MJoSHT
Malaysian Journal of Science, Health & Technology
[mjosht.usim.edu.my]

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Case Report

Caesarean Scar Pregnancy: Surgical Obstacles

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Article Info
Article history:
Received: 30 April 2021
Accepted: 2 September 2022
Published:21 September 2022

Academic Editor:
Nazefah Abdul Hamid

Malaysian Journal of Science, Health & Technology

MJoSHT2022, Volume 8, Issue No. 2
eISSN: 2601-0003

https://doi.org/10.33102/mjosht.v8i2.200

Abstract — **As a rare phenomenon, caesarean scar pregnancy has been found to be managed in many ways in literature. However, to date there lacks a general consensus on the management of caesarean scar pregnancy. In modern obstetrics nowadays, the incidence of caesarean deliveries has been rising. Due to the increase in caesarean section rates, the incidence of caesarean scar pregnancies is also on the rise. Even though the optimal management of caesarean scar pregnancy is unclear, the basic management is tailored according to the clinical presentation and fertility concerns of the individual. Herein, we report a case of a ruptured caesarean scar pregnancy which was managed surgically via emergency laparotomy and hysterectomy.**

Keywords — **caesarean scar pregnancy, ectopic pregnancy**

I. INTRODUCTION

A 33-year old patient of gravida 3 para 2 at 13 weeks of pregnancy presented with sudden onset of severe lower abdominal pain. She did not have any per vaginal bleeding or dizziness. She previously had two caesarean deliveries which were uncomplicated for breech at term followed by an elective repeat caesarean section for short inter delivery interval of 11 months. An ultrasound demonstrated a viable foetus with anhydramnios. No clear distinction was seen between the placenta, myometrium, and the bladder wall anteriorly at the previous caesarean scar area. A small area of loss of myometrial wall was seen at the right side with the presence of free fluid in the Pouch of Douglas. She was diagnosed with a case of ruptured caesarean scar pregnancy. Following extensive counselling, the patient opted for an emergency laparotomy due to severe pain despite being hemodynamically stable. In this patient, a choice of uterine artery embolization was explored in anticipation of massive haemorrhage. However, due to time constraints and unavailability of an in-house interventional radiology service, this was not performed. Intraoperatively, presence of hemoperitoneum, with a ruptured site seen at the right side of the uterus over the previous scar area which was bulging anteriorly into the bladder and placental tissue was clearly visible, as shown in Fig. 1-4. Besides that, there were dense adhesions between the caesarean scar pregnancy, anterior abdominal wall, and the omental tissue. The caesarean scar pregnancy extended anteriorly into the

bladder and laterally up to the lateral pelvic wall, making mobilisation impossible. Due to limited mobility and active bleeding from the ruptured site approaching approximately 500ml, the retroperitoneal space was immediately explored. Next, bilateral internal iliac artery ligation was done first, followed by identification of the bilateral ureters and tagging of the bilateral ureters.

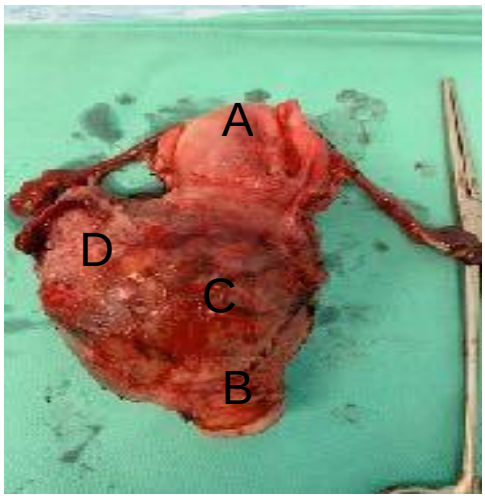

Fig. 1. Hysterectomy specimen of the caesarean scar pregnancy. A: Uterine fundus, B: Cervix, C: Scar site, D: Bladder

Fig. 2. Hysterectomy specimen showing the bulge of the sac at the ruptured site.

Following this, the bleeding was reduced dramatically. Adhesiolysis was done over the dense adhesion areas to expose the lower part of the uterus as well as the bladder. Next, the bladder separation was done with much difficulty due to poor surgical plane between the bladder and uterus, mainly due to the placental tissue extension into the bladder which was highly vascular. Therefore, the decision was made to perform a partial cystectomy with the placental tissue attached to the uterus in order to minimise bleeding from venous plexuses at the bladder base. Due to the extension of the caesarean scar pregnancy towards the lateral pelvic wall, bilateral ureters were skeletonized and displaced laterally to facilitate the hysterectomy. Subsequently, hysterectomy with bilateral salpingectomy was completed followed by bladder repair. Following the partial cystectomy, the remaining bladder base was easily separated as the surgical plane became clear. The vault closure was done with continuous interlocking sutures without any difficulties. Upon completion of hysterectomy, a methylene blue dye test was performed to exclude leakage from the repair site. The patient remained hemodynamically stable during the surgery and post operatively; no blood transfusions were needed. Her blood loss in total was 600 ml. The patient was discharged well. Two weeks later, CT Urogram imaging was done to check for bladder integrity and patency of both ureters which were normal. She made an excellent recovery and her histopathological report was consistent with a type 2 caesarean scar pregnancy. In this case, diagnosis and decision were made promptly. The managing team which included a gynae-oncologist were all well trained in retroperitoneal dissection, internal iliac artery ligation, and bladder repair. Therefore, patient underwent emergency surgery in timely manner without any delay and recovered well.

