

Caesarean section scar ectopic pregnancy: a new problem or new name for an old one?

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Until recently, only a few of us had heard of a Caesarean section scar ectopic pregnancy. However, with new case reports being published in medical journals almost every day, it feels as if we are witnessing a global epidemic of a previously unknown form of ectopic pregnancy. Is this a true challenge for all of us or are we being offered a new fancy medical diagnosis of questionable clinical significance?

Several factors have contributed to the rise of this new medical phenomenon. It is fairly obvious that the implantation of early pregnancy into a lower segment scar cannot occur without a woman previously undergoing a lower segment Caesarean section. In recent years, the number of Caesareans has been increasing steadily worldwide. Although lower uterine segments usually heal well after the operation, in a significant number of cases there is a substantial loss of both myometrium and the endometrium at the scar site. These defects typically communicate widely within the cervical canal, creating a characteristic “niche” in which pregnancy may implant^{1,2}. Despite a relatively large number of women with deficient Caesarean scars in the population, implantation of pregnancy in this defect is relatively rare^{3,4}. This may be explained by the location of defects. They are so distant from the uterine fundus that only a few early blastocysts venture so far in searching for a suitable implantation site. A majority of those that reach a deficient scar are likely to fail as support for trophoblast development is poor due to the lack of decidua⁵. Only a few very resilient pregnancies can survive the harsh climate of “the uterine Arctic”. However, with the increasing number of Caesareans being performed it is inevitable that the number of pregnancies implanting in the scar is also increasing, leading to an increase the number of both sub-clinical and clinically detectable pregnancies.

Another important factor contributing to the perceived increase in the number of scar pregnancies is the liberal use of ultrasound for the assessment of women with suspected early pregnancy complications. High resolution transvaginal ultrasound has substantially improved the quality of ultrasound diagnosis in gynaecology and it has also helped us to learn more about subtle morphological features of uterine anatomy such as the appearance of Caesarean section scars.⁶ In addition, in most women we are now also able to ascertain the exact site of pregnancy implantation. Such diagnostic accuracy was not possible using trans-abdominal scans and therefore in most cases the diagnosis of scar implantation was missed using this modality.

The ability to diagnose the implantation of an early gestational sac into the Caesarean scar has now opened the possibility to study for the first time the natural history of this condition. We have already learned that, similar to other non-tubal ectopics, 40–50% of these pregnancies fail during the first trimester, but a significant proportion has a potential to progress further³.

A strong association between previous Caesarean section and abnormal placentation has been documented in the past as well as the severe morbidity and significant mortality associated with this condition^{7,8}. The pathophysiology of scar implantation provides a strong indication that Caesarean scar ectopic may be a precursor of placenta praevia/accreta. Many clinicians see scar implantation as a variant of cervical ectopic pregnancy and in most cases these pregnancies are terminated. This has made it very difficult to study the natural history of scar implantation. A few case reports have appeared in recent years, however, which provide a strong indication that a first trimester scar pregnancy containing a live embryo has the potential to evolve into placenta praevia accreta⁹.

Some clinicians have questioned the use of the term ectopic pregnancy to describe scar implantation. This reluctance is understandable, bearing in mind the novelty of this diagnosis and all the uncertainties regarding its natural history and clinical significance. However, scar pregnancy, being located outside the uterine cavity, satisfy the criteria for the diagnosis of ectopic pregnancy just as well as any other form of ectopic pregnancy located within the myometrial mantle, such as interstitial or cervical pregnancy. The severe clinical problems associated with this abnormality also necessitate the diagnosis and treatment of scar pregnancies as a form of ectopic pregnancy.

The most difficult question in clinical practice is whether termination of a desired live first trimester scar pregnancy is justified based on current clinical experience. To answer this question we need to be reasonably confident that there are significant risks to a mother’s health if pregnancy is allowed to continue. We need to provide evidence showing that treatment in early pregnancy is safe and effective, that this treatment will preserve woman’s fertility and that the risk of recurrence of scar implantation is low.

Recommendations of the recent enquiry into maternal deaths in the UK have strengthened the arguments in favour of early intervention. The enquiry has identified abnormally adherent placenta following previous Caesarean section as one of the leading causes of maternal morbidity and mortality and has advised clinicians to make every effort to identify an abnormally adherent placentas as soon as possible in order to minimise maternal risks.¹⁰

Recent studies have shown that surgical treatment of scar ectopics in the first trimester can be accomplished safely

and effectively with a relatively little blood loss.¹¹ There is also emerging evidence that women's fertility is not compromised by the treatment of scar pregnancy, that the subsequent pregnancy outcomes are not adversely affected by the scar implantation and the risk of recurrence is very low¹².

The available evidence suggests that the first trimester surgical evacuation of non-viable scar pregnancy is relatively simple and safe. In view of the low risk of recurrence it is difficult at present to justify the use of any surgical procedures, either minimally invasive or open, to repair defective Caesarean section scars.

Learning more about the natural history of live scar ectopic pregnancies remains our main priority. Although there are strong indications that first trimester scar pregnancies may be precursors of placenta previa/accreta, more data are needed before we would be able to offer women management based on sound clinical evidence. Unfortunately, the current medico-legal climate generates strong preference for intervention amongst medical practitioners, and therefore it may take a while before we will be able to collect sufficient information about the natural history of this condition.

Until more data are available, each woman diagnosed with scar implantation should be managed individually. Women should be given extensive counselling about potential clinical outcomes and a clear choice between expectant management and termination of pregnancy. They should also be informed about our uncertainties regarding the clinical significance and optimal management of this condition. In these circumstances the decision to terminate a wanted pregnancy is very difficult and it should only be made with the involvement of the woman, her family and other health professionals with expertise in providing pregnancy care.

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