



Case Series

Cesarean scar pregnancy management: Different approach for different situation; A case series

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ABSTRACT

The incidence of caesarean scar pregnancy (CSP) increases since the cesarean delivery rate had increased as well. Diagnosing of CSP was also a challenge to identify the type of CSP which important things for choosing the right management. The CSP could be classified into two types, which are endogenous and exogenous. While the management was dependent into the types, such as suction curettage, resection, and also hysterectomy. This paper showed cases of cesarean scar pregnancy in Cipto Mangunkusumo General Hospital, in one year.

1. Introduction

Cesarean scar pregnancy (CSP) is the implantation of gestational sac within the myometrium of prior cesarean surgery scar. The incidence of CSP is approximately 1 in 2.000 normal pregnancies. As cesarean delivery rate increases, the incidence of CSP has increased as well [1]. Diagnosis of CSP has become a challenge because of the lack of awareness about possibility of implantation in previous cesarean surgery scar. It could be a potential threat because CSP as it poses a great risk for maternal hemorrhage, placenta accreta spectrum, and uterine rupture [1,2,3]. Besides diagnosing of CSP, identifying the type of CSP was also important things for choosing the right management. This paper presented a Case series of cesarean scar pregnancy in Cipto Mangunkusumo General Hospital, since 2019 until 2020, with different types (endogenous and exogenous) and various management. This paper was also reported in line with SCARE criteria, and already registered on Research Registry UIN with number: researchregistry7099 [14]

2. Case presentation

This article presented 8 cases consists of 6 cases of endogenous type and 2 cases of exogenous type. All ultrasound examinations before procedure were described on Table 1. Different treatments were done for each cases based on the cases type and operator preference (all procedures were done by OBGYN), such as suction curettage, laparotomy exploration, laparoscopic mass resection, and many others. Three cases in this article were treated with suction curettage, with one of it was continued with exploratory laparotomy. Laparoscopic resection for mass

evacuation was done for 1 Case, while other cases were treated with exploratory laparotomy. We had 3 from 8 cases that were done by subtotal hysterectomy, while other cases could be successfully conserved. The treatments were chosen by pre-intervention examinations that leading to chose whether needed surgery and what type of the interventions. Pre-operative we found no comorbidities background, however all patients were ended with good condition. All cases were summarized and each explained in Table 1.

3. Discussion

The first cesarean scar pregnancy (CSP) Case was reported in 1978 with the presence of gestational tissues found in the recess of cesarean scar. The more cesarean deliveries, the higher the risk of someone experiencing CSP [4,5]. Based on the pregnancy progression, CSP could be classified into two types. The first type is endogenous CSP where the gestational sac is implanted in the cesarean scar and grows toward the uterine cavity or cervico-isthmic, not the serosal lining. It gives a chance for live birth but a high risk of massive bleeding from the implantation site. Meanwhile, the second type is exogenous CSP where the gestational sac is implanted into the cesarean scar defect and further to the serosal lining then implanted up to the bladder or abdominal cavity. The exogenous CSP has a high risk of uterine rupture and hemorrhage [6,7].

The diagnosis of CSP has become a challenge for obstetricians [8]. The transvaginal ultrasound is the primary imaging modality to diagnose CSP with sensitivity of 86,4%. The differences between cervico-isthmic intrauterine pregnancy and CSP are so difficult to find sonographically. However the criteria for diagnosing cesarean scar

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Table 1
Comparison of Cases.



Case No.	US exam	Diagnosis	Treatment	Outcome	Histopathology results
1	CRL 11 ~ 7 wga; gestational sac at cesarean scar with placenta implanted at anterior side of scar. Seen bulging of placenta at the lower uterine segment.	Cesarean scar pregnancy on G5P4 9 weeks of gestational age, previous c- section 2 times.	Suction curettage	Bleeding from ostium then inserted balloon intracavity then move to the ward	Conception tissue
2	On cesarean scar seen GS with CRL ~ 9 wga, fetal echo (-), thin cesarean scar are	Conception remnant on cesarean scar pregnancy on G3P2 9 weeks of gestational age, previous c-section 2 times.	Laparotomy resection of CSP	Stable hemodynamic , move to the ward	Conception tissue
3	GS on scar pregnancy, bulging into bladder	Ectopic pregnancy on scar cesarean section G4P3 8 weeks of gestational age, anembryonic pregnancy, previous c-section 2x.	Laparoscopic adhesiolysis, conception mass evacuation	Stable hemodynamic , move to the ward	Conception tissue
4	Uterine cavum filled with gauze with no free fluid. Liver, spleen and kidney were within normal limits with no ascites.	Hypovolemic shock grade IV due to vaginal bleeding due to suspected uterine perforation, P2A1 post curettage outside, previous twice c-section.	Laparotomy exploration, seen bluish on isthmus part around 10x10cm, and active bleeding at posterior part	Subtotal hysterectomy; then patient move to the ward	Accreta spectrum on isthmus area, conception tissue
5	Seen part of placenta on cesarean scar with vascularization 59x55 mm	Caesarean scar with placental remnant on G8P2A5 17 weeks gestation age, caesarean scar pregnancy, previous c-section 1x.	Laparotomy exploration, uterine resection, and conception remnant evacuation	Move to the ward	Conception tissue
6	placenta at posterior corpus expand to left side, free fluid (+), discontinuity of uterus.	Hypovolemic shock grade II due to uterine rupture on G3P2 32 wga, singleton live transverse lie, head on	laparotomy exploration, after baby delivered seen transverse	Subtotal hysterectomy, then move to the ward	Placenta percreta

