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Total Laparoscopic Hysterectomy in Women with Previous Cesarean Sections

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ABSTRACT **Objective:** To analyze the feasibility and technique of dissecting the urinary bladder from the lower uterine segment during total laparoscopic hysterectomy in women who have previously delivered by cesarean section.
Design: Retrospective review (Canadian Task Force classification II-1).
Setting: Dedicated high-volume gynecologic laparoscopy center.
Patients: Two hundred sixty-one women who underwent total laparoscopic hysterectomy at our center. There were no exclusion criteria based on the size of the uterus or the number of previous cesarean section deliveries.
Intervention: All patients underwent total laparoscopic hysterectomy and lateral dissection of the bladder.
Measurements and Main Results: Of the study cohort, 52% had undergone 1 cesarean section, 42% had undergone 2 cesarean sections, and 6% had undergone 3 caesarean sections. Median (range) clinical size of the uterus was 12 (6–30) weeks; weight of the specimen was 200 (40–2200) g; total duration of surgery was 80 (30–240) min; and total blood loss was 50 (10–2000) mL.
Conclusion: Total laparoscopic hysterectomy in patients with previous cesarean section deliveries is technically feasible. It can be performed by experienced surgeons irrespective of the size of the uterus or the number of previous cesarean sections. Journal of Minimally Invasive Gynecology (2010) 17, 513–517 © 2010 AAGL. All rights reserved.

Keywords: Bladder adhesions; Bladder injury; Cesarean section; Total laparoscopic hysterectomy

The problem of needing to perform a hysterectomy in women who have previously delivered by cesarean section is likely to become increasingly common because of the large number of cesarean sections performed, currently 20% of deliveries in many centers. Surgical adhesions caused by previous cesarean sections can make vaginal hysterectomy technically difficult. Thus, the abdominal route may be preferred, and a laparoscopic procedure can provide better exposure of adhesions. The laparoscopic approach offers a superior view of the anatomy, facilitates meticulous hemostasis, enables the surgeon to perform adhesiolysis effectively, and reduces morbidity associated with large abdominal incisions [1].

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Mobilization of the urinary bladder off of the cervix is an important step in total laparoscopic hysterectomy, and is always performed before dealing with the uterine pedicle. If the uterus is unscarred, bladder mobilization may not be technically difficult. However, if the uterus is scarred, there can be adhesions not only between the uterus and the bladder but also to the anterior abdominal wall, which can make dissection challenging. It is difficult to assess the extent of adhesions based on the number of previous cesarean sections. Studies of the effects of closure or nonclosure of the peritoneum during cesarean delivery on adhesion formation have concluded that insufficient data are available and that adequately powered and designed trials are needed [2,3]. We use the lateral approach for dissecting the bladder from the cervix, and this has been useful in all patients with previous cesarean section deliveries, irrespective of the number.

Material and Methods

Surgical Technique

All surgeries were performed with the patient under general anesthesia and in a modified lithotomy position.

The Veress needle was inserted at the Palmer point in all patients. The Palmer point [4], 3 cm below the left costal margin in the midclavicular line, is a safe zone in all patients other than those with splenomegaly or a history of gastric surgery. In patients with other previous surgeries, this point is usually devoid of major adhesions.

After insufflation with carbon dioxide, a 5-mm trocar is inserted blindly in the left upper quadrant lateral to the inferior epigastric vessels at the level of or above the upper limit of the uterus. A 5-mm telescope is introduced through this port, and the uterus with the adnexa are evaluated. The 10-mm port is inserted under vision at the supraumbilical site, depending on the size of the uterus. Entry under vision averts damage to major vessels directly beneath the insertion site and has the added advantage that the port can be placed at a variable point, depending on the size of the uterus and the presence of abdominal wall adhesions. This not only helps the surgeon to obtain a good operative field but also enables smooth manipulation of the instruments above the uterus. We generally perform the surgery with three 5-mm accessory ports; the port placed initially in the left lateral upper quadrant is used as the first accessory port, the second port is placed under vision in the right lateral upper quadrant, as is the third port placed in the left lateral lower quadrant.

The pelvis and abdomen are inspected for any other pathologic condition such as endometriotic lesions, adhesions, or ovarian disease. Abdominal wall adhesions are usually found in the midline because of previous surgery, and are dealt with first with harmonic ultracision. The course of the ureter is traced at the start of the procedure. We prefer to insert a 5-mm myoma spiral into the uterus for manipulation.

In women with previous normal deliveries who have no bladder adhesions, we begin the hysterectomy with ligation of the uterine pedicle [5]. Dissecting the uterovesical fold and pushing the bladder down moves the ureter laterally and decreases the risk of including it in the suture [6].

Usually in women with previous cesarean sections, the bladder is adherent to the lower uterine segment where the transverse Kerr incision is made to open the uterine cavity during lower segment cesarean section (Figs. 1 and 2). Dense adhesions and fibrosis are usually observed in the midline anteriorly at the level of the uterovesical fold, and any attempt to push the bladder down on the midline can cause unintentional bladder injuries. A safer approach is from the lateral portion of the cervix. In this area, adhesions are less dense and firm, and the bladder is not in direct contact with the cervix. This space was first described by Sheth and Malpani [7] as the uterocervical broad ligament space for the vaginal approach to hysterectomy in patients with previous cesarean sections. These authors observed that adhesions between the bladder and the lower uterine segment, in particular after 2 previous cesarean sections, were dense or tough in the midline. However the lateral area, that is, the space between the leaves of the broad ligament adjoining the uterocervical border near the isthmic notch (the uterocervico broad ligament space), was usually

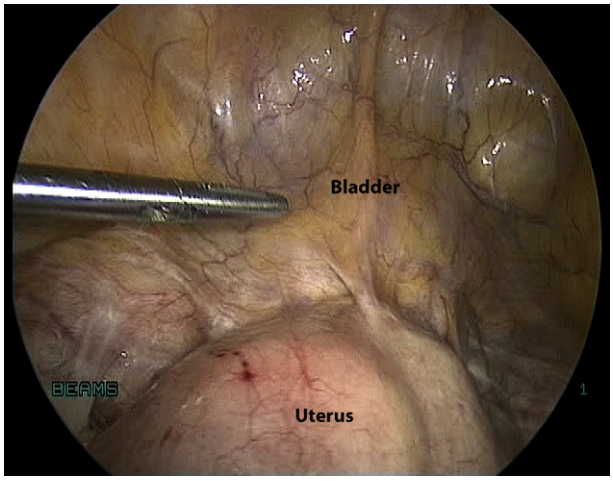

Fig. 1. Adhesion of bladder to uterus in a woman with a previous lower segment cesarean section.

free of adhesions. It was, therefore, possible to enter this space by dissecting near the lateral uterocervical margin. Thus we use the ''lateral window technique'' (Fig. 3) for bladder adhesiolysis.

We begin by identifying this plane from the left side using traction on the uterus, with the 5-mm myoma spiral placed on the fundus from the right lateral port. Many instruments have been devised to reduce the incidence of bladder injury; uterine manipulators with attachments serve to present the vaginal fornices, thus easing bladder dissection [8]. The dissection is begun by desiccating and cutting the left cornual pedicles. A definitive plane is identified between the bladder and cervix from the left side first. This plane is always above the level of the uterine vessels (Fig. 4). Once the vascular bundle is identified, the space can be dissected just above the uterine vessels. The uterine cervix can be identified clearly if the dissection is in the correct plane, and any fatty tissue should be moved with the bladder. The uterine vessels can then be desiccated or ligated. Similarly, the right cornual structures are desiccated and cut, and the plane between the

