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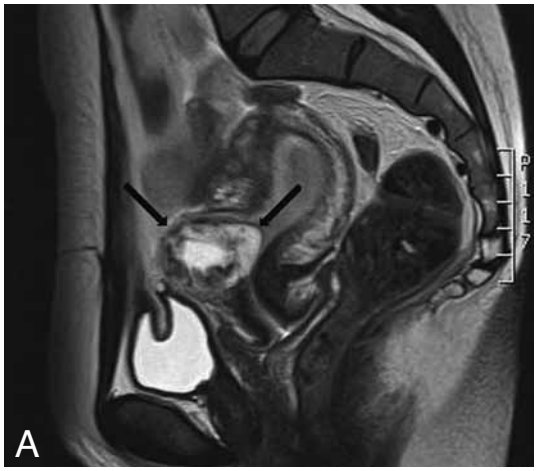
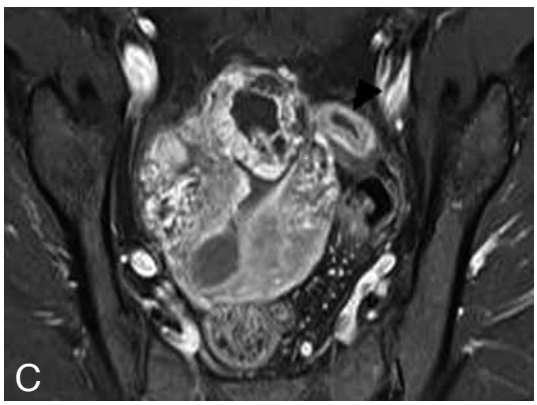
IMAGES IN CLINICAL RADIOLOGY





Cesarean scar pregnancy: MRI features

J. Marrannes[1]

A 34-year-old woman, gravida 4, para 2, presented at the emergency room with severe abdominal pain and red vaginal bleeding. Medical history revealed 2 previous cesarean sections at term gestation. Laboratory findings showed an elevated b-HCG consistent with an estimated gestational age of 6-7 weeks. Transabdominal ultrasound showed a well-circumscribed, thick-walled cystic mass within the lower part of the anterior myometrium. In the central cystic cavity a small mural nodule with discrete pulsatile flow was noticed. Subsequently a pelvic MRI exam was performed confirming the presence of the thick-walled, well-circumscribed mass in the lower part of the uterine wall (Fig. A). The mass extended beyond the expected contour of the uterus and no overlying myometrial tissue could be identified at the anterior border. At the cranial and posterior border of the mass a non-enhancing, T2 hypointense fibrous band was noticed, consistent with scar tissue of the two previous cesarean sections (Fig. B). The wall of the mass was T2 hyperintense, T1 iso-intense and showed a strong and heterogeneous enhancement following intravenous administration of gadolinium (Fig. C). The central portion of the mass was T2 hyperintense, T1 hypo-intense and showed no contrast enhancement. The cavity of the uterus was filled with T1 hyperintense, hemorrhagic fluid. A corpus gravidarum was seen on the left side. These findings were consistent of an ectopic pregnancy in a cesarean scar. Patient was successfully treated with a combination of chemotherapy and bilateral uterine artery embolization followed by a planned hysterectomy several weeks later.

Comment

Ectopic pregnancy most frequently occurs in the ampullary portion or isthmic region of the fallopian tube. Extratubal locations, such as in the cervix, the ovary, the myometrium or abdominal cavity are uncommon. Pregnancy developing in a previous cesarean scar is very unusual.

Review of several cases noted that endometrial and myometrial disruption and scarring caused by the cesarean incision are the main predisposing factors. Poor development of the lower uterine segment, such as in breech presentation, may predispose to incomplete healing of the scar and subsequent implantation of pregnancy in it. Multiple cesarean sections are also risk factors contributing to the development of larger cesarean scar defects.

Two different types of pregnancy in a cesarean scar can be put forward. The first consists of an implantation of the gestational sac on a scar with progression in the uterine cavity. The second is a deep implantation of the gestational sac in a cesarean scar defect with progression towards rupture and bleeding. Evaluation of the integrity of the anterior uterine wall at the level of the gestational sac is therefore of crucial importance.

As soon as the diagnosis of cesarean scar pregnancy is determined, termination should be considered due to the risk of uterine rupture and consequent life-threatening hemorrhage.

Reference

1. Rotas M.A., Haberman S., Levgur M.: Cesarean scar ectopic pregnancies: etiology, diagnosis, and management. *Obstet Gynecol*, 2006, 107: 1373-1381.

1. Department of Radiology, Stedelijk Ziekenhuis Roeselare, Roeselare, Belgium.