Fig. 1. A) Anembryonic pregnancy on scar pregnancy from Case 3; B and C) Mass containing gestation sac in cesarean scar bulging into bladder from case 8.

pregnancy was defined in [Table 2](#).

There are many options for CSP management. The expectant management where the pregnancy expected to resolve naturally without any

intervention is very rarely used. If CSP lasts until the third trimester, it is more likely to cause morbidly adherent placenta and sometimes require cesarean hysterectomy. This approach could be used for endogenous

			the right, dorsoinferior, previous C-section 2 times, cesarean scar pregnancy	tear on LUS until left posterior corpus was found.		
7	mass containing gestation sac in caesarean scar; CRL ~ 6 weeks gestational age, trophoblast implantation in the anterior corpus of the uterus, and no fetal heart sound	Early pregnancy loss on G5P3A1 6 weeks gestational age on caesarean scar with previous c-section 3 times.		Suction curettage	Move to the ward	Conception tissue
8	mass containing gestational sac in caesarean scar with CRL ~ 8 weeks of gestational age without fetal heart sound.	Early pregnancy loss on G6P3A2 8 weeks gestational age on caesarean scar with previous c-section 3 times		suction curettage → hypovolemic shock grade II with active bleeding → performed exploratory laparotomy, found hematoma on the previous caesarean scar → subtotal hysterectomy	Stable haemodynamic	Uterus with conception tissue

Fig. 1. (continued).

Table 2
Ultrasound criteria for diagnosis of cesarean scar pregnancy [6].

Cesarean scar pregnancy – ultrasound diagnosis criteria
Empty uterus with clearly visualized endometrium
Empty cervical canal
Gestational sac implanted in the lower uterine anterior segment at the presumed site of cesarean section incision scar
Thin or absent myometrium between the gestational sac and the bladder (majority of cases have a myometrium thickness <5 millimeters)

CSP because it grows toward the uterine cavity even though the risk of uterine rupture, potentially life-threatening massive bleeding, and hysterectomy at any time should be discussed properly [9,10]. Thus, expectant management may not be a good fertility-preserving option. However, study reported the asymptomatic and nonviable CSP with declining hCG levels could successfully be resolved with the expectant management [7,11]. The other modality of CSP management is administration of methotrexate (MTX) systemically with dose 50 mg/m² body surface area (BSA). This modality is commonly used in haemodynamically stable patients [12]. If a medical approach does not work well, a surgical approach should be done. It is called sequential management [13]. While exogenous CPS, which has minimal myometrial thickness, is also better treated with administration of MTX prior to surgery than surgical treatment only [7]. All cases described in this article were compared and presented in Table 1.

The cases presented here showed that diagnosis of CSP is truly a challenge for obstetricians. Administration of MTX occurred in Case 5. Patient, G8P2A5 17 weeks of gestational age, had pregnancy termination in the other hospital. At that time, the conception came out but the placenta still remained. She already treated with MTX and evaluated every 2 weeks. The sequential management after that failed MTX treatment which consisted of laparotomy exploration, uterine resection, and conception remnant evacuation was performed.

The surgical approach that is commonly used is cervical dilatation

and curettage. It is suitable for endogenous CSP with myometrial thickness at least 2 mm. However, the risk of bleeding and failure of complete gestational sac removal are also commonly found. Another surgical approach is surgical resection that could be performed abdominally or laparoscopically. This approach is more suitable for exogenous CSP with thin myometrium [7]. Surgical management commonly carries the risk of bleeding, especially D&C or hysteroscopic resection.

