



Received: 2016.08.18  
Accepted: 2016.10.05  
Published: 2017.06.01

**Authors' Contribution:**

- A** Study Design
- B** Data Collection
- C** Statistical Analysis
- D** Data Interpretation
- E** Manuscript Preparation
- F** Literature Search
- G** Funds Collection

## An Unusual Case of Live Caesarean Scar Ectopic Pregnancy: A Common Entity in an Uncommon Location

Sayali D. Joshi<sup>ABCDEF</sup>, Shenaz A. Momin<sup>ACDEF</sup>, Dev Shetty<sup>CDG</sup>

Department of Radiology, Topiwala National Medical College and B.Y.L Nair Charitable Hospital, Mumbai, India

**Author's address:** Sayali D. Joshi, Department of Radiology, Topiwala National Medical College and Nair Hospital Charitable Trust, Mumbai, India, e-mail: sayjo87@gmail.com

### Summary

**Background:**

Scar pregnancy is an extremely rare type of ectopic pregnancy, where there is implantation of the gestational sac onto the anterior wall of the uterus at the site of previous LSCS scar in a multipara female. Due to a poor vascular supply to the lower uterine segment, caesarean scars may heal improperly predisposing it to be a site of improper implantation of the gestational sac.

**Results:**

The characteristic features are empty uterus and cervix, gestational sac in the anterior part of lower uterine segment with a history of painless vaginal bleeding. It carries a high risk of morbidity related to uterine rupture and extensive haemorrhage.

**Conclusions:**

In case of a previous LSCS delivery in a female with a viable gestational sac in the lower uterine segment and elevated B-Hcg levels, the possibility of scar ectopic pregnancy should be considered. KCl or methotrexate can be injected directly into the foetal pole under transvaginal ultrasound guidance in order to stop the cardiac activity in the foetus. The knowledge of the specific ultrasound features of uncommon locations of ectopic pregnancies such as an ectopic scar is crucial for a correct diagnosis and early management in order to prevent complications.

**MeSH Keywords:**

**Amenorrhea • Cesarean Section • Chorionic Gonadotropin, beta Subunit, Human • Methotrexate • Pregnancy, Ectopic • Ultrasonography**

**PDF file:**

<http://www.polradiol.com/abstract/index/idArt/901118>

### Background

Scar ectopic pregnancy is a rare entity in which the gestational sac is present along the anterior uterine wall at the site of a previous LSCS scar in the myometrial wall. Complications include uterine rupture and haemorrhage with a possible need for laparotomy followed by hysterectomy.

### Case Report

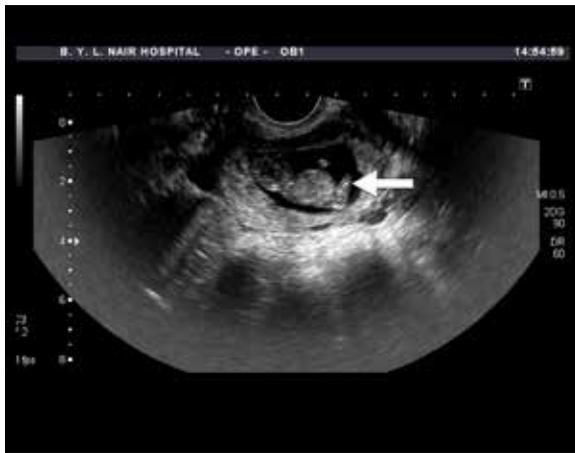
A 34-year-old mother of two, with previous lower segment caesarean section (LSCS) delivery came with a history of 2-month amenorrhoea and complaints of pain in the lower abdomen for 1 week. Her urine pregnancy test was positive and an abdominal ultrasound was performed which revealed a gestational sac with a foetal pole, cardiac activity and a yolk sac in the lower uterine segment along the anterior aspect of the lower uterine wall. Endometrium along the fundus of the uterus appeared normal, measuring

5 mm. (Figure 1 – white arrow indicates foetus, Figure 2 white arrow indicates upper uterine segment with normal endometrium, black arrow indicates foetus)

