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CASE REPORT

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Cesarean section scar pregnancy: Challenges in choosing treatment approach

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Abstract

Choosing a treatment approach of Cesarean section scar pregnancy is challenging and requires making women aware of material risks inherent in the different approaches that they perceive as having potential impact on their live or quality of life.

KEYWORDS

Cesarean section scar pregnancy, challenges, material risks, pregnancy complications

1 | INTRODUCTION

Early diagnosis of CSP allows counselling about the various options of treatment, associated risks and outcome. A case of cesarean section scar pregnancy is reported and the issues and challenges of obtaining an informed consent and choosing a treatment that is desired by the patient are discussed.

Larson and Solomon first reported the case of implantation of embryo on the scar of cesarean section in the English medical literature in 1978.[1] Since the case report by Larsen & Solomon in 1978, the rate of cesarean section has increased worldwide and so is implantation of pregnancy on cesarean section scar.[2] There has also been wider use of transvaginal ultrasound in early pregnancy.[3,4] The prevalence of cesarean section scar pregnancy ranges from 1 per 2000 pregnancies and 6% of ectopic pregnancies [2] and 1:8000.[5]

There is varied presentation of CSP and majority of CSP are diagnosed on early USS. Delay in diagnosis of CSP can result in uterine rupture, severe bleeding and its consequences including hysterectomy and maternal mortality. A variety of treatment approaches have been reported.[2,6,7] However, the best treatment approach is yet to be determined.[8] It is therefore essential that women with CSP and their families are adequately counselled and agreed shared decision on the approach to treatment is adopted based on informed patient wishes. We report a case of CSP and discuss the challenges in choosing patient desired choice of treatment. This case report has been written in accordance to the SCARE criteria.[9]

2 | PRESENTATION OF THE CASE

We report a 36-year-old para 3 woman with a history of 3 previous cesarean sections who was referred from a primary health care facility with 9 weeks of amenorrhea and mild vaginal bleeding of one-day duration and a suspected viable cesarean section scar pregnancy on Ultrasound. She did not

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have abdominal pain and her last delivery was 11 months ago. Her vital signs were normal, and her abdomen was none tender. Her Beta HCG at presentation was 109,754 mIU/ml.

Her trans vaginal USS at our facility showed a viable gestational sac with a CRL of 3.3 cm equivalent to 10 weeks 1 day gestation that is lowly implanted and seen bulging in the previous LSCS scars region with markedly thinned out (<1mm in thickness) and stretched (1.5 cm) lower anterior uterine wall anterior to the bulging sac. The placenta was low-lying covering the internal os of the cervix, crossing midline and anteriorly reaching the LSCS scar region. The sonographic appearance was suggestive of viable Grade II scar pregnancy with markedly thinned out and stretched LSCS scar thickness. Both ovaries appear unremarkable; with right ovary measuring 2.3 × 1.2 cm and left ovary measured 2.6 × 1 cm. Her Magnetic Resonance Imaging (MRI) (Figure 1 T2; Figure 2 T2; Figure 3 T1) showed a gestation sac measuring 6.4 × 4.3 cm bulging on the cesarean section scar and a thin layer of myometrium/fibrous tissue seen separating the gestational sac and the urinary bladder wall. The Placenta was seen inferior and posterior completely covering the cervical os. Her cervix and vagina appeared unremarkable with no pelvic hematoma or free fluid. The ovaries were unremarkable, and the urinary bladder is partially distended and unremarkable.

The reports were explained to her and she was counselled about the options of treatment including expectant management, medical treatment with Methotrexate, and Surgical treatment. The surgical options of Dilatation and Curettage with or without Methotrexate, surgical excision of the gestation sac with repair of the uterine scar were discussed. Counselling included understanding her wishes regarding future fertility, individual aversion of risks of emergency surgery including hysterectomy, ability to attend potentially prolonged follow-up and her fears and anxiety.

She chose to have open excision of the gestation sac with repair of the uterine scar. The findings at laparotomy were a very thin uterine scar with pregnancy bulging through toward the bladder. The uterine scar was repaired in 2 layers and the estimated blood loss was 800 ml. She made an unremarkable recovery and was discharge home on the third postoperative day. She did not attend for follow-up. The histology confirmed full gestational sac with fetus and placenta measuring 7 × 4 × 1 cm. The fetus weighs 4 g and measures 3 cm crown to rump, 1.5 cm rump to heel and 4.5 cm crown to heel.

