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OUR EXPERIENCE OF UNCOMPLICATED RARE CAESARIAN SCAR ECOPTIC GESTATION, IMAGING AND MANAGEMENT

Radiodiagnosis

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ABSTRACT

Cesarean scar pregnancies (CSPs) are the rare ectopic pregnancies, where the embryo is implanted in the scar of a previous cesarean section. As the rates of cesarean section are increasing globally, there is increased number of cases of CSPs is being reported and also due to improved detection of scar pregnancy with use of ultrasonography (US). Diagnosis of a cesarean scar pregnancy (CSP) requires a high index of clinical suspicion. US is the first imaging examination of choice. MRI is capable of more precisely identifying the relationship of a CSP to adjacent structures, thereby providing additional information critical to directing appropriate patient management and therapy. CSP is a potential life-threatening condition that may result in complications like uterine rupture and hemorrhage with significant potential maternal morbidity if the diagnosis and management is delayed.

KEYWORDS

Cesarean scar pregnancy, Magnetic resonance imaging, beta-HCG, Ultrasonography.

Presentation:

Our patient, a 28 year-old P2L2 (para2 living2) lady presented with complaints of irregular bleeding / spotting per vaginum (PV) and pain abdomen since one month. Her last menstrual period date (LMP) was 24days back and her cycles were irregular for the past few months. She underwent two previous LSCS lower segment Caesarian sections for her gestations and the family has two healthy living kids, elderly son of 3 years age and younger daughter of 1.5years old.

Her general physical examination was normal. Per-speculum examination revealed normal cervix and bleeding per vagina. On bi-manual examination, cervix pointed upward, uterus was bulky, retroflexed and bilateral fornices were free with no tenderness. Her routine blood and urine investigations were normal.

Trans-abdominal ultrasonography revealed a well defined anechoic solid-cystic focus in the anterior uterine wall measuring 4.9 x 2.4cm without any vascularity and empty endometrial cavity. Few days later, due persistent her symptoms, UPT was performed and was positive, additionally her serum beta HCG level was high of 51,000mlU/mL. Repeat ultrasonography (Figure-1) revealed well defined anechoic gestation sac measuring ~ 2.2cm in the lower uterine cavity / anterior wall close proximity to LSCS scar, having a yolk sac and a fetal pole corresponding to 7 weeks 2 days showing cardiac activity. There was small amount of blood in endometrial cavity and left ovary showed a corpus luetal cyst of 3.5 x 2.9cm with no free fluid in peritoneum. The urinary bladder wall was distinct without any invasion.

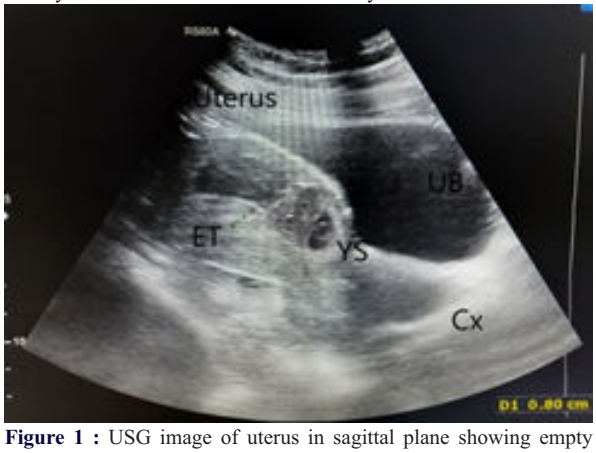

Figure 1 : USG image of uterus in sagittal plane showing empty uterine cavity with anterior anechoic gestation sac in the lower segment of anterior uterine wall having a yolk sac.

MRI pelvis (Figure 2) showed bulky uterus with an eccentrically located oval T2 & STIR hyperintense cystic lesion - gestational sac - measuring 2.7 x 2.1cm in the anterior uterine wall at previous LSCS scar with a small hypointense fetal pole (1.4cm) representing caesarean scar pregnancy. Although there was no e/o rupture, T1 hyperintense haemorrhagic fluid was noted in endometrial cavity. The urinary bladder was normal in size and signal intensity without any involvement. Both ovaries and adnexa were normal in size and signal intensity. No free fluid is seen.

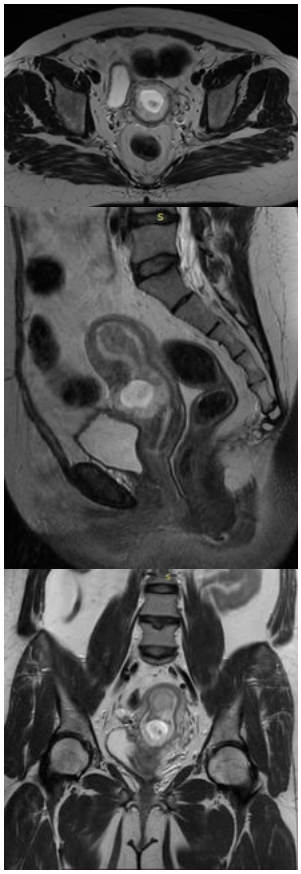

Figure 2 : MRI pelvis T2WI showing a well defined T2 hyperintense gestation sac measuring 2.7 x 2.1cm with a fetal pole at anterior wall of

lower uterine segment. No rupture or involvement of the urinary bladder.

