



Postnatal diagnosis of an occult uterine scar dehiscence after three uncomplicated vaginal births after Caesarean section: A case report

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ABSTRACT

Introduction: The incidence of Caesarean sections has been increasing in the United Kingdom. Obstetricians have become more inclined to offer a trial of a vaginal birth to women following a single uncomplicated Caesarean section due to growing recognition of the high morbidity associated with repeat abdominal surgeries, and the relative rarity of a Caesarean scar defect causing complications at subsequent vaginal deliveries. The diagnosis of a Caesarean scar defect such as a uterine scar dehiscence in the postnatal period still remains elusive due to its vague presentation. An incorrect diagnosis or a delay in diagnosis can lead to unnecessary interventions or delay the management of patient symptoms.

Case Presentation: A 35-year-old woman with a single Caesarean section and three subsequent uncomplicated vaginal deliveries was diagnosed with an occult scar dehiscence two weeks postnatally. She initially complained of persistent vaginal bleeding and underwent a suction evacuation for suspected retained placental tissue. Her symptoms did not improve, and a CT scan was requested to rule out a uterine perforation following the surgical procedure. The CT scan suggested a uterine dehiscence at the level of the previous scar. As the patient remained clinically well, her symptoms were managed conservatively. She underwent a laparoscopic sterilisation six months later and was discharged as the scar defect had fully resolved.

Conclusion: Clinicians should remain vigilant about the possibility of an occult scar defect in women with a previous Caesarean section who present with persistent vaginal bleeding and pain in the postnatal period.

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1. Introduction

Caesarean sections (CS) have become common practice in the UK, with over 25% [1] of babies being delivered by laparotomy. More women will therefore attempt a vaginal delivery with a scarred uterus in their subsequent pregnancies. Socio-economic factors [2], advanced maternal age, assisted reproductive techniques and uterine surgeries such as myomectomies all contribute to a rise in the rate of elective CS. One of the most serious complications for both the mother and fetus is scar dehiscence and less commonly uterine rupture. Previous studies suggest that a past history of vaginal delivery in a woman with a previous Caesarean section leads to a higher probability of a successful vaginal delivery and lower risk [3] of uterine scar separation. We describe a rare case of uterine scar dehiscence diagnosed in the postnatal period in a woman with three successful vaginal births after Caesarean section (VBACs).

Abbreviations: CS, Caesarean Section; VBAC, Vaginal Birth After Caesarean section; CSD, Caesarean Scar Defect; CT, Computed Tomography; TAS, Transabdominal scan; TVS, Transvaginal scan; MRI, Magnetic Resonance Imaging.

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2. Case Report

Our patient was a 35-year-old woman who had had an emergency CS in her index pregnancy ten years previously. She had since had two uneventful VBACs. She attended at 41 weeks and was induced with a 3 mg prostaglandin pessary. She complained of abdominal pain and was transferred to theatre due to associated concerns over the fetal heart rate. The cervix was fully dilated at that time and she had a spontaneous vaginal delivery. She presented twelve days later with heavy bleeding. An ultrasound scan showed possible placental tissue measuring 85 × 63 × 87 mm and an evacuation of retained products of conception was performed (the final histology results did not show any chorionic villi or trophoblastic cells). She reattended one week after her surgery with ongoing vaginal bleeding. A repeat ultrasound scan was requested and this raised the suspicion of a uterine perforation at the level of the previous CS scar (Fig. 1). A CT scan was subsequently requested and this demonstrated a Caesarean scar defect (CSD) (Fig. 2). As the patient remained clinically well, her symptoms were managed conservatively and she was followed up in the outpatient department with a repeat ultrasound scan 10 weeks later. She was prescribed the progesterone-only pill and tranexamic acid, and had a good response to both. Subsequent scans revealed a gradual reduction in the size of

