



Laparoscopic Excision of Cesarean Scar Ectopic Pregnancy

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Abstract

Background Cesarean scar ectopic pregnancies are increasing in frequency, due to rise in cesarean deliveries. They should be managed early in pregnancy, preferably by surgical excision, failing which they may rupture, or later develop into morbidly adherent placenta.

Methods This is a series of five cases described to explain the instrumentations and techniques in the laparoscopic excision of cesarean scar ectopic pregnancies. Written consent was taken from the patients.

Results All five patients underwent successful laparoscopic excision. Follow-up period was uneventful.

Conclusion Laparoscopic excision of cesarean scar ectopic is a technically demanding procedure, but with excellent results. All gynecologists should be familiar with this technique due to the increasing incidence of cesarean scar ectopic gestations.

Keywords Cesarean scar ectopic · Laparoscopic excision · Isthmocolle repair

Introduction

Cesarean scar ectopic pregnancies are becoming increasingly common, mirroring the rise in overall cesarean deliveries [1]. They account for one in 500 pregnancies in women with previous cesarean delivery, and 4% of all ectopic pregnancies [2]. There is a myriad of options to manage such pregnancies, and there is no consensus regarding the best modality of treatment, which includes expectant management, medical management with methotrexate, and surgical techniques. Laparoscopic, vaginal, and open excision and repair of the defect are associated with a 96% success rate [2]. We present a series of five cases of cesarean scar ectopic which were managed by laparoscopic scar excision

and repair. Written consent has been taken from all of the patients.

Case 1

Mrs. A was an asymptomatic 39-year-old fourth gravida at 6 weeks 1-day of gestation, with history of two cesarean deliveries and a curettage following a missed abortion. An early pregnancy ultrasound was suggestive of pregnancy in the cesarean scar. A three-port laparoscopy was performed, which confirmed scar ectopic pregnancy. The uterus was approximately of 8 weeks size, with a 3 × 3 cm hyper-vascular gestational sac protruding through and adherent to the previous scar. The urinary bladder was pushed down, the retroperitoneum was opened, and bilateral uterine arteries were clipped. This was followed by injection of 80 mL of vasopressin (diluted as 20 units in 200 mL normal saline) at the periphery of the gestational sac. Using harmonic scalpel, the scar was excised, the products of gestation were suctioned out, and the scar margins were freshened. Thorough curettage of the endometrial cavity was performed under laparoscopic vision. The myometrial defect was closed in two layers using V-loc suture (Medtronic, Minneapolis, MN) (Fig. 1).

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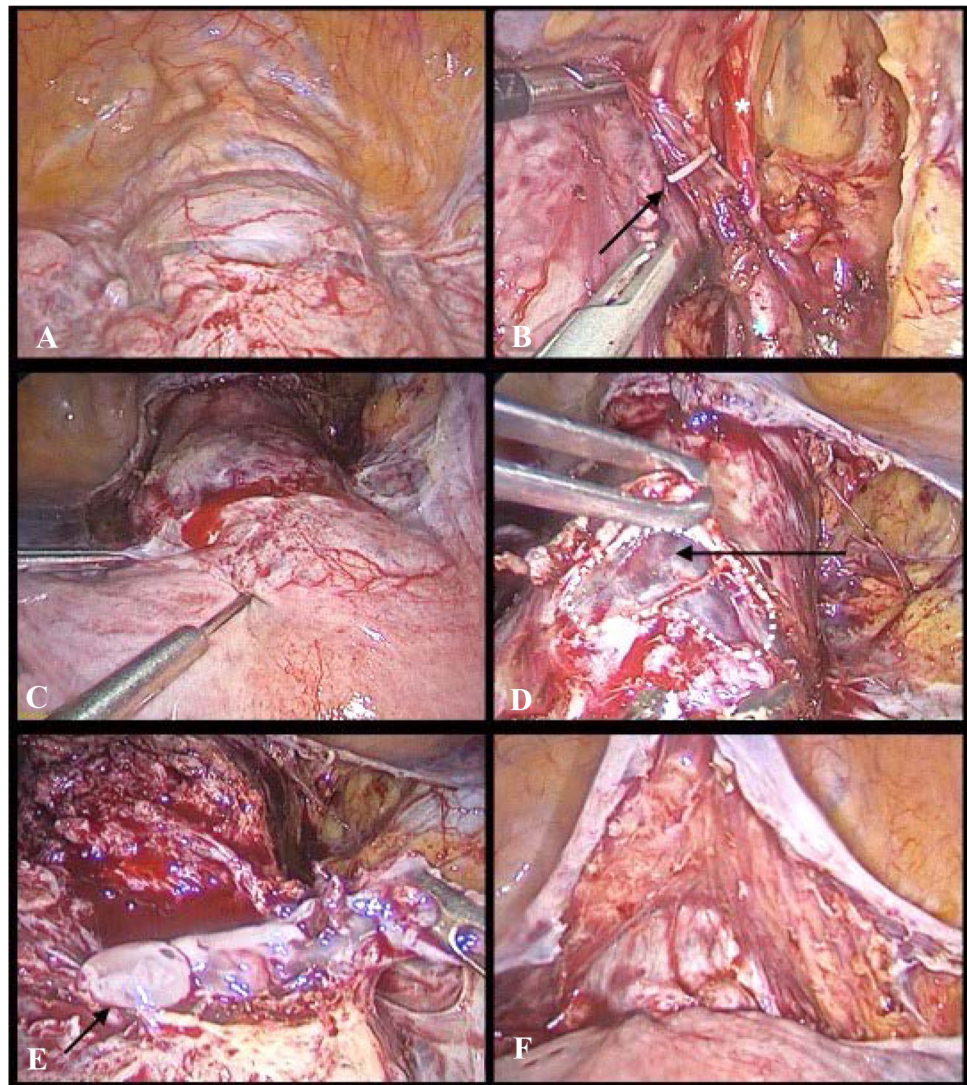
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Fig. 1 **a** Cesarean scar ectopic gestation is visualized as a bulging 3×3 cm mass in the lower uterine segment. **b** Retroperitoneum has been opened and right uterine artery clipping (black arrow) is depicted. **c** The utero-vesical fold has been dissected and vasopressin is being injected for devascularization. **d** Wedge resection of all products of gestation (black arrow) along the dotted line is being done. **e** Fetus is seen after resection. **f** Post surgery view of repaired uterus after suturing



