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Ruptured Cesarean Scar Pregnancy: A Case Report

Johanes Nyoman Deo Widiswara Mawan[1*], I Nyoman Hariyasa Sanjaya[2], Tjokorda Gde Agung Suwardewa[3], Ida Bagus Gede Fajar Manuaba[4]

[1,2,3,4]Department of Obstetrics and Gynecology, Faculty of Medicine, Udayana University, Bali, Indonesia

E-mail: myoga4587@gmail.com

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ABSTRACT

Ectopic pregnancy is defined as implantation outside the uterine cavity with an incidence rate of 19 per 1000 conceptions in the United States, accounting for >64,400 hospitalizations annually. It is the leading cause of maternal death in the first trimester. Most ectopic pregnancies (98%) occur in the fallopian tube but can also occur elsewhere. Cesarean scar pregnancy is a form of ectopic implantation in the fibrous tissue around the scar of previous cesarean delivery. The first case of cesarean scar pregnancy was described by Larsen and Solomon in 1978, and only 19 cases were reported until 2001. 3 The incidence of cesarean scar pregnancy is estimated to be 1:1800 to 1:2216 pregnancies. This condition represents 6.1% of all ectopic pregnancies with a history of at least one cesarean operation. In Indonesia, this case is rarely reported, and there is no data on the prevalence of this disease in Indonesia. Due to its rarity, we report a case of a 37-year-old G2P0100 woman with ruptured cesarean scar pregnancy.

INTRODUCTION

Ectopic pregnancy is defined as implantation outside the uterine cavity with an incidence rate of 19 per 1000 conceptions in the United States, accounting for >64,400 hospitalizations annually. It is the leading cause of maternal death in the first trimester. Most ectopic pregnancies (98%) occur in the fallopian tube but can also occur elsewhere. Cesarean scar pregnancy is a form of ectopic implantation in the fibrous tissue around the scar of previous cesarean delivery and is a rare kind of ectopic pregnancy.

The first case of cesarean scar pregnancy was described by Larsen and Solomon in 1978, and only 19 cases were reported until 2001. The incidence of cesarean scar pregnancy is estimated to be 1:1800 to 1:2216 pregnancies. This condition represents 6.1% of all ectopic pregnancies with a history of at least one cesarean operation.[2,3] In Indonesia, this case is rarely reported, and there is no data on the prevalence of this disease in Indonesia.

The cause of this condition remains unclear. The most considered theory is embryo implantation into the uterine wall through a small internal dehiscence of the cesarean (SC) scar or a conduit from the endometrial duct to the scar tissue.[4] The known long-term risks of cesarean delivery are subsequent ectopic pregnancies, uterine rupture, and placental abnormalities in subsequent pregnancies, such as placental abruption, placenta previa, and placenta accreta, the most serious conditions.[5]

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However, endometrial and myometrial disruption and scarring after cesarean delivery can also predispose to implantation in uterine scar tissue, which is even more dangerous than placenta accreta. Myometrial invasion as early as the first trimester can lead to uterine rupture and heavy bleeding as the pregnancy progresses.[6] The main goal in the clinical management of cesarean scar pregnancy is to prevent massive blood loss and uterine conservation to maintain further fertility, women's health, and quality of life.[7] This case report discusses a 37-year-old G2P1A0 woman with acute abdominal pain and the suspicion of ruptured cesarean scar pregnancy. The patient had a previous history of SC for indication of uterine rupture at 28 weeks gestation.

CASE

A 37-year-old woman was admitted to Prof. dr. I.G.N.G. Ngoerah General Hospital with severe lower abdominal pain and vaginal bleeding 6 hours before hospitalization. The abdominal pain was sharp at the lower quadrant and did not radiate. The patient also had been amenorrheic for 12 weeks. She was a regularly menstruating lady, but she's been amenorrheic for 12 weeks and tested positive for pregnancy 1 week ago with a home kit pregnancy test. She did not have any dizziness or generalized weakness. There is a history of one cesarean section 11 months ago and a history of laparoscopic myomectomy 8 years ago. On examination, she was pale with normal blood pressure and pulse rate. There was tenderness in the suprapubic region. Per speculum examination showed a healthy cervix with closed os and minor bleeding. The pouch of Douglas was bulged, and there was also cervical motion tendernaaess noted on vaginal examination.