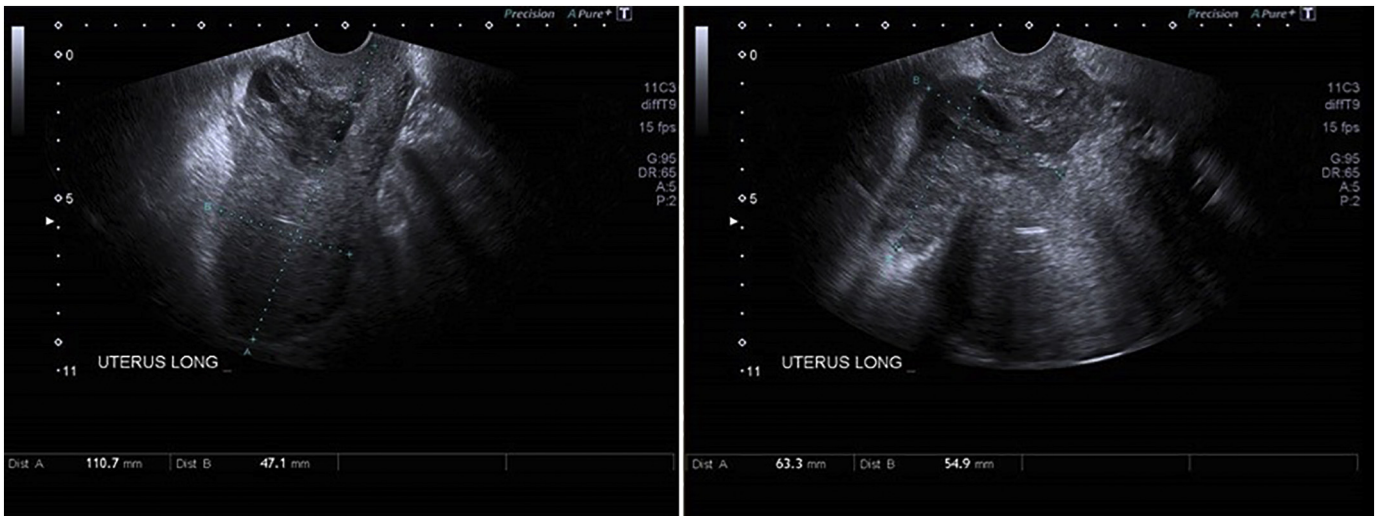


Fig. 1. Transvaginal ultrasound scan (TVS) of axial uterus showing a 6x6cm heterogeneous avascular focus extending from the endometrium through the location of the previous CS scar and along the outside anterior right surface of the uterus.

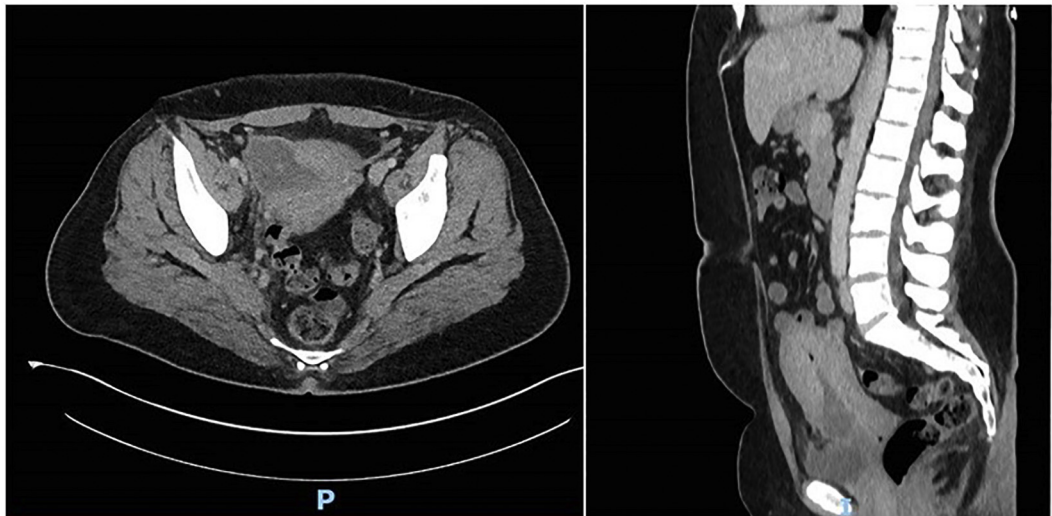


Fig. 2. CT scan images showing a CSD. There is some fluid attenuation centrally. This measures over 4 cm and extends towards the surface of the uterus.