3 | DISCUSSION

Implantation of pregnancy within a cesarean section scar[10] can present in different ways.[4] Some women with CSP are asymptomatic [3] (Rotas et al 2006) and the first indication of a CSP is the USS findings when they attend for dating USS ([11]Sadeghi et al 2010). Symptoms of unruptured CSP include vaginal bleeding, abdominal discomfort or pain ([11] It is important to diagnose CSP early in order to reduce the associated risks of severe morbidity and mortality of undiagnosed CSP. Our patient presented in the first trimester with vaginal bleeding without abdominal pain. CSP was diagnosed between 5 + 0 and 12 + 4 gestation (mean 7.5 ± 2.5 weeks) in a case series reported by.[12] The differential diagnosis of threatened miscarriage would have been made without the findings

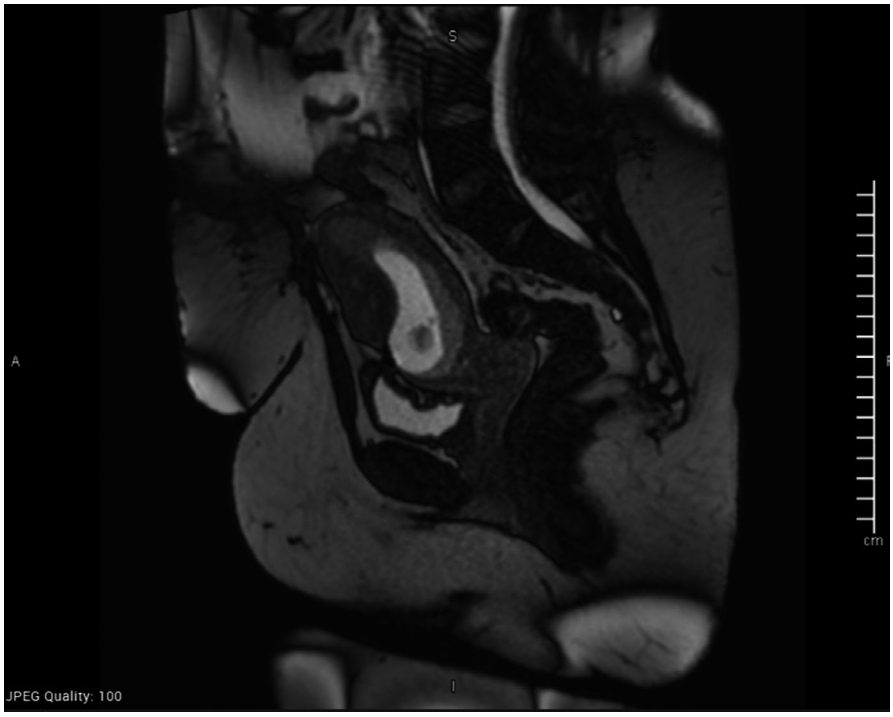

FIGURE 1 T2 MRI image showing a viable gestational sac lowly implanted and seen bulging in the previous LSCS scars region

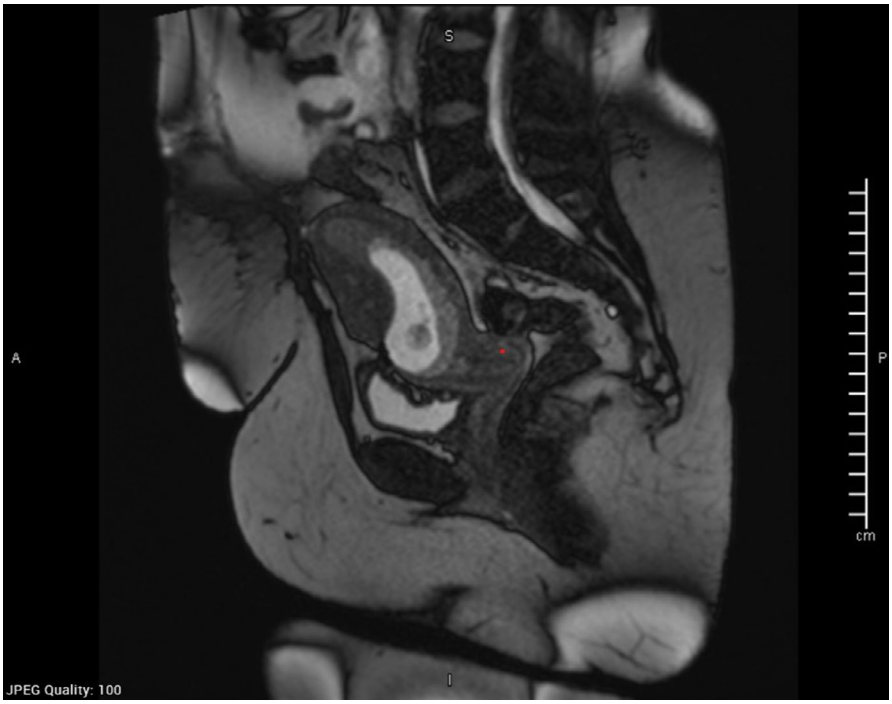

FIGURE 2 T2 MRI image showing a viable gestational sac lowly implanted and seen bulging in the previous LSCS scars region

