

## CASE REPORT

# Managing Caesarean Scar Pregnancy in low Resource Settings: 2 Case Reports and a Description of Transrectal Ultrasound guided Surgical Approach (TRUGA).

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## Abstract

Caesarean scar pregnancy (CSP) occurs when an embryo implants in a previous caesarean section scar. It has a reported incidence of 1 in 1800. Various surgical and medical techniques have been described in case reports for the management of CSP. These techniques are usually undertaken in tertiary level units with significant resource availability. In this paper, we present a new clinical perspective for the management of CSP in low resource settings and describe the steps involved in a transrectal ultrasound guided approach with dilatation of uterine cervix and subsequent evacuation of uterine contents (TRUGA with D&C). (*Afr. J Reprod Health* 2015; 19[3]: 27-31).

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**Keywords:** caesarean scar pregnancy, transrectal ultrasound guided surgical approach.

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## Résumé

La grossesse de la cicatrice césarienne (GCC) se produit lorsqu'un implant d'embryon dans une précédente cicatrice césarienne. Il a une incidence déclarée de 1 à 1800. Les techniques chirurgicales et médicales diverses ont été décrites dans les rapports de cas de la gestion du GCC. Ces techniques sont habituellement effectuées dans les unités de niveau supérieur avec la disponibilité des ressources importantes. Dans cet article, nous présentons un nouveau point de vue clinique pour la gestion du GCC dans les milieux à faibles ressources et nous faisons une description des étapes d'une approche guidée des ultrasons transrectaux avec une dilatation du col de l'utérus et l'évacuation éventuelle du contenu utérin (FARR avec D & C). (*Afr. J Reprod Health* 2015; 19[3]: 27-31).

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**Mots-clés:** grossesse de la cicatrice césarienne, approche chirurgicale guidée de l'échographie transrectale.

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## Introduction

Caesarean scar pregnancy (CSP) occurs when an embryo implants in a previous caesarean section scar. It has a reported incidence of 1 in 1800<sup>1</sup> and was first reported by Larson and Solomon in 1978<sup>2</sup>. Over the last decade, there has been a noticeable increase in reports of CSP in the English literature<sup>3</sup>. This has been partly attributed to the global increase in caesarean sections (CS) and partly to improved detection of CSP by the liberal use of transvaginal ultrasound scan (TVS) in early pregnancy<sup>3</sup>.

While the sonologic characteristics of a CSP have been well described<sup>4,5</sup>, the appropriate management modality remains unclear. Various

surgical and medical techniques, alone or in combinations have been described in case reports<sup>3</sup>. These various techniques are often employed in tertiary level units with significant resource availability. The reality however is that with the global rise in CS and ubiquitous availability of TVS, women will present to low resource hospitals with CSP requiring management options that are safe and suited to their environment.

In this paper, we describe our management of CSP in two patients where one presented to a low resource regional hospital and the other to a tertiary level centre. Both women were surgically managed at their presenting hospital using a transrectal ultrasound guided approach with dilatation of uterine cervix and subsequent

evacuation of uterine contents (TRUGA with D&C). The paper will detail the steps involved in this simple technique first described by Bignardi and Condous in 2008<sup>18</sup> and recommend it as a safe, minimally invasive technique suitable for low resource settings.

### **Case Report 1**

Mrs L.A. a 34 year old with 3 previous CS was referred to our Early Pregnancy Unit (EPU) by her general practitioner (GP) with a positive urine pregnancy test and an ultrasound scan suggestive of a CSP at 7 weeks and 5 days. She was asymptomatic with no per vaginal (PV) bleeding or abdominal pain.

A transvaginal ultrasound (TVS) confirmed a viable embryo with a crown rump length (CRL) 12.7 mm and a gestational sac (GS) with a mean sac diameter (MSD) 25.5 mm (See figure 1). The GS was implanted in the lower anterior myometrium at the level of the caesarean scar. The uterine cavity and the cervical canal were assessed as empty. There were no adnexal masses and the Pouch of Douglas (POD) was free of fluid. Based on the CRL, the pregnancy was estimated at 7 weeks and 5 days gestation. The baseline serum human chorionic gonadotropin (hCG) was 52,914 IU/L. The ultrasound features of this pregnancy satisfied the criteria for the definition of a CSP<sup>4,5</sup>.

The clinical findings and implications of a CSP were discussed with the Mrs LA and her husband. An urgent session was arranged with a social worker. Pastoral care was offered. Management options including medical and surgical techniques were outlined and the benefits and risks associated with each option discussed in full. In particular, TRUGA with D&C was discussed with the couple. In our unit, this surgical approach to CSP is safe, minimally invasive and associated with low operative morbidity. Following an informed consent, Ms LA was booked for a TRUGA with D&C.