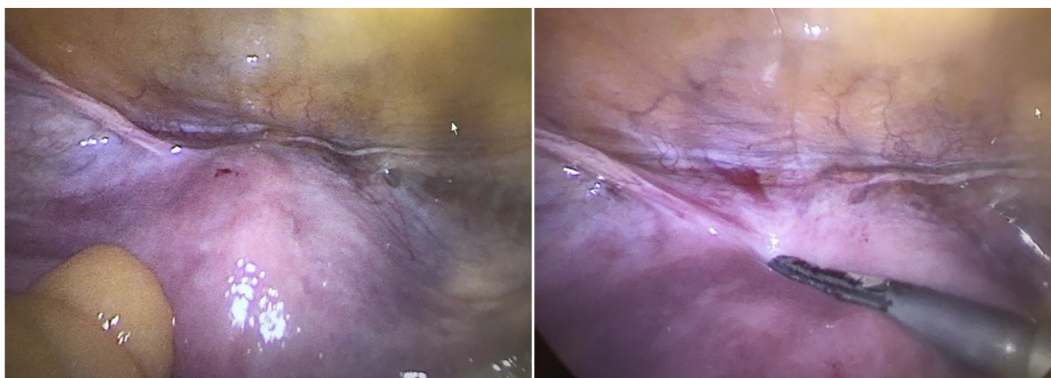


Fig. 3. No evidence of a recent uterine dehiscence seen at laparoscopy. Note the scarring at the level of the uterovesical fold.

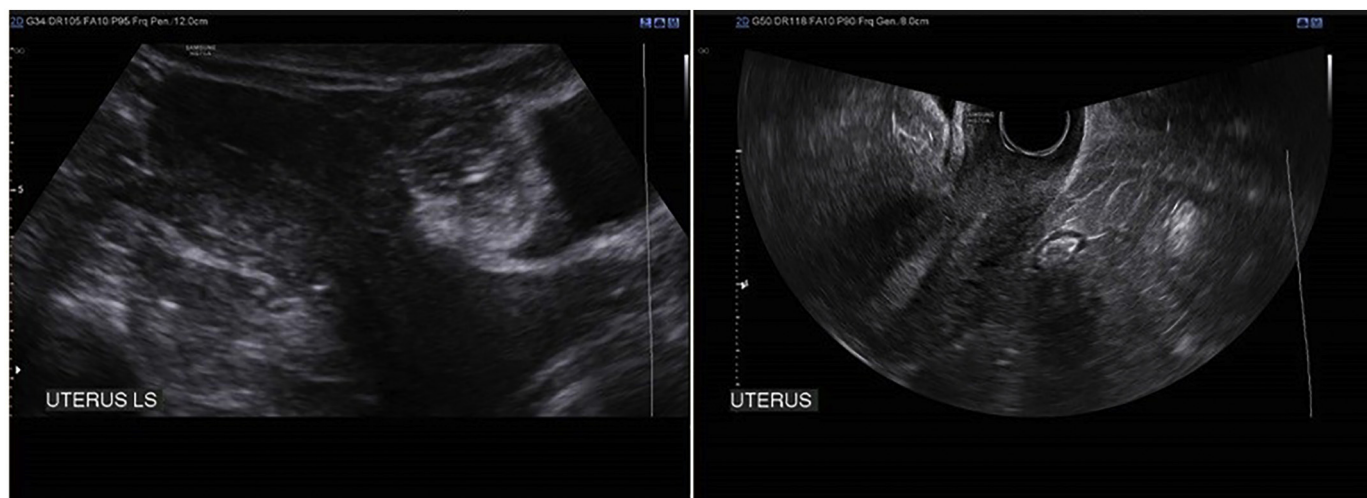


Fig. 4. Transabdominal ultrasound scan and TVS showing resolution of CSD.

the haematoma. She opted for a laparoscopic bilateral salpingectomy as a permanent method of contraception since she was at significant risk of complications from any future pregnancies. The only significant finding at laparoscopy was that of scarring at the level of the uterovesical fold (Fig. 3). A final ultrasound scan (Fig. 4) confirmed that the haematoma had resolved and she was discharged.

