterus. This information proved vital in preoperative planning. (4). MRI has many advantages over ultrasound as bone, gas-filled structures and maternal obesity provides no hindrance to imaging.

Abdominal pregnancy could be either primary or secondary (5, 6). The latter is the commonest type. To consider abdominal pregnancy as primary, the pregnancy must meet the three criteria (7). The first is both tubes and ovaries must be in normal condition with no evidence of recent or remote injury (7). The second is no evidence of utero-peritoneal fistula should be present. The third is pregnancy must be related exclusively to the peritoneal surface (7). In our case both the ovaries were normal but a small rent was found in the leftfallopian tube which suggested an early implantation of the conceptus in the peritoneal cavity from the fallopian tube which went unnoticed as the patient did not present with any symptoms(8,9).

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