Laparoscopic repair of wide and deep uterine scar dehiscence after cesarean section

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Objective: To propose a new laparoscopic technique for repair of scar dehiscence after cesarean section.
Design: The dehiscent scars were evaluated by ultrasound, hysterography, hysteroscopy, and magnetic resonance imaging. The results were correlated with those after laparoscopic repair.
Setting: University hospital.
Patient(s): Three patients underwent cesarean section and presented with symptomatic dehiscence at the level of the incision.
Intervention(s): Laparoscopic repair of the dehiscence, including excision of the fibrotic tissue and laparoscopic closure of the anterior uterine wall.
Main Outcome Measure(s): Evaluation by ultrasound and magnetic resonance imaging of the sagittal depth of the scar and the thickness of the residual myometrium covering the dehiscence.
Result(s): The defect was completely corrected by laparoscopic repair in all cases.
Conclusion(s): Evaluation of uterine scar dehiscence after cesarean section can be performed by ultrasound and magnetic resonance imaging, and laparoscopic surgical repair may be performed with good postoperative anatomic outcomes. (Fertil Steril® 2008;89:974–80. ©2008 by American Society for Reproductive Medicine.)

Key Words: Cesarean section, dehiscence, scar, laparoscopic repair

Cesarean section is the most commonly performed surgery in obstetrics, and its incidence is on the increase, with rates as high as 17% to 25% in some countries (1). In certain cases, resulting scar dehiscence may lead to uterine rupture during pregnancy and delivery procedures, with ensuing maternal and fetal morbidity. Nevertheless, in 1997, the Clinical Audit Unit of the Royal College of Obstetricians and Gynaecologists (United Kingdom) recommended that women who previously have had a cesarean section should be actively considered for subsequent vaginal delivery (2). After cesarean section, the risk of uterine rupture in women with previous vaginal delivery is low (<1%) when labor is induced (3). But without prior vaginal delivery, the risk of uterine rupture is likely to be between 1% and 5% and is unlikely to be reduced by the use of modern technologies. Moreover, cesarean scar dehiscence can be a site for developing extrauterine pregnancy. In such cases, uterine rupture can be prevented by a medical approach or surgical procedures (4). Extrauterine pregnancy in a dehiscent cesarean scar has been described after embryo transfer in case of IVF (5). Cesarean scar defects also have been reported to be etiological factors in many clinical conditions, such as dysmenorrhea (6) and intermenstrual bleeding (7–9).

Vaginal or laparoscopy-assisted vaginal approaches can be undertaken for repair of suspected scar dehiscence after cesarean section (8), with patients remaining free of pelvic pain and irregular menstrual bleeding. Here, we report a hitherto not-described technique of cesarean scar dehiscence repair exclusively by laparoscopy. This technique was successfully used to treat three patients in our department.

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MATERIALS AND METHODS

The patients were, respectively, 32, 30, and 36 years of age at the time of diagnosis. Their obstetric history showed that they had undergone cesarean section for different reasons, such as breech presentation and preeclampsia. The third patient underwent a second cesarean section for an unfavorable cervix at the end of pregnancy. None of these patients had experienced vaginal delivery in the past. All of them had been trying to conceive for >1 year by the time that they were referred to our department. The main complaint was pelvic pain at the hypogastric level, increasing during menstruation, and one patient presented with metrorrhagia.

Clinical examination revealed both a normal uterus and adnexa. All three patients underwent ultrasound, hysterography, hysteroscopy, and MRI. Ultrasound was used to measure the depth and size (longitudinal) of the dehiscent scar and the thickness of the residual myometrium covering the dehiscence. These data were correlated to MRI findings by using T2-weighted images and T1-weighted images with saturation of fatty tissue.

After informed consent was obtained, laparoscopic repair was proposed to the patients. In all three cases, laparoscopy revealed a normal-sized uterus associated with normal adnexa. As observed in Figure 1a, the cesarean scar was easily distinguishable, and only the peritoneum and some layers of myometrium were found covering the dehiscence, as