The patient underwent laproscopic excision (Figure 3) of ectopic gestation successfully under GA. The sac, fetus, products of conceptions and surrounding scar was excised. It was communicating with uterine cavity causing hematometra and had adhesions with the urinary bladder. The adhesions were gently lysed, edges of scar tissue were excised and freshened, suturing was done. Bilateral tubal ligation was also done. Tissue was sent for histopathological examination and diagnosis of Caesarean scar ectopic pregnancy was confirmed (Figure 4). Patient was followed up with serum Beta human Chorionic Gonadotropin (ß-hCG) level, till B-HCG came to non-pregnant level.

Figure 3: Laparoscopic image fetus and products in the vesico-uterine pouch after incision for evacuation.

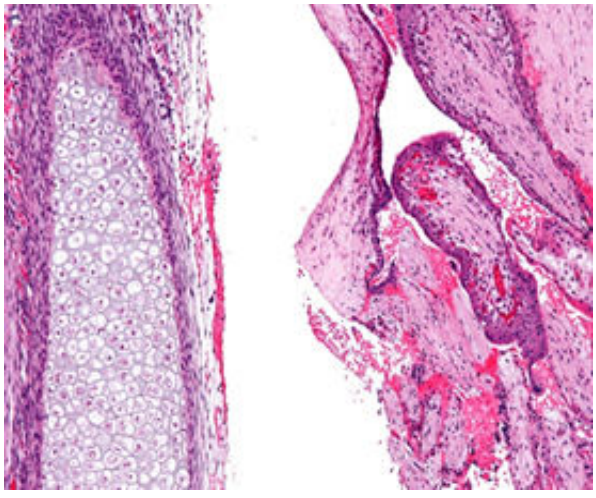

Figure 4: showing Chorionic villi with fetal cartilage;H&E,10x

DISCUSSION:

Cesarean scar pregnancy (CSP) is a rare form of ectopic pregnancy resulting from implantation of a blastocyst within myometrial scar tissue in the anterior lower uterine segment (LUS), at the site of prior Cesarean section. CSP has an incidence of ~1:1800-2200 pregnancies. The overall incidence is increasing, representing up to 6% of ectopic pregnancies in patients with a history of a Caesarean section[1,2,3,4].

The physiopathology of CSP remains unclear. The potential risk factors include large Cesarean section scar dehiscence, a brief gap of time between a Cesarean delivery and a new pregnancy, the technique of closing the Cesarean wound, in vitro fertilization (IVF) techniques, and the difference between endometrial and myometrial tissue vascularization in the Cesarean scar niche and the rest of the endometrium[5].

The sonographic criteria for CSP include an empty uterine cavity, closed and empty cervical canal, a gestational sac that fills the niche of the scar, a gestational sac that is implanted in the previous CS scar, a thin or absent myometrial layer between the gestational sac and the bladder, yolk sac, embryo and cardiac activity may or may not be present, evidence of functional trophoblastic circulation on colour flow Doppler and the negative 'sliding organs' sign[6,7,8]. The absence of myometrium between the gestational sac and the bladder and an empty uterine cavity as well as an empty cervical canal helps to distinguish cervical ectopic pregnancy from a CSP A high index of suspicion is required to make an accurate diagnosis of CSP. The challenge with diagnosis of CSP could also be because of the fact that because it is rare, most of the Obstetricians and Radiologists may not have encountered it previously in their experience.

MRI can accurately detect the exact site of pregnancy, thus confirming the diagnosis, and allows the clinicians to consider conservative management as initial therapy[9,10]. Its superior soft tissue and spatial resolution allows improved characterization of CSPs. Sagittal and axial T1- and T2-weighted sequences can depict the gestational sac implanted in the anterior lower uterine segment and more clearly define involvement of adjacent organs (e.g. urinary bladder). In addition, the multiplanar imaging capability of MR may be helpful in orienting the surgeon and considering operative management if required.

The management options include expectant management, intramuscular or intra-lesional injection of methotrexate and surgical treatment[11,12]. Surgical excision was the treatment of choice in our case because the pregnancy was extending exogenously, the fetus had active cardiac activity, and the bHCG levels at diagnosis were very high. Methotrexate has traditionally been used for the management of ectopic pregnancies with a bHCG value less than 5000 mIU/ml. Uterine artery embolization and expectant management require close follow-up to avoid potential complications like uterine rupture and are options in stable patients. Surgical treatment is the most definitive treatment option that removes the gestation completely, offers an opportunity to repair the uterine defect and a chance at future fertility.
The risk of recurrent scar ectopic pregnancy is low, 3.2–5.0%. Women who wish to continue childbearing should be informed of the low risk of recurrence but the potential serious sequelae of a recurrence. Even with an intrauterine pregnancy, the woman is still at risk of complications like uterine rupture, massive hemorrhage, abnormally adherent placenta, and hysterectomy. Future pregnancies require meticulous specialist follow-up[13].

CONCLUSION:

Cesarean scar ectopic pregnancy is being reported more often as greater numbers of elective cesarean procedures are performed worldwide and is potentially life-threatening condition. US remains the first imaging modality of choice for diagnosis, though MRI may play a greater role in evaluating CSPs. Treatment must be tailored to each individual case and requires careful discussion between the patient and clinician. In the end, the decision should be made based on the patient's clinical presentation, age of the gestation, desire for future fertility, and clinician's experience in managing this condition.

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