Case 2

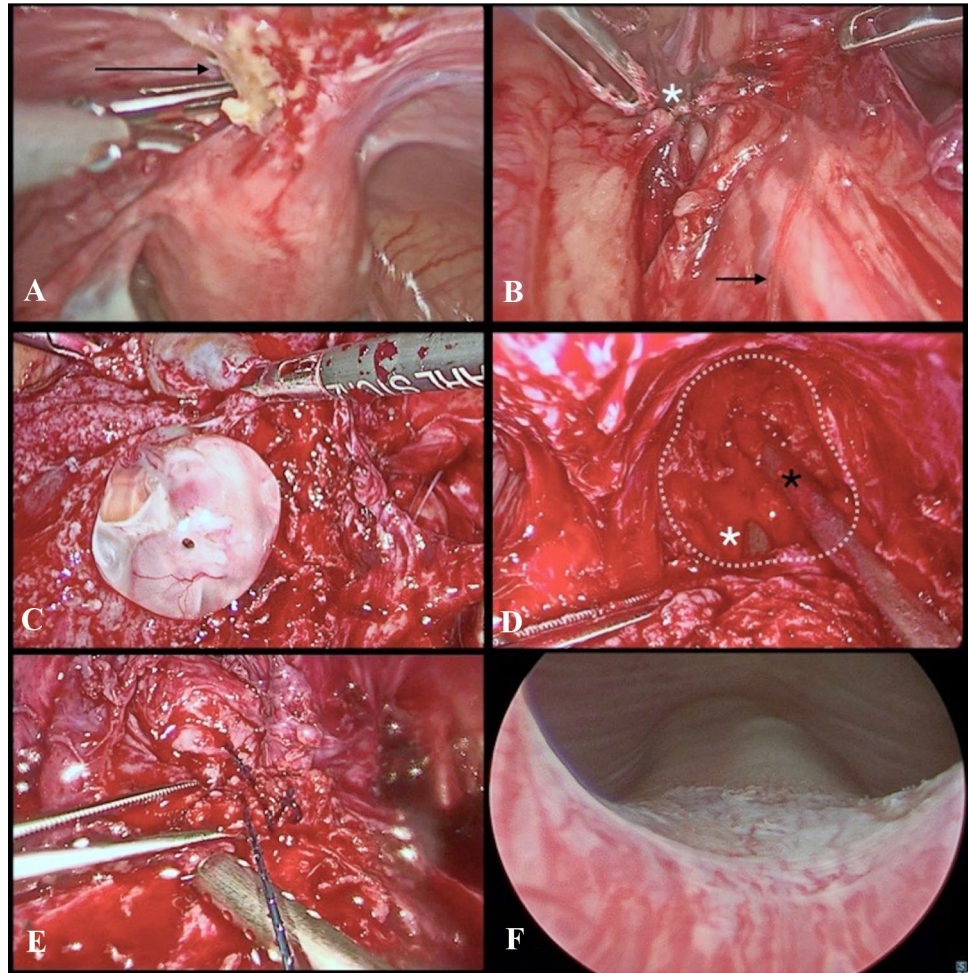
Mrs. B was a 30-year-old third gravida with complaints of 8 weeks of amenorrhea, with history of previous two cesarean sections with TVS suggestive of scar pregnancy. She had earlier taken oral mifepristone and misoprostol, but did not have any subsequent vaginal bleeding. She had also been administered intramuscular methotrexate before being referred to our center. We performed laparoscopic excision of scar ectopic pregnancy with adhesiolysis (Fig. 2). Intra-operatively, there was a thick adhesion band between uterus and anterior abdominal wall, extending from the fundus to the bladder, obscuring access to the bladder and the previous uterine scar. We entered the retroperitoneal space and traced the bilateral uterine arteries upto their origin. Uterine arteries were clipped at the origin. The adhesion band was lysed and detached from