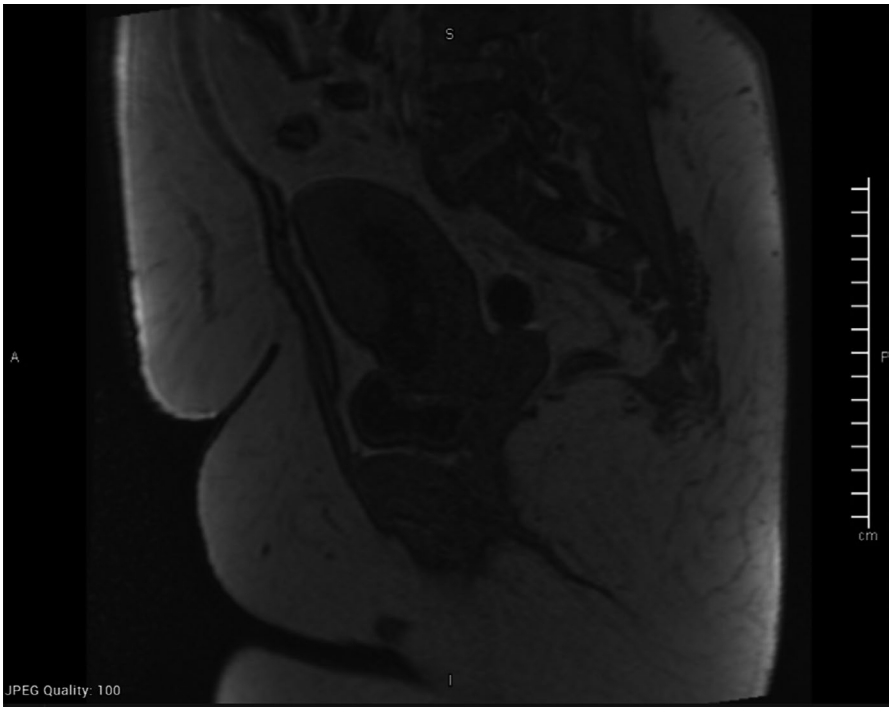

FIGURE 3 T1 MRI image showing a viable gestational sac lowly implanted and seen bulging in the previous LSCS scars region

on transvaginal USS at the referring health facility.[4] Without adequate imaging, CSP may be misdiagnosed as intra uterine pregnancy, cervical pregnancies, or spontaneous missed/incomplete miscarriage.[2,8]

CSP has been classified into two types: type I, (endogenic type) the CSP develops inwards into the uterine cavity, with the potential of developing to a viable fetus with a very high risk of abnormally invasive placenta and severe bleeding and type II, (exogenic type) the CSP grows toward the serosal surface of the uterus (as in our case) with high risk of rupture.[4]

A trans vaginal USS was employed as the first diagnostic tool [4,13] (Ash et al 2007; Riaz et al 2015). The USS findings of our patient meet suggested criteria for the diagnosis of CSP.[5,14-16] The USS criteria include:

1. Gestational sac in the anterior part of the uterine isthmus and with no contact with the uterine cavity
2. Empty cervical canal with no contact with the gestational sac
3. Absence of healthy myometrium between the bladder and the gestational sac
4. Circular blood flow surrounding the sac that is clearly visible.

The sensitivity of TVS was reported as 86.4% (95% CI 0.763–0.905).[3] An MRI was used as an adjunct.[14,17,18] Shih in 2004 [19] and Wang et al [20] described the adjunctive role of transvaginal three-dimensional (3-D) power Doppler ultrasound in the diagnosis of CSP.