She underwent an uncomplicated surgical procedure with an estimate blood loss (EBL) < 100 mL and was discharged the next day. Histopathology examination demonstrated features consistent with products of conception. At a subsequent review four weeks after the procedure,

Mrs. L.A. reported mild vaginal bleeding but otherwise no pain. Her haemoglobin profile was normal and the serum hCG had reduced to 3165 IU/L.

A TVS showed an avascular area of mixed echogenicity measuring 61 x 43 x 54mm in the lower anterior myometrium at the level of the previous caesarean scar. Ms LA was reassured and arrangements were made for continued expectant management with serial hCG follow up until her levels were < 5 IU/L. She was also advised of the role of medical management with methotrexate should the serum hCG levels plateau or increase during the period of monitoring.

Her PV bleeding progressively reduced and she was discharged on the 134<sup>th</sup> day post procedure with a serum hCG <5IU/L. The echogenic area in the lower anterior myometrium also reduced overtime and measured 18 x 6 x 13mm at the time of discharge.

### **Case Report 2**

Ms MB, a 26 year old with 3 previous CS presented to the emergency department (ED) of a regional hospital following a referral by her GP with a history of amenorrhea and recurrent episodes of painless PV bleeding. Her LMP was 8 weeks prior to presentation and pap smears were normal. A dating ultrasound scan organized by her GP had described a CSP at 6 weeks gestation. Despite this ultrasound report, the GP had arranged an appointment for a Down syndrome screening at 12 weeks.

At the time of presentation to the ED, she had mild PV spotting with no abdominal pain. Her urinalysis and blood profile were unremarkable. Her serum hCG was 47,911. A repeat TVS confirmed a viable CSP with a CRL 17.3 mm compatible with a 7weeks and 6 days gestation. The gestational sac was attached to the caesarean scar, contiguous to the bladder wall and separated by < 5mm of tissue. The uterine cavity and the cervical canal were assessed as empty. There were no adnexal masses and the POD was free of fluid. The location of this pregnancy met the criteria for the definition of a CSP<sup>4,5</sup>. Ms MB was advised of her condition and admitted for further management. Social work and pastoral care were

also arranged.

As none of the specialists in the regional hospital had managed a CSP before, an urgent departmental meeting was summoned to discuss issues related to management of the CSP. Not surprisingly, opinion was divided among the specialist obstetricians at the regional hospital as to what constitutes the best management option. Some advocated continuation of pregnancy with management of any resultant abnormal placentation. Others recommended a transfer of care to a tertiary referral hospital. However, the couple declined the offer for a transfer to a Melbourne hospital because of significant farming commitments and lack of social support.

Based on the recommendation of one of the treating registrars, who had been involved with the aforementioned case 1, the unit decided to offer TRUGA with D&C and serial hCG follow up. Thereafter, the patient and her husband were counselled extensively by the most senior gynaecologist in the team. All possible case scenarios were discussed with the couple including the risk of haemorrhage necessitating an emergency hysterectomy. Following informed consent, she was booked for TRUGA with D&C.

As part of preoperative preparation, a multidisciplinary team approach was initiated involving the intensive care unit, haematology department, anaesthetist and the social worker. In addition, 4 units of packed cells were cross matched and 2 units of platelets made available prior to surgery. She underwent an uncomplicated procedure with an EBL of 150 mL and was discharged home the next day. The serum hCG was 13, 889 IU/L on discharge. The histology examination confirmed chorionic villi with fetal tissue. A plan for weekly serum hCG follow up was made prior to discharge. At the third week following the procedure, she was asymptomatic with a serum hCG of 798 IU/L. A follow up TVS was unremarkable.

### ***Truga With D&C For Management Of Caesarean Scar Pregnancy***

Under general anaesthesia, an indwelling urinary catheter (IDC) was inserted using aseptic techniques. In low resource settings, forms of anaesthesia routinely used to provide sedation for

surgical procedures within the local setting are suitable for the management of caesarean scar pregnancy using TRUGA with D&C. Thereafter a transrectal ultrasound scan is performed using the transvaginal probe to identify the location of the gestational sac. The ultrasound probe is turned 180 degrees so that the ultrasound waves are directed anteriorly towards the uterus and bladder. The gestational sac is identified and its proximity to the bladder demonstrated with the IDC balloon insitu. The ultrasound probe is then removed and patient prepped and draped.

With the help of a Sims speculum, the cervix is exposed by the primary surgeon and the cervical Os identified. The anterior lip of the cervix is grasped with a vulsellum forceps and the speculum removed from the vagina. The TVS probe is then reinserted into the rectum under sterile conditions by a second operator view of the cervical canal and uterus is optimized. With the vulsellum forceps as a guide to rator. A mid-sagi the cervical canal, Hegar's dilators up to size 8 are then used to gently dilate the internal Os of the cervix under ultrasound vision. Thereafter a size 6 – 8mm suction curette with the electrical suction initially turned off is gently introduced into the uterine cavity under ultrasound vision until the suction opening is adjudged to be directly over the gestational sac at the level of the previous CS scar. In low resource settings with limited access to electrical vacuum suctioning devices, a manual vacuum aspiration device could be used following the same principles to disrupt the gestational sac.

