<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Caesarean Scar Ectopic: sonographic findings and management dilemmas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authors(s)</strong></td>
<td>Hughes, H.; Mulcahy, C.; Moran, Mary</td>
</tr>
<tr>
<td><strong>Publication date</strong></td>
<td>2015-12-11</td>
</tr>
<tr>
<td><strong>Conference details</strong></td>
<td>The 47th Annual Scientific Meeting of the British Medical Ultrasound Society: Ultrasound 2015, City Hall, Cardiff, Wales, UK, 9 - 11 December 2015</td>
</tr>
<tr>
<td><strong>Link to online version</strong></td>
<td><a href="https://www.bmus.org/bmus-annual-meeting-2015/">https://www.bmus.org/bmus-annual-meeting-2015/</a></td>
</tr>
<tr>
<td><strong>Item record/more information</strong></td>
<td><a href="http://hdl.handle.net/10197/7370">http://hdl.handle.net/10197/7370</a></td>
</tr>
</tbody>
</table>
Introduction

The last decade has seen an increase in caesarean section (CS) rates in Ireland and internationally with a concomitant rise in the incidence of caesarean scar ectopic. Greater awareness of the sonographic presentations of caesarean scar ectopic at different gestational ages may improve detection rates and reduce morbidity (Timor-Tritsch et al, 2012).

Table 1: Rising Caesarean section rates in Ireland (E.S.R.I., 2013).
The prevalence of caesarean scar eptics is thought to be 1 in 2000 pregnancies causing significant morbidity and mortality (Sieckso et al, 2014). Defined as implantation of the pregnancy within the scar, it is thought to occur due to a fistula developed between the scar and the endometrium. The potential for uterine rupture causing massive haemorrhage is caused by trophoblastic invasion from the implantation site without the supportive myometrium (Jungkman and Anderson, 2015).

Four cases identified in an Irish tertiary referral centre over 4 years demonstrate the differing presentations of caesarean scar ectopic and the management dilemmas discussed in the setting of Irish legislation in relation to termination of pregnancy.

Ultrasound Appearance

1. Empty uterine endometrial cavity and cervical canal.
2. Gestational sac (GS) +/- embryo located anteriorly at the level of the CS scar above the internal cervical os.
3. Appearance of a thin myometrium anterior to the GS adjacent to the bladder.
4. The presence of GS bulging out of the uterine wall contour.
5. Colour Doppler demonstrating evidence of prominent trophoblastic vessels surrounding the caesarean scar.

(Zosmer et al, 2015)

Trans-vaginal scanning (TVUS) greatly expedites diagnosis due to higher resolution imaging of the implantation site (Sieckso et al, 2014).

Case 1

38 yr. old G4 P3, 2 vaginal deliveries, 1 previous CS and 1 ERPC for miscarriage. Presented to E.P.A.U. at 7 weeks gestation, reporting mild pelvic cramping. A TVUS identified a GS containing a live embryo within the caesarean scar. βHCG was 9775mIU/ml.

Figure 1: TVS Longitudinal view of the uterus

38 yr. old G3 P2: previous CS. She presented with brown PV spotting and back pain at 6 weeks gestation. TVUS demonstrated an empty thin fundal endometrium with a gestational sac containing only a yolk sac positioned in the CS scar (Fig.1). There was absence of vascular flow on colour Doppler, as mentioned by Sieckso et al (2014), suggestive of a failing pregnancy.

Management decision was delayed to await serial βHCG. Expectant management was continued as the serial βHCG decreased from 595mIU/ml to <2mIU/ml in 2 weeks, and ultrasound demonstrated no sac visible in the uterus or scar. Symptoms resolved after 2 weeks and she went on to have an intrauterine pregnancy 1 year later, delivered at term by elective CS.

This case demonstrates the identification of a caesarean scar pregnancy in the first trimester, however no intervention was needed due to the failing pregnancy.

Case 2

38 yr. old G4 P3, 2 vaginal deliveries, 1 previous CS and 1 ERPC for miscarriage. Presented to E.P.A.U. at 7 weeks gestation, reporting mild pelvic cramping. A TVUS identified a GS containing a live embryo within the caesarean scar. βHCG was 9775mIU/ml.

Figure 2: GS seen separate from the endometrial cavity in the lower uterus at the level of the CS scar.

The risks of continuing the pregnancy versus termination of pregnancy was discussed. Maternal request was to preserve fertility, and medical treatment of intramuscular methotrexate was given, with outpatient surveillance, involving serial scanning and βHCG monitoring. A second dose of methotrexate was needed after one week as βHCG was 7831mIU/ml. She remained haemo-dynamically stable, and a scan revealed involution of the scar after 2 months and no βHCG detected.

She proceeded to have a miscarriage then a successful intrauterine pregnancy 2 years later.

Case 3

38 yr. old G3 P2, 2 previous CS. She presented with brown PV spotting and back pain at 6 weeks gestation. TVUS demonstrated an empty thin fundal endometrium with a gestational sac containing only a yolk sac positioned in the CS scar (Fig.1). There was absence of vascular flow on colour Doppler, as mentioned by Sieckso et al (2014), suggestive of a failing pregnancy.

Management decision was delayed to await serial βHCG. Expectant management was continued as the serial βHCG decreased from 595mIU/ml to <2mIU/ml in 2 weeks, and ultrasound demonstrated no sac visible in the uterus or scar. Symptoms resolved after 2 weeks and she went on to have an intrauterine pregnancy 1 year later, delivered at term by elective CS.

This case demonstrates the identification of a caesarean scar pregnancy in the first trimester, however no intervention was needed due to the failing pregnancy.

Case 4

39 yr. old G0P5, 3 previous CS. Presented at 16 weeks gestation from a regional center with substantial vaginal blood loss and pain and was haemo-dynamically unstable. A live fetus was seen on TVUS with the placenta identified to the anterior uterine wall and evidence of absent myometrium between the sac and the maternal bladder. An emergency hysterectomy was performed, she received 6 units of blood, and ICU care required for 3 days. Pathology showed morbidly adherent placenta to the CS scar.

Figure 4: Transabdominal ultrasound (TAUS) assessment

36 yr. old, G3P2, 2 previous CS, referred from a regional center with suspicion of scar ectopic. She had occasional light spotting and back pain at 6 weeks gestation. TAUS and TVUS demonstrated a live fetus within the CS scar area with the GS extending into the bladder (Fig.4).

The placenta to the CS scar.

Figure 5: TAUS demonstrating Color Doppler showing marked circumferential peri-trophoblastic vascularity surrounding the GS.

The decision was made to proceed with hysterecomy due to the degree of bladder involvement, risk of rupture and the presenting chance of life threatening hemorrhage.

Conclusion

The knowledge of the ultrasound presentation of caesarean scar ectopic is an essential skill for all obstetric sonographers for accurate diagnosis of this dangerous complicated pregnancy in the current climate of high rates of CS delivery.

References