3. Discussion

A uterine scar rupture is a rare event (incidence 0.5%), and a uterine dehiscence is equally rare (incidence 0.06% to 3.8%) [4]. Symptoms of a uterine dehiscence in the postnatal period are non-specific and patients can present with abdominal pain, sepsis, or postpartum haemorrhage. There is currently no gold standard to diagnose a CSD. Ultrasonography is widely available, can be performed at the patient's bedside and avoids the risk of ionising radiation. On TVS [5], a CSD is often described as an anechoic defect between the uterus and bladder. Occasionally, an experienced sonographer [6] may reliably detect a uterine dehiscence, especially if the pre-existing index of suspicion is high. CT is useful in investigating patients with intra-abdominal collections or for ruling out rarer pathologies such as an arteriovenous malformations [7]. Diagnosing a uterine dehiscence on CT poses a radiological challenge due to the significant overlap with the normal appearance of a uterus post-CS. Several subtle findings have been isolated as 'red flags' [6] for a CSD. Bladder flap haematomas over 5 cm and large pelvic haematomas should alert the obstetrician to the possibility of a dehiscence. On CT scan or MRI, evidence of gas tracking from the uterine incision into the parametrium in the presence of an extrauterine collection is pathognomonic for a uterine rupture. MRI is a valid alternative in patients with ambiguous ultrasound and CT findings or those with a contraindication to intravenous contrast media. MRI enables a better demarcation of soft tissues and can discriminate between all the uterine layers, and demonstrate a breach in the serosa [2]. This is clinically important as a uterine rupture would usually necessitate a re-laparotomy [6] whilst a uterine dehiscence has a more indolent manifestation and patients can initially be treated with a course of intravenous antibiotics.

One of the long-term sequelae associated with an occult scar dehiscence is a 'niche formation'. A niche [8] is an interruption in the myometrium at the level of the previous CS scar. Thinning of the myometrium creates a reservoir where debris and menstrual blood can accumulate. Women often report symptoms such as dysmenorrhoea, menorrhagia, postmenstrual bleeding, pain or dyspareunia.

There are two surgical routes for repairing a CSD: hysteroscopic or laparoscopic. The optimal approach is still open to debate. Hysteroscopic niche resection is usually easier to perform and has a shorter recovery time. However, it is associated with a higher risk of bladder injury [9], incomplete closure, and lower satisfaction rate. Vervoort *et al* conducted a prospective cohort study to estimate the impact of laparoscopic niche resection on patient symptoms. 101 women underwent a laparoscopic excision of the niche and its surrounding fibrotic tissue, followed by the resuturing of the uterine incision, and a final-look hysteroscopy. Participant satisfaction rate was high at 83.3%.

The impact of previous VBACs on risk of uterine rupture remains controversial [10] and studies have produced conflicting results. A retrospective cohort study by Krispin *et al* [11] concluded that previous VBAC is a protective factor and reduces the risk of uterine rupture (OR = 0.46, 95% CI 0.21–0.97, $p = .04$). Results from an observational cohort study by Hendler *et al*, however, suggested that although a previous VBAC increases the chances of success for a trial of labour, it actually increases the risk of scar dehiscence [12]. Mercer *et al* sought to interrogate whether women were being fairly counselled and conducted a four-year study involving over 13,532 participants. They concluded that the success rate increased [13] with each successive successful VBAC and that the statistical risk of uterine dehiscence declines from 0.87% to 0.45% after the first successful VBAC but does not fall any further thereafter. This is the largest study to date which addresses the impact of successive VBAC deliveries on the risk of scar rupture.