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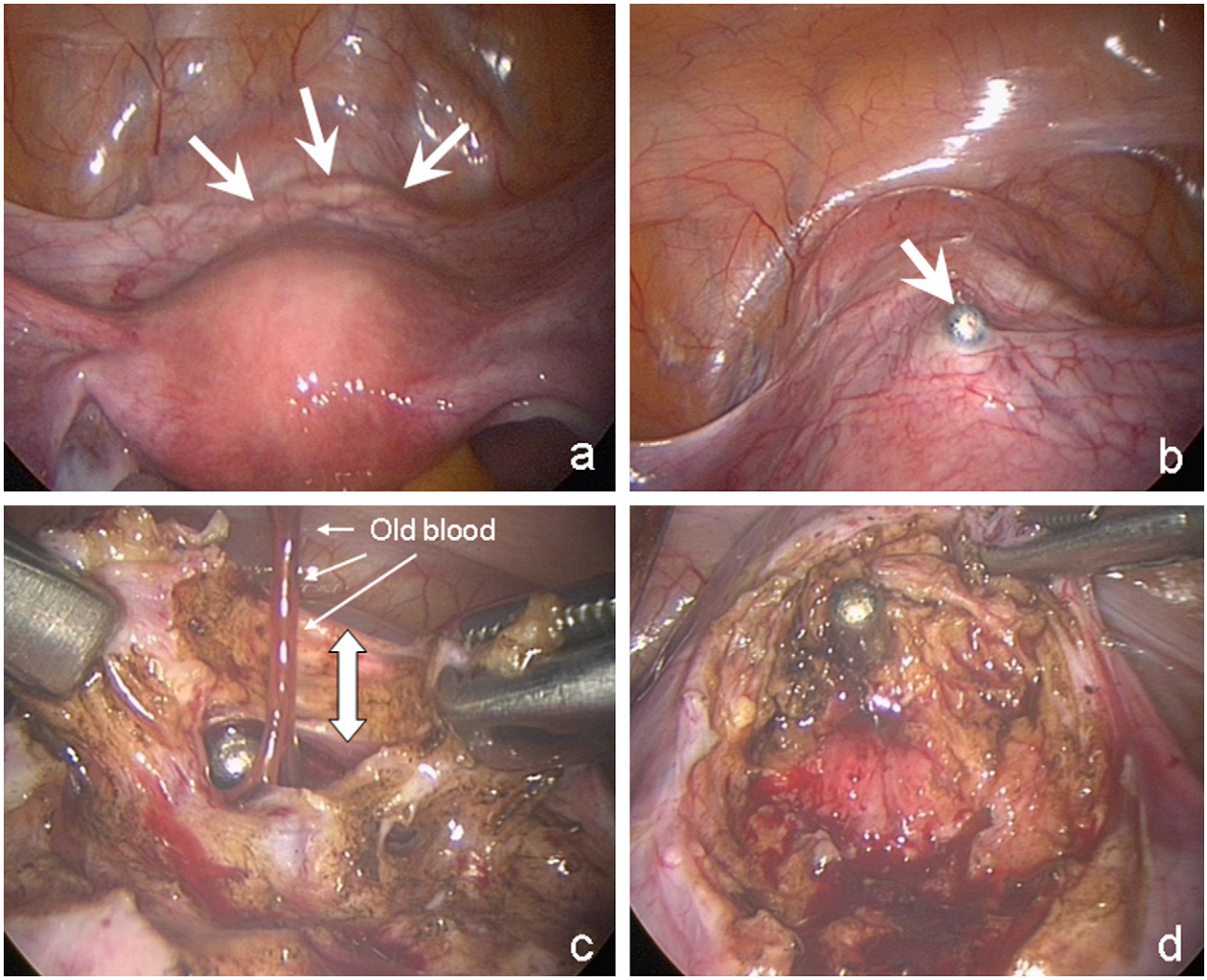
demonstrated by inserting a probe through the cervix into the dehiscent scar (Fig. 1b). The peritoneum then was opened to safely separate the bladder from the anterior wall. The lower uterine segment was only composed of a thin layer of fibrotic tissue covered with peritoneum.

By using CO_2 laser (Lumenis-Sharplan; Yokneam, Israel), we completely opened the scar from one side to the other. The fibrotic tissue then was excised from the edges of the cesarean scar to access healthy myometrium and facilitate further healing (Fig. 1c). The final view of the wide-open scar is shown in Figure 1d. Before closing the scar, a Hegar probe was inserted into the cervix to preserve the continuity of the cervical canal with the uterine cavity (Fig. 2a). Two separate sutures were placed on the two lateral sides of the scar by using 2–0 Vicryl and an SH needle (Johnson & Johnson, Hamburg, Germany; Fig. 2b). The scar was finally closed by using two more 2–0 sutures (Fig. 2c). It then was covered with peritoneum. The final view of the repair can be seen in Figure 2d. At the end of surgery, we performed a hysteroscopy to visualize the repair of the cervical canal. It showed complete correction of the defect and normal permeability of

FIGURE 1

(**a**) With the magnification provided by the laparoscopic view, access to the cesarean scar was easy, and the dehiscence was clearly identified (*white arrows*). (**b**) A probe (*white arrow*) was inserted through the cervix into the dehiscent scar. (**c**) The anterior uterine wall (*thick white arrow*) was composed of a thin layer of fibrotic tissue covered with peritoneum. Complete resection of the fibrotic tissue was mandatory to facilitate further healing. The presence of old blood is indicated by *thin white arrows.* (**d**) Final view of the opened dehiscent scar after resection of the fibrotic tissue with the CO_2 laser.



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