The remaining cases of this Case series were treated with surgery, which were suction curettage (Case 1, 7), laparotomy exploration (Case 2, 4), and laparoscopic surgery (Case 3). From all the cases, only 2 out of 8 cases presented with exogenous CSP (Case 6 and 8) with different situation. Case 6 showed a patient that already informed regarding the CSP condition yet still chose continuing the pregnancy, unfortunately ended with uterine rupture. Meanwhile, the Case 8 was not identified as exogenous type of CSP and performed suction curettage which then converted to laparotomy and ended with subtotal hysterectomy. All of the patients in this cases were in good condition until being discharged.

4. Conclusion

Cesarean scar pregnancy (CSP) is a rare and potentially life-threatening ectopic pregnancy. Diagnosis of CSP could be done by comprehensive history taking and examination. Ultrasound is the main modality to identify the type of CSP. Treatment of CSP is very individualized, either by surgical or medical approach. Early diagnosis and adequate treatment is very important to decrease morbidity and mortality of CSP. However further research regarding diagnostic methods or treatment guidelines for CSP could be considered.

Informed consent statement

All subjects here were already informed and gave consent.

Process guidelines

This paper had been in line with PROCESS criteria [14].

Provenance and peer review

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Declaration of competing interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102808>.

References

- [1] F.A. Taran, K.O. Kagan, M. Hübner, M. Hoopmann, D. Wallwiener, S. Brucker, The diagnosis and treatment of ectopic pregnancy, *Dtsch Arztebl Int* 112 (41) (2015 Oct) 693–704.
- [2] E. Hendriks, R. Rosenberg, L. Prine, Ectopic pregnancy: diagnosis and management, *Am. Fam. Physician* 101 (10) (2020 May 15) 599–606.
- [3] F.G. Cunningham, K.J. Leveno, S.L. Bloom, J.S. Dashe, B.L. Hoffman, B.M. Casey, C.Y. Spong, *Williams Obstetrics*, 25th ed., McGraw Hill Education, New York, 2018, pp. 854–856.
- [4] N. Docheva, E.D. Slutsky, N. Borella, R. Mason, J.W.V. Hook, S.S. Patel, The rising triad of cesarean scar pregnancy, placenta percreta, and uterine rupture, *Case Rep Obstet Gynecol* (2018), 8797643.
- [5] P. Pedraszewski, E. Wlazlak, W. Panek, G. Surkont, Cesarean scar pregnancy a new challenge for obstetricians, *J Ultrason* 18 (72) (2018) 56–62.
- [6] T. Hoffman, J. Li, Cesarean scar ectopic pregnancy: diagnosis with ultrasound, *Clin Pract Cases Emerg Med* 4 (1) (2020) 65–68.
- [7] P.M. Jayaram, G.O. Okunoye, J. Konje, Cesarean scar ectopic pregnancy diagnostic challenges and management options, *Obstet. Gynaecol.* 19 (2017) 13–20.
- [8] I.E. Timor-Tritsch, A. Monteagudo, G. Cali, F. D'Antonio, A.K. Agten, Cesarean scar pregnancy: diagnosis and pathogenesis, *Obstet. Gynecol. Clin. N. Am.* 46 (4) (2019 Dec) 797–811.
- [9] S. Branciazio, I. Saramgo, W. Goodnight, K. McGinty, Cesarean scar ectopic pregnancy: Case report, *Radiol Case Rep* 14 (3) (2019) 354–359.
- [10] R. Xie, X. Guo, M. Li, Y. Liao, L. Gaudet, M. Walker, H. Lei, S.W. Wen, Risk factors and consequences of undiagnosed cesarean scar pregnancy: a cohort study in China, *BMC Pregnancy Childbirth* 19 (383) (2019).
- [11] P. Jayaram, G. Okunoye, A.A.A. Ibrahim, R. Ghani, K. Kalache, Expectant management of cesarean scar ectopic pregnancy a systematic review, *J. Perinat. Med.* 46 (2018) 4.
- [12] R. Pirjani, L. Bayani, M. Shirazi, Successful local and systemic medical treatment of cesarean scar pregnancy and subsequent term pregnancy after treatment a Case series, *Iran. J. Reproductive Med.* 13 (7) (2015) 445–450.
- [13] K.B. Petersen, E. Hoffman, C.R. Larsen, H.S. Nielsen, Cesarean scar pregnancy a systematic review of treatment studies, *Fertil. Steril.* 105 (4) (2016) 958–967.
- [14] R.A. Agha, C. Sohrabi, G. Mathew, T. Franchi, A. Kerwan, O'Neill N for the Process Group, The PROCESS 2020 guideline: Updating consensus preferred reporting of Case series in surgery (PROCESS) guidelines, *Int. J. Surg.* 84 (2020) 231–235.