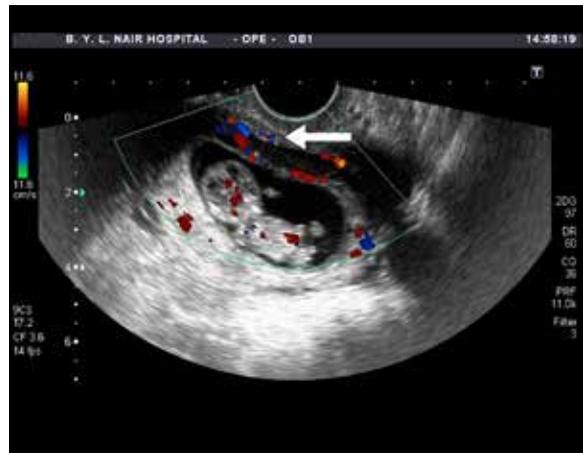
On colour Doppler imaging, a peripheral vascularity was noted around the gestational sac and also along the anterior wall of the lower uterine segment (Figure 3 – white arrow indicating vascularity). Both ovaries were normal with no free fluid in the pouch of Douglas (Figure 4 – white arrow indicates right ovary, grey arrow indicates left ovary).

B-hcg (Beta Subunit, Human Chorionic Gonadotropin) level was 28,000, pointing towards the possibility of an ectopic pregnancy.

In spite of lower abdominal pain, nausea and vomiting, there was no history of vaginal bleeding. Due to the continuous aggravating pain, the patient was taken for an emergency laparotomy.



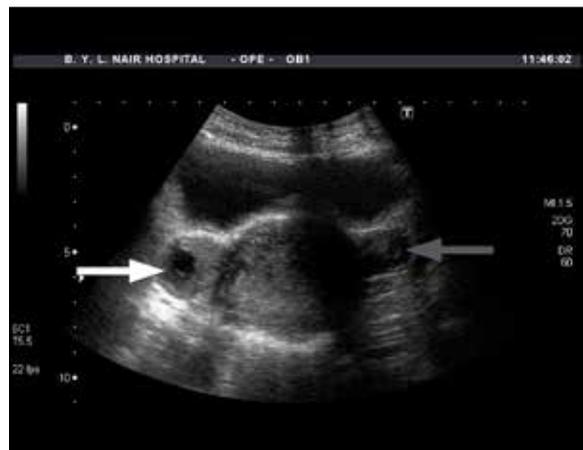
**Figure 1.** Transvaginal ultrasound reveals a gestational sac with a foetal pole indicated by a solid white arrow.



**Figure 3.** Transvaginal ultrasound with colour Doppler reveals an area of peripheral vascularity around the gestational sac (solid white arrow). Cardiac activity is noted in the form of colour fill in the foetus indicating a live pregnancy.



**Figure 2.** Transvaginal ultrasound reveals the upper uterine segment with normal endometrium (solid white arrow) and a gestational sac with a foetal pole in the lower uterine segment (solid black arrow).



**Figure 4.** Transabdominal ultrasound depicts upper uterine segment without any gestational sac. Both ovaries appear normal with follicles within them (solid white arrow indicates the right ovary, solid grey arrow indicates the left ovary).

Post-operative features revealed an exophytic gestational sac along the anterior lower uterine wall along the LSCS scar site, with thinned myometrial wall, consistent with scar ectopic gestation. The gestational sac was removed and the uterus was preserved.

## Discussion

An ectopic pregnancy occurs when the developing blastocyst becomes implanted at a site other than the endometrium of the uterine cavity [1].

A combination of biochemical (quantitative assay for {b-hCG) and imaging findings on pelvic sonography are the basis for the diagnosis of an ectopic pregnancy. A negative serum {b-hCG result essentially excludes the diagnosis of a live pregnancy, although a chronic ectopic pregnancy may be present [2].

The classic triad of signs and symptoms of ectopic pregnancy consists of abdominal or pelvic pain, vaginal bleeding and a tender adnexal/uterine wall mass [2]. Of all the types, the rarest form of ectopic pregnancy is the implantation

of a pregnancy within a caesarean fibrous tissue scar. Due to the risk of uterine rupture, it is considered to be a life-threatening condition.

Because of a poor vascular supply to the lower uterine segment, caesarean scars may heal improperly, resulting in focal dehiscence tracts that may predispose to trophoblastic invasion and improper implantation of the gestational sac [1].

One of the hypotheses is that the conceptus enters the myometrium through the defect in the caesarean section scar or a microscopic dehiscence tract [3]. There is a complete embedding of the gestational sac in the myometrium which progressively disappears or becomes thinner owing to distension of the gestational sac [4].