the anterior abdominal wall using harmonic scalpel. The bladder was identified and pushed down. The gestational sac was visualized to pop out from the papery thin scar. Gestational products were removed and sent for histopathology. Uterus was reconstructed using V-Loc barbed 2-0 suture. Postoperative cystoscopy was normal.

Case 3

Mrs. C was a 30-year-old fifth gravida, with history of previous two cesarean sections, and two D&C's, with the complaint of irregular vaginal bleeding since 3 months. She had been diagnosed with cesarean scar ectopic pregnancy 1 month ago, and had received 2 doses of methotrexate. She was severely anemic and was transfused 2 units of packed red blood cells. We did laparoscopic excision of cesarean scar ectopic along with curettage of gestational products.

Fig. 2 **a** Laparoscopic view of uterus showing thick adhesion band to anterior abdominal wall. Adhesiolysis was done using harmonic scalpel. **b** Retroperitoneum was opened and uterine artery (white asterisk) was ligated. Ureteric peristalsis (black arrow) was visualized. **c** Products of gestation with complete fetus is seen after excision from the scar site. **d** The scar site has been completely extirpated (dotted lines). Concomitant suctioning (black asterisk) and curettage are being done to remove any remaining products of conception. **e** Uterine defect is sutured in two layers using v-loc barbed suture. **f** Postoperative cystoscopy is normal



Intra-operatively, there was a soft, vascular mass of 4×4 cm seen at the site of previous scar extending into left side of broad ligament. As mass was encasing left iliac vasculature along with ureter, devascularization was done by ligation of bilateral uterine arteries at their origin and ureterolysis. A sharp dissection of the vesicouterine peritoneal fold and extirpation of mass located in the dehiscent scar was performed with harmonic scalpel, followed by bipolar coagulation. The edges of scar tissue were excised and freshened, gentle uterine curettage was done and the resulting defect repaired using V-Loc barbed suture in two layers.

Case 4

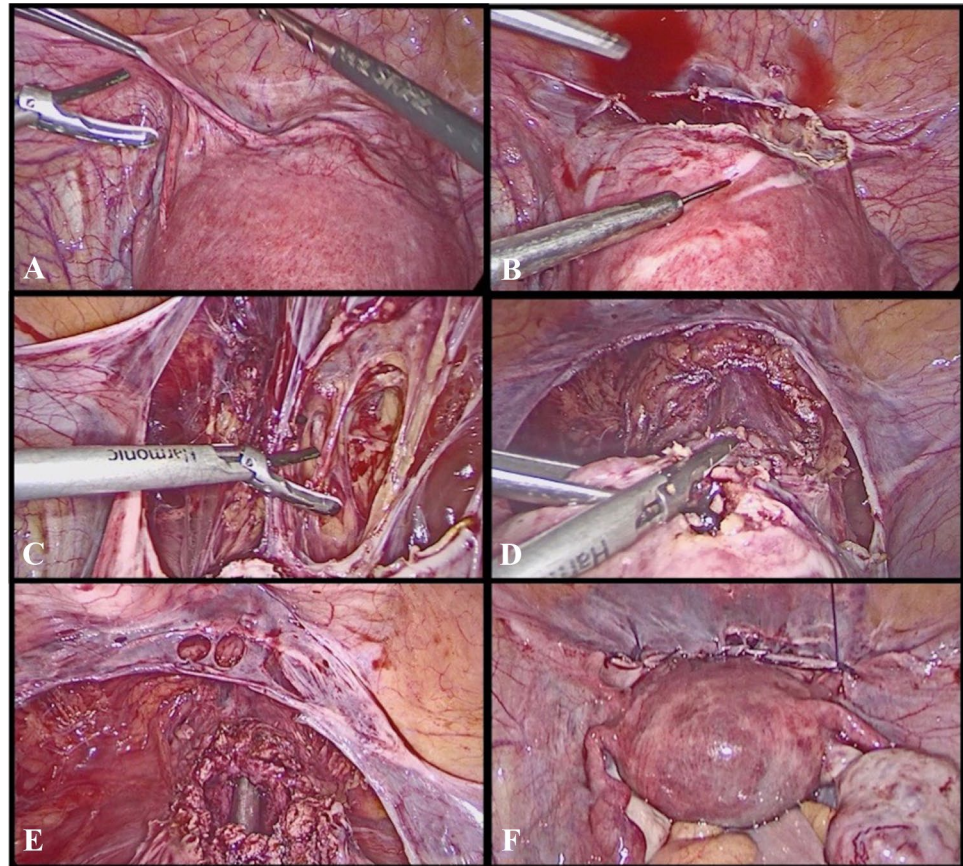
Mrs. D was a 33-year-old female with 6 weeks of gestation in her second pregnancy. She has undergone one cesarean section 3 years ago. She underwent a transvaginal ultrasound which was suggestive of scar ectopic. Her beta-hCG was