The suction is then activated and the sac is visualized disappearing into the suction tube. Once the gestational sac had been completely evacuated, the procedure is deemed successful and the suctioning is ceased. A transrectal ultrasound scan sweeping from left to right of the mid-sagittal plane is performed to confirm that the gestational sac is no longer present at its earlier location. Bleeding is assessed and haemostasis assured by either bimanual compression, use of intra-uterine size 14 Foley's IDC to create tamponade and/or use of uterotonic agents.

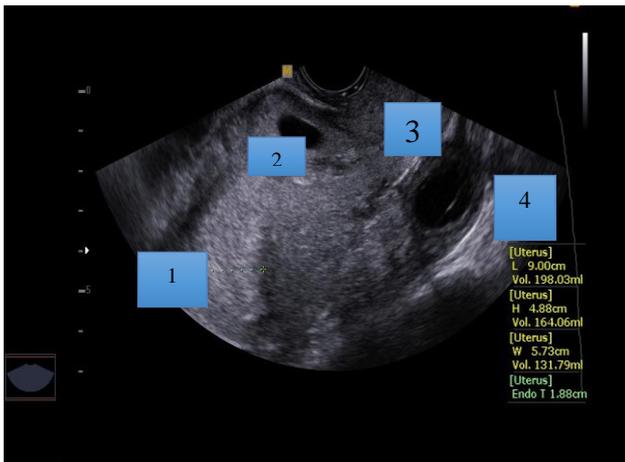
### **Discussion**

CSP may present from as early as 5 - 6 weeks gestation<sup>6</sup>. However, a first presentation at 16

weeks has been reported<sup>7</sup>. Both women in our case reports presented initially at 7 weeks and 5 days and 6 weeks respectively.

**Figure 1:** Showing an Empty Endometrial Cavity

- (1), a Caesarean Scar Gestational sac (GS)
- (2), Normal Cervical Canal
- (3) and a Corpus Luteum cyst
- (4) Behind the Cervix.



The primary presenting symptoms are lower abdominal pain and per vaginal bleeding. Whereas light painless vaginal bleeding alone has been reported in up to 39% of cases, approximately 16% of women will complain of accompanying mild to moderate pain<sup>8</sup>. Abdominal pain alone occurs in 9% of women and CSP can be asymptomatic in 37% of women<sup>8</sup>. Clinical examination is often unremarkable as demonstrated in our case reports.

The diagnostic tool of choice for CSP is transvaginal ultrasound. Indeed, the sonologic features consistent with a diagnosis of CSP are well described<sup>4,5</sup>. These features were demonstrated in both cases. In particular, both the uterine cavity and the cervical canal were empty and without contact with the GS. There were no adnexal masses on TVS and the thickness of the myometrial tissue between the bladder and the GS was less than 5mm<sup>9</sup> in both case reports (See figure 2). Although other diagnostic tools have been described in literature<sup>1,10-13</sup> they did not add additional value to our management.

**Figure 2:** Showing the Proximity of the Bladder to the GS and the Fetal Pole is noted within the GS



Currently, there are no universal guidelines or consensus on the management of CSP. Social work referral and the offer of pastoral care are essential components of our counselling process. Other important aspects include the need for serum hCG follow up and discussions about the resolution rate of any RPOC. Godin and colleagues<sup>14</sup> had reported a progressive decline of serum beta hCG to undetectable level by 82 days with disappearance of any residual sac structure by 96 days in those medically managed with methotrexate.

Previous case reports have suggested that evacuation by curettage alone often requires secondary salvage treatments<sup>12,15-17</sup> and is contraindicated because the trophoblastic tissue is outside the uterine cavity unreachable by the curette and can potentially rupture the uterine scar implantation and disrupt the myometrium leading to severe haemorrhage<sup>4</sup>. However, while we acknowledge the potential for secondary treatments, both women in our case reports did not require any salvage treatment.

Furthermore our modification of the process of evacuation by curettage has demonstrated significant advantages over “blind” evacuation by curettage. In particular, TRUGA allows an appreciation of the relationship between the gestational sac and the bladder wall. It enables direct visualisation of the gestational sac at all times during the procedure. It is minimally

invasive, safe and associated with low operative morbidity. Its learning curve is small as demonstrated by the registrar who was able to contribute to the management of CSP in a regional hospital after an involvement in case report 1. It is a suitable technique for low resource settings especially in sub Saharan Africa

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