Caesarean scar pregnancy represents less than 1% of ectopic pregnancies and is thus rare. Up to 72% of caesarean scar pregnancies occur in women who have had 2 or more caesarean deliveries. Due to the rise in caesarean delivery

rates, the incidence of caesarean scar pregnancy has steadily increased over the years [1].

The classic features are development of gestational sac in the anterior part of the lower uterine segment, with empty uterus, empty cervix and absence of healthy myometrium between the gestational sac and bladder wall [2]. A gestational sac implanted in a caesarean scar can be seen to be protruding anteriorly through the scar growing towards the uterus or bladder and the abdomen [1].

Up to 40% of patients will not present with specific clinical symptoms, hence a high index of suspicion for caesarean scar pregnancy is critical [5]. Painless vaginal bleeding with a history of one or more caesarean sections is a typical presentation. Early sonogram in such cases usually shows a gestational sac implanted in the lower uterine segment, with local thinning of the myometrium and prominent vascularity at the implantation site. Vascularity is an important distinguishing feature between a cervical scar implantation and an incomplete abortion and helps decide on the treatment [6].

A good flow around the ectopic site is presumed to make the tissue viable, whereas absent vascularity around the site is highly suggestive of a non-viable pregnancy. MRI can accurately detect the exact location of pregnancy, thus confirming the diagnosis [7].

If the pregnancy progresses beyond the first trimester, it puts the mother at a significant risk of an emergency hysterectomy in case of a viable pregnancy. Uterine scar rupture and lethal haemorrhage can occur in case the caesarean scar pregnancy is misdiagnosed and dilation and curettage is performed. This is due to the fact that the chorionic villi invade and implant deeply into the scar tissue at the

anterior lower uterine segment, making the gestational sac potentially unreachable for complete evacuation. There is a risk of rupturing the uterine wall or damaging the bladder [1].

KCl or methotrexate can be injected directly into the foetal pole under transvaginal ultrasound guidance in order to stop cardiac activity in the foetus. This leads to termination of pregnancy and prevents surgical intervention [6].

Surgical management is chosen in high-risk cases, such as delayed maternal age of pregnancy, where the local removal of the gestational sac at the scar site is done or even hysterectomy can be performed if required in cases of uterine wall invasion.

## Conclusions

In case of a previous LSCS delivery in a female with a viable gestational sac in the lower uterine segment and elevated B-Hcg levels, the possibility of scar ectopic pregnancy should be considered in spite of its low likelihood. Urgent intervention may be required in such cases to prevent major complications such as uterine rupture.

To prevent complications, termination of pregnancy in the first trimester should be considered. Direct injection of potassium chloride or methotrexate into the embryo, under transvaginal sonographic guidance, can be used as a conservative management in order to stop cardiac activity [6,8].

The awareness of specific ultrasound features of uncommon locations of ectopic pregnancies such as scar ectopic pregnancy is crucial for making a correct diagnosis and initiating prompt management in order to prevent complications [1].

## References:

1. Chukkasa A, Tirada N, Restrepo R, Reddy N: Uncommon implantation sites of ectopic pregnancy: Thinking beyond the complex adnexal mass. *Radiographics*, 2015; 35(3): 950-54
2. Levine D: Ectopic pregnancy. *Radiology*, 2007; 245: 385-97
3. Shah SR, Vyas RC, Edwin R et al: Management of cesarean scar pregnancy. *Journal of Dental and Medical Sciences*, 2014; 13(9, Ver. IV): 14
4. Callen PW: *Ultrasonography in Obstetrics & Gynaecology*, 5th ed., Saunders, 2008
5. Wu R, Klein MA, Mahboob S et al: Magnetic resonance imaging as an adjunct to ultrasound in evaluating cesarean scar ectopic pregnancy. *J Clinical Imaging Sci*, 2013; 3: 16
6. Rumack CM, Wilson S: *Diagnostic ultrasound*, 4th ed., Elsevier, 2011; 1106-7
7. Awad FM, Kamal EM: MRI in cesarean scar ectopic pregnancy. *Medical & Clinical Reviews*, 2015; 1(1): 2
8. Brasic N, Warden M, Vargas JE: Conservative management of cesarean scar pregnancy with sonographically guided transvaginal methotrexate injection. *Journal of Ultrasound in Medicine* 2013; 32(6): 1061-63