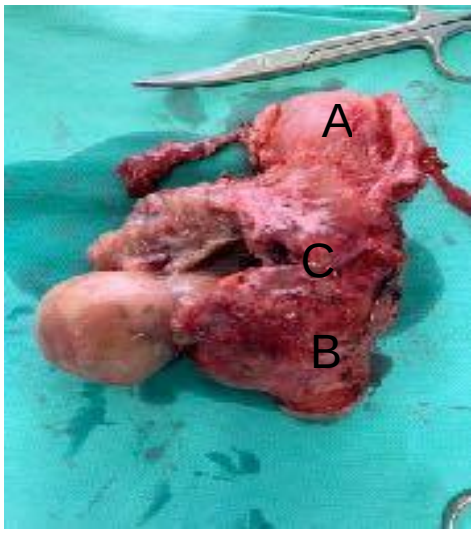

Fig. 3: Hysterectomy specimen with foetus partly seen at the ruptured site. A: Uterine fundus, B: Cervix, C: Scar site, D: Bladder

Fig. 4: Hysterectomy specimen demonstrates foetus at 13wks

II. DISCUSSION

Caesarean scar pregnancy is an ectopic pregnancy wherein the gestational sac implants into the previous scar area at different degrees of trophoblastic invasion and penetration, providing a wide spectrum of clinical presentation at each trimester of pregnancy. It was first described in 1978 [1]. Caesarean scar pregnancy is defined by an empty uterus and cervical canal with a gestational sac located at the anterior uterine wall with diminished myometrium anteriorly between the sac and the bladder [2]. The true incidence is still unknown; however it has been reported to be between 1/1800 and 1/2200 of all pregnancies [3], with a rate of 6.1% in women with ectopic pregnancy and one previous caesarean section [4]. Even though the exact cause is unclear, caesarean scar pregnancy is definitely a complicated iatrogenic condition which is seen in patients who have risk factors such as previous caesarean section, myomectomy, manual removal of the placenta, uterine curettage, and in vitro fertilisation [5]. However, the number of previous caesarean sections as well as the time interval between the caesarean section and the occurrence of caesarean scar pregnancy remain a dilemma. Nonetheless, it has been reported that 72% of cases of caesarean scar pregnancy had 2 or more previous caesarean deliveries as in our patient [6]. The management of caesarean scar pregnancy ranges from conservative management using methotrexate by different routes and regimes, to endoscopic excision, laparotomy excision with repair, uterine evacuation, and hysterectomy. Uterine artery embolization (UAE), internal iliac artery ligation, and intracervical injection of vasopressin are additional procedures used in combination with different management options. There are 2 types of caesarean scar pregnancy recognised, type 1 which develops within the myometrium and grows inwards, and type 2 which grows exophytically towards the uterine serosa [7]. The Royal College of Obstetrician and Gynaecologist (RCOG) has defined the criteria for diagnosis of caesarean scar pregnancy via transvaginal scan; however, no recommendations have been made with regards to one specific intervention over another due to insufficient evidence [8]. Caesarean scar pregnancy potentially carries higher risks in terms of uterine rupture, massive haemorrhage, consequences on future fertility, and even maternal mortality [9]. In particular, type 2 caesarean scar pregnancy has higher risk of uterine rupture which could be life threatening due to reduced thickness of the myometrium between the sac and the bladder, especially when it is <3mm [10, 11]. Besides the reduced thickness and increased vascularity at this area, poor lower segment contractility is a contributing factor for massive haemorrhage if uterine rupture takes place. Then, it becomes almost impossible to arrest the bleeding without some form of surgical intervention. In managing caesarean scar pregnancy, careful emphasis is given on timely and accurate diagnosis, with consideration for future fertility concerns of the patient. However, when uterine rupture is suspected, immediate measures are warranted. This includes hysterectomy with other additional procedures to control the bleeding and manage visceral injuries. In an emergency setting, uterine artery embolization would take up valuable time prior to the surgery; therefore, bilateral internal iliac artery ligation would be preferred intraoperatively. In order to achieve optimal surgical outcomes, the obstetrician should be familiar with retroperitoneal dissection and bladder dissections in anticipation of visceral involvement/injuries, as the time factor very much affects surgical outcomes in this life-threatening event.

III. CONCLUSIONS

Despite its wide spectrum of management options, caesarean scar pregnancy still poses the risk of life-threatening bleeding which may require urgent surgery. Important knowledge of retroperitoneal dissection, the ability to perform bilateral internal iliac ligation, ureter identification up to the bladder insertion, and familiarity with bladder resection (partial cystectomy) as well as bladder repair are key factors that determine the outcomes of the surgical approach (hysterectomy) in every single patient. A multidisciplinary team approach, which requires earlier planning could lead to better surgical outcomes in the event of massive bleeding or visceral injuries as these complications cause significant morbidity to the patient in an emergency. Therefore, the various aspects of pelvic surgery mentioned above should be essential skills possessed by every obstetrician and gynaecologist. The increasing trend of caesarean deliveries causing the rise in the incidence of caesarean scar pregnancy emphasizes the need for optimal surgical skills training among obstetricians and gynaecologists.

CONSENT TO PARTICIPATE

Written informed consent was obtained from the patient for the anonymized information to be published in this article.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

ACKNOWLEDGEMENT

Special thanks to all clinicians and nursing staff involved in the management of this patient.

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