

Laparoscopic Cesarean Scar Defect Repair in Six Steps

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OBJECTIVE

Cesarean scar defect (CSD) is a general term to characterize any myometrial defect as a consequence of disruption at the site of a previous cesarean section (CS). In some literature, this condition is also called as “niche,” “isthmocoele,” “deficient uterine scar,” “diverticulum,” or “pouch.”^[1-5] Its incidence has dramatically increased as CS rates continue to grow worldwide.^[1,2,4] Most cases are asymptomatic,^[2] but some patients may present with abnormal uterine bleeding, dysmenorrhea, pelvic pain, or secondary infertility necessitating surgical management.^[2,4,6] While surgical repair may be carried out via transvaginal approach, the laparoscopic route is considered the method of choice^[6] because it offers the advantage of thorough abdominopelvic evaluation with direct and easier access to the scar defect enabling adhesiolysis of the vesicouterine pouch.^[2,6] The objective of the video article is to demonstrate the laparoscopic stepwise approach involved in repairing CSD.

DESIGN

A laparoscopic step-by-step surgical approach will be demonstrated.

PATIENT

Our patient is a 39-year-old G2P2 patient who underwent CS in 2016 and 2017. She experienced on and off vaginal spotting and dysmenorrhea prompting consultation with her attending physician. A transvaginal ultrasound confirmed the presence of CSD.

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Figure 1: Transverse incision of the isthmocoele is performed after identification of the exact location of scar defect
<http://www.apagemit.com/page/video/show.aspx?num=337&kind=2&page=1>

SETTING

Laparoscopic repair of cesarean scar defect.

INTERVENTION

The basic steps of the procedure are as follows: [Video]

1. Careful adhesiolysis and mobilization of the urinary bladder from the previous CS scar site. The vesicouterine fold is identified and dissected off from its adhesion to the scar site. The bladder is dissected free and separated from the lower uterine segment
2. Hysteroscopic transillumination and identification of CS scar defect. By turning off the laparoscopic light, a “Halloween Sign” produced by hysteroscopic transillumination is recognized facilitating the identification and exact location of the scar defect and its edges
3. Transverse incision of the isthmocoele [Figure 1]
4. Excision of the CS scar tissue. This is done preferably

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with cold scissors to prevent tissue necrosis associated with excessive cauterization. The whitish fibrotic scar should be completely removed until the reddish, healthy myometrial tissues are exposed. This is crucial to assure adequate vascularization of the myometrial tissues that will be reapproximated and, thus, promote good wound healing

5. Suturing of the myometrial defect. An acorn uterine manipulator was placed in this case prior to suturing to maintain the continuity of the cervical canal with the uterine cavity. A Hegar dilator may also be used. This will help ensure correct myometrial alignment during repair. The surgical technique of uterine incision closure is considered to be the most important determinant of CS defect formation and also its repair.^[1] A single- or double-layered suturing is commonly performed depending on the thickness of the myometrium using synthetic absorbable coated or barbed sutures like polyglycolic acid (e.g., Vicryl and V-Loc) in a continuous, nonlocking fashion.^[1,4,6] Occasionally, a third layer closure may be done as deemed necessary by the surgeon. The stitches are pulled tight enough to approximate the myometrial edges without excessive tension. The goal is to achieve good myometrial apposition without devascularization or ischemia which is more important than the number of layers during closure^[1]
6. Suturing and reapproximation of the uterovesical peritoneal layer. This step may be done using a single, continuous, nonlocking method. This would not only restore the anatomical image of the uterus but also prevent direct contact of raw areas of the lower uterine wall to the anterior abdominal wall which may be responsible for adhesion formation.^[1]

CONCLUSION

Because of the growing number of CS defect cases, knowledge in its management, particularly the surgical approach, has become a necessary skill for obstetrician-gynecologists. This video presentation has provided an organized approach in performing the laparoscopic repair of cesarean scar defect.

Author contributions

Conceptualization: Chyi-Long Lee; Methodology: Chyi-Long Lee and Kuan-Gen Huang; Writing and Video Editing: Mary Evangeline V. Mercado and Gillian Patrick C. Gonzalez;

Original Draft Preparation: Mary Evangeline V. Mercado and Gillian Patrick C. Gonzalez; Review and Editing: Chyi-Long Lee and Kuan-Gen Huang; Supervision: Chyi-Long Lee and Kuan-Gen Huang. All authors have agreed to the final version of the manuscript.

Ethical approval

The study was conducted in accordance with the Declaration of Helsinki and was approved by Chang Gung Medical Foundation Institutional Review Board with (with approval no. 202400859B0; approval date: 05/30/2024.) Informed consent was obtained from all patient.

Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Nil.

Conflicts of interest

Prof. Chyi-Long Lee, Editor in Chief, and Assist. Prof. Kuan-Gen Huang, an editorial member at *Gynecology and Minimally Invasive Therapy*, had no role in the peer review process or decision to publish this article. The other authors declared no conflicts of interest in writing this paper.

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