11,000 mIU/L. On laparoscopy (Fig. 3), there was a highly vascularized area in the lower uterine segment. The utero-vesical fold was sharply dissected and the urinary bladder pushed down. 100 mL of vasopressin, diluted as 20 units in 200 mL NS, was injected into the lower uterine segment. Excision of the cesarean scar was performed, to reveal gestational products. Gentle curettage of the products was performed under visualization. The cesarean scar margins were freshened, and sutured in two layers.

Case 5

Mrs. E, a 36-year-old female with 8 weeks of gestation in her third pregnancy, with history of two previous term cesarean sections, presented with ultrasound suggesting scar ectopic. Her beta-hCG was 9600 mIU/L. On laparoscopy, there was a bulge in the lower uterine segment which was excised to reveal gestational products. Margins were freshened and sutured in 2 layers.

Fig. 3 **a** Cesarean scar site ectopic pregnancy is detected by extreme vascularity in lower uterine segment. This is likely a type 1 scar ectopic as no external bulge is visible. UV fold is being dissected. **b** Vasopressin is injected into lower uterine segment to reduce blood loss. **c** Bladder is dissected away from uterus using harmonic scalpel. **d** Complete excision of the gestational products is performed by creating an anterior uterine incision. **e** Curettage is done under visualization to ensure complete removal of products. **f** Uterus after closure in two layers and peritoneal closure using vicryl 2-0 suture



Discussion

We have presented, with pictorial depiction, the technique of laparoscopic excision of cesarean scar ectopic pregnancies with curettage done under laparoscopic guidance. We performed these surgeries with a mean operative time of 99.8 min (± 24.3 SD), mean blood loss of 115 mL (± 50 SD), and mean time for recording negative beta-hCG value as 7 days. All of the patients resumed normal periods in 1–3 months. This article demonstrates, step-by-step, the procedure to manage this rare complication of cesarean section, which is still being performed by a very limited number of surgeons in the country. All clinicians should become familiar with this technique in light of ever-increasing cesarean section rates, as we can expect the incidence of cesarean scar ectopic pregnancies to rise in parallel.

The advantages of this procedure are that it entails complete removal of all gestational products with visualization of the pathology in its entirety [3]. There is no requirement for long-term follow-up, post-procedure menstrual cycles are usually normal, and associated isthmocoele is also repaired in the process [4]. If the patient has a subsequent pregnancy, the chance of recurrence of scar ectopic or scar rupture is reduced as the uterine scar is completely rejuvenated. The main disadvantage of the procedure is its steep learning

curve [3]. It should be performed only by surgeons who are well-versed with laparoscopy, and the anatomy of scar ectopic pregnancies. There is a high risk of intra-operative hemorrhage, which could be reduced with preoperative methotrexate, intra-operative use of vasopressin, or ligation of uterine arteries, all of which have been described in our patients. This risk must always be discussed preoperatively with the patient, and consent taken for possible conversion to laparotomy or hysterectomy.

Laparoscopic excision of scar ectopic pregnancy is a safe and effective treatment with long-term benefits for the patient.

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Compliance with Ethical Standards

Conflict of interest The authors have no conflicts of interest to disclose.

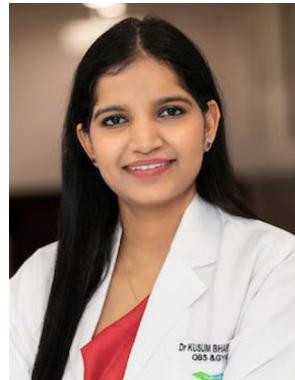
Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration. Informed consent was taken from all the participants.

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