Different treatment approaches have been described for CSP.[6-8,11,21] Reported treatment approaches include expectant management, medical treatment with local or systemic Methotrexate and or without local injection of KCL, minimal invasive surgical treatment, uterine artery embolization, suction and curettage, open or laparoscopic myometrial resection of CSP or a combination of these (Table 1). Although there are reported randomized controlled trials on the treatment of CSP, there is no clear guidance on the best choice of the treatment.[8,21,22]

The wide variety of treatment modalities makes counselling complex. It is essential that women with CSP and their families be adequately counselled so that an informed choice of treatment that best meets the woman's wishes is chosen. The General Medical Council (UK) guideline [23] on consent describes the information that should be discussed with patients. Information discussed should be discussed in a way that acknowledges the autonomy of the patient and seeks to understand the patient's perception of risks. It is essential that material risks associated with the different options of treatments be fully discussed with the patient. The Supreme Court in the UK [24] in the case of Montgomery v Lanarkshire Health Board of March 2015 established that material risks include risks that a reasonable person in the patient's position would consider as significant and would therefore utilize in arriving at a decision.[25] However, discussing the various treatment options, inherent risks and variable outcomes based on patient's intellectual ability, health literacy, and assessment of patient's understanding can be a challenge. Our patient demonstrated understanding of the different treatment options, associated risks and variable outcome, and the lack of clear guidance on the best treatment approach.

During sharing of the available evidence on treatment options and risks, the woman expressed her preference to maintain future fertility, achieve quick recovery and definitive treatment. She also wanted to avoid the risks of Methotrexate and failure of medical treatment, minimize the risk of returning to hospital for further treatment, prolonged follow-up, avoid severe bleeding that may require hysterectomy and loss of fertility or other emergency surgical treatment, minimize the risks of future morbid placenta implantation, and uterine rupture in future pregnancy. She also expressed her concern about the integrity of her cesarean scar and wanted a repair of the uterine scar. Glenn et al [26] in a review of current management strategies concluded that removal of cesarean section pregnancy and the myometrial scar results in reduced morbidity and promotion of future fertility. Indeed, Sun et al [27] reported that excision and repair of the uterine scar by laparotomy is associated with shorter duration of hospital stay and length of time for normalization of Beta HCG when compared with treatment with uterine artery embolization (UAE) combined with methotrexate.

Direct injection of KCL and or Methotrexate into the gestational sac results in direct death of the fetus and may

TABLE 1 Modalities for the Treatment of Cesarean Scar Ectopic Pregnancy—adapted from Sadeghi et al[11]

Expectant management	
Medical options-Systemic methotrexate	
Minimally invasive option	Injection of potassium chloride (to terminate the pregnancy)
	Injection of methotrexate
	Injection of prostaglandin F2a
	Injection of hyperosmolar glucose
Surgical options	Laparoscopic injection
	Laparoscopic resection of the CSP
	Dilatation and curettage
	Laparotomy and open resection of CSP
	Uterine artery ligation
	Hysterectomy
Combination of local and systemic approaches	

be perceived as fetal injury,[28] constitute direct abortion [29] and consequently be unacceptable to some women. The patient did not express the perception of local injection of Methotrexate and KCL as fetal injury.

With the understanding of the material risks associated with the treatment options, the patient exercised her autonomy and right to self-determination. They chose a treatment option with inherent risks that they were willing to live with. The patient chose an approach that they considered would not cause them what they perceived as harm, which is in keeping with the principle of nonmaleficence. There are however challenges to obtaining informed consent including understanding what the patient would like to know, what matters most to the life of the patient and their quality of life at the time of treatment and possibly in foreseeable future. Patients' cultural background and moral perception of the different modalities of treatment may determine their choice and availability of treatment and are areas for further research.

4 | CONCLUSION

The incidence of CSP is rising due to rising rate of cesarean section. Early ultrasound to localize the implantation of the embryo and a high index of suspicion is necessary to facilitate early diagnosis. In the absence of clear guidance on the choice of the best treatment approach, thorough counselling is necessary to guide women with CSP in the choice of treatment that is personalized and best meet their wishes. Making women aware of material risks inherent in the different treatment approaches that they perceive as having potential impact on their live or quality of life can be challenging.

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CONFLICT OF INTEREST

Both authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Both authors contributed to data collection, manuscript preparation, revision and approved the final version to be published.

ETHICAL APPROVAL

This article didn't contain any personal information that can lead to patient identification. However, approval to report the case was obtained from the Institutional Review Board at Hamad Medical Corporation.

INFORMED CONSENT

Written confirmed consent was obtained from the patient for the publication of anonymized information and shall be presented on request.

REGISTRATION OF RESEARCH STUDIES

Registration no: ID MRC-04–20–1085 with Medical Research Council, Hamad Medical Corporation.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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