4. Conclusion

Clinicians should maintain a high index of suspicion regarding the risk of an occult scar dehiscence in patients presenting in the postnatal period with vaginal bleeding and pain, since prompt diagnosis and treatment are associated with better outcomes.

Contributors

Both authors contributed equally to the preparation of this case report and approved the final manuscript.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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Patient Consent

Written consent obtained.

Provenance and Peer Review

This case report was peer reviewed.

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References

- [1] HSCIC, NHS Maternity Statistics 2018–2019, (October). Available from: <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2018-19#summary> 2019.
- [2] L. Alamo, Y. Vial, A. Denys, G. Andreisek, J.Y. Meuwly, S. Schmidt, MRI findings of complications related to previous uterine scars, *Eur. J. Radiol. Open* [Internet] 5 (2018) 6–15, December 2017. Available from <https://doi.org/10.1016/j.ejro.2018.01.001>.
- [3] M.B. Landon, S. Leindecker, C.Y. Spong, J.C. Hauth, S. Bloom, M.W. Varner, et al., The MFMU cesarean registry: factors affecting the success of trial of labor after previous cesarean delivery, *Am. J. Obstet. Gynecol.* 193 (3 SUPPL.) (2005) 1016–1023.
- [4] A. El-Agwany, A review of medical doppler US, *J. Med. Ultrasound.* 26 (1) (2018) 59–61.
- [5] F. Rosa, G. Perugini, D. Schettini, N. Romano, S. Romeo, R. Podestà, et al., Imaging findings of cesarean delivery complications: cesarean scar disease and much more, *Insights Imaging* 10 (1) (2019).
- [6] A. Vasudeva, S.V. Amin, K. Prakashini, S. Bharatnur, A. Mundkur, Post-cesarean haematomas, septic collections and wound disruptions-re-laparotomy based on abdominal imaging, *J. Clin. Diagn. Res.* 10 (11) (2016) QJ01–2.
- [7] B. Gui, F.M. Danza, A.L. Valentini, M.E. Laino, A. Caruso, B. Carducci, et al., Multidetector CT appearance of the pelvis after cesarean delivery: normal and abnormal acute findings, *Diagn. Interv. Radiol.* 22 (6) (2016) 534–541.
- [8] A.J.M.W. Vervoort, L.B. Uittenbogaard, W.J.K. Hehenkamp, H.A.M. Brölmann, B.W.J. Mol, J.A.F. Huirne, Why do niches develop in caesarean uterine scars? Hypotheses on the aetiology of niche development, *Hum. Reprod.* 30 (12) (2015) 2695–2702.
- [9] B. Bhagavath, S.R. Lindheim, Optimal management of symptomatic cesarean scar defects, *Fertil. Steril.* [Internet] 110 (3) (2018) 417–418, Available from <https://doi.org/10.1016/j.fertnstert.2018.06.035>.
- [10] G.C.S. Smith, J.P. Pell, D. Pasupathy, R. Dobbie, Factors predisposing to perinatal death related to uterine rupture during attempted vaginal birth after caesarean section: retrospective cohort study, *Br. Med. J.* 329 (7462) (2004) 375–377.
- [11] E. Krispin, L. Hirsch, Y. Wilk Goldsher, A. Wiznitzer, Y. Yogeve, E. Ashwal, Association between prior vaginal birth after cesarean and subsequent labor outcome, *J. Matern. Neonatal. Med.* [Internet] 31 (8) (2018) 1066–1072, Available from <https://doi.org/10.1080/14767058.2017.1306513>.
- [12] I. Hender, E. Bujold, Effect of prior vaginal delivery or prior vaginal birth after cesarean delivery on obstetric outcomes in women undergoing trial of labor, *Obstet. Gynecol.* 104 (2) (2004) 273–277.
- [13] B.M. Mercer, S. Gilbert, M.B. Landon, C.Y. Spong, K.J. Leveno, D.J. Rouse, et al., Labor outcomes with increasing number of prior vaginal births after cesarean delivery, *Obstet. Gynecol.* 111 (2) (2008) 285–291.