On investigation, the urine pregnancy test was positive. Her complete blood count was within the normal range, with hemoglobin of 10.2 g/dl. Ultrasonography examination showed an empty uterine cavity with an endometrial thickness of 6,6 mm and a 9.79×5.61 cm-sized uterus. Approximately 2.23×1.19 cm-sized hyperechoic area at the anterior uterine corpus with undefined anterior corpus and fundus surface. Free fluid in the pouch of Douglas and para inguinal was also noted. She was diagnosed with G2P0100, 12 weeks 2 days of gestation age based on LMP, accompanied by acute abdomen with suspicion of ruptured cesarean scar pregnancy.

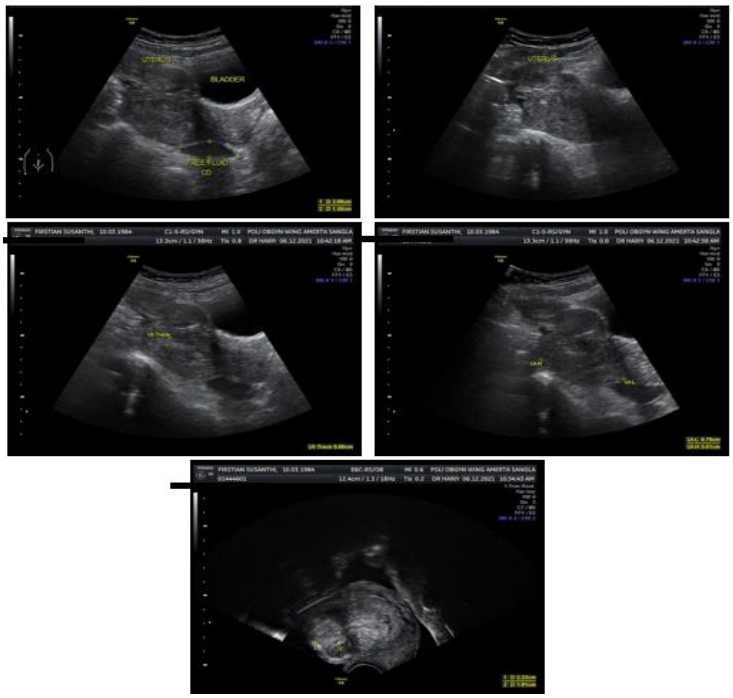

Figure 1. Ultrasonography examination

The patient was planned for and underwent an emergency exploratory laparotomy. Per-operatively about 700ml of clot and hemoperitoneum were noted and evacuated. The lower segment of the anterior uterine corpus was visualized with a 2×2 cm-sized rupture extending to the uterine cavity. The product of conception-like material and active bleeding were also noticed at the rupture site, and then the product was evacuated and sent for histopathological examination. Bilateral fallopian tube and bilateral ovary were normal. The uterus was repaired, and hemostasis was secured. Her postoperative hemoglobin level was 9.9 g/dl. The recovery was uneventful, and she was discharged on the 2nd postoperative operative day.

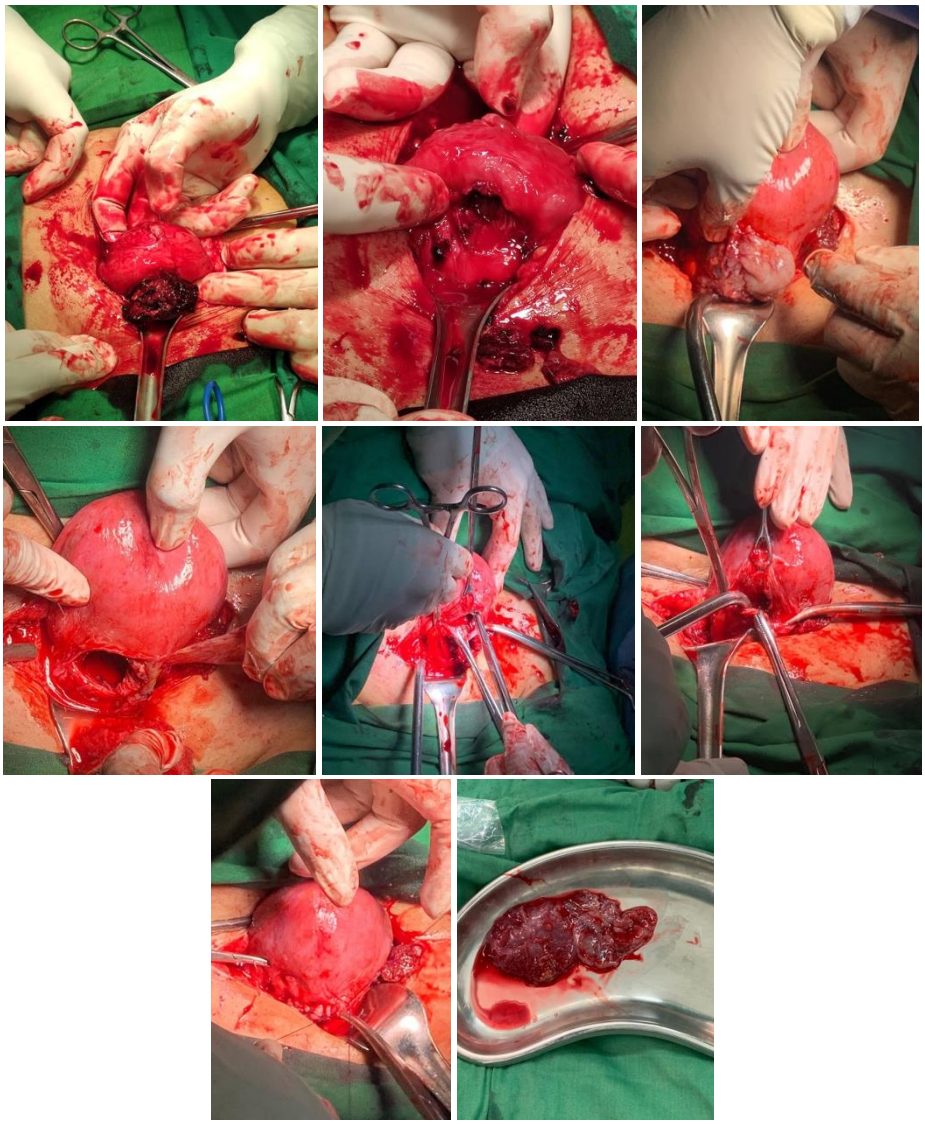

Figure 2. Durante operative pictures

DISCUSSION

In this case, a 37-year-old woman G2P1A0 came to Prof. dr. I.G.N.G. Ngoerah Hospital complaining of lower abdominal pain that had been felt since 6 hours before admission. The pain was sharp and not radiating. There is vaginal bleeding, defecation and urination are said to be normal. The patient did a pregnancy test on November 30, 2021, with a positive result. The patient had a history of laparoscopic myomectomy in 2013. In her first pregnancy, the patient gave birth at 28 weeks gestation by SC procedure with an indication of uterine rupture. This pregnancy is the patient's second pregnancy.

In 2018 Kim et al. conducted a retrospective study on 64 cases of women with cesarean scar pregnancy in Dankook and suggested that cesarean scar pregnancy occurred at an average age of 35.7 ± 3.8 years.[8] The incidence of ectopic pregnancy is 1:2226 of all pregnancies, with a rate of 6.1% of all ectopic pregnancies in women who have had at least one cesarean delivery.[9] With a previous history of SC where the time interval is less than one year, according to Stupak et al., it takes at least 2 years for the proper wound healing process to occur until reconstruction of the incision area. Wound healing is a complex process, which takes place in three stages: inflammation of the damaged blood vessel serum (in the first days of homeostasis and immune system reactivity), proliferation (up to 4 weeks of granulation and neovascularization), and maturation or remodeling (up to 1-2 years of collagen formation, deposition, and remodeling). Inadequate uterine healing after cesarean section has potential long-term consequences, including thinning of the muscle layer, which occurs in up to 60% of according to case studies.[10]

Clinically, this patient came to the hospital at 12-13 weeks gestation and had an acute abdomen characterized by a chief complaint of spontaneous abdominal pain in the lower abdomen. The ultrasonographic evaluation revealed a uterus measuring 9.79 cm x 5.61 cm, endometrial thickness measuring 6.6 mm, and no intrauterine GS. The surface of the anterior corpus of the uterus and fundus is not firm, with a hyperechoic area on the anterior corpus of the uterus measuring 2.23 cm x 1.19 cm. free fluid was seen in the pouch of Douglas. This suggests a mass attached to the anterior wall of the uterus with active bleeding with suspicion of a ruptured ectopic pregnancy.

Determining the diagnosis between the threats of intrauterine miscarriage, ectopic pregnancy such as cervical pregnancy, and cesarean scar pregnancy can be difficult in a low-lying gestational sac.[11] Clinical presentation of vaginal bleeding with or without abdominal pain can occur in all three conditions. In the case of a ruptured cesarean scar pregnancy, the patient will present with severe acute pain with a sudden onset and profuse bleeding and hypovolemic shock. The possibility of cesarean scar pregnancy must be considered when the gestational sac is seen at the level of the isthmus uteri in patients with a history of previous cesarean section. Combined TVS and TAS with Doppler is the current diagnostic modality for cesarean scar pregnancy, with a reported sensitivity of 86.4%.[10]

The patient was managed with exploratory laparotomy. The majority of cesarean scar pregnancy management options are based on the availability of adequate modalities under optimal conditions. In general, terminating the pregnancy is done as soon as possible after the diagnosis of cesarean scar pregnancy is made. Several complications of cesarean scar pregnancy can occur, namely uterine rupture (which can occur at gestational age above 14 weeks), preterm labor, massive bleeding, and coagulation disorders.[11] In this case, an acute abdomen was already caused by a life-threatening uterine rupture, so emergency exploratory laparotomy was chosen as the main management.

The surgery revealed a ruptured conception implanted from the uterine cavity through the myometrium to the peritoneum cavity. Removal of the conception tissue and debridement of the uterine wall with wedge excision was performed, followed by longitudinal suturing to approximate the incision site.

CONCLUSION

Cesarean scar pregnancy in the first trimester has been found more frequently over the past decade, and scar uterus may no longer be the least frequent site for ectopic implantation. This increased incidence can be attributed to the routine use of transvaginal ultrasonography in the first trimester and increased cesarean deliveries worldwide. Endometrial and myometrial disruption and scarring caused by the cesarean incision are major predisposing factors. During cesarean delivery, such as in breech presentation, underdeveloped lower uterine segments may predispose to incomplete scar healing and implantation of subsequent pregnancies within them.

Sonography is the method used for diagnosis in these patients to confirm the localization and size of the conceptus and its viability. Performed in the first few weeks of conception, transvaginal ultrasonography, with a sensitivity of 84.6%, has dramatically reduced maternal morbidity, allowing medical management in increasing cases. Both 3-dimensional Doppler sonography and magnetic resonance imaging are adjunctive methods in management and follow-up. The rarity of this condition explains the absence of universal guidelines for management. Although several interventions have been used to maintain uterine integrity, none are universally accepted or found to be completely reliable. Several complications of cesarean scar pregnancy may occur, namely uterine rupture, preterm labor, massive bleeding, and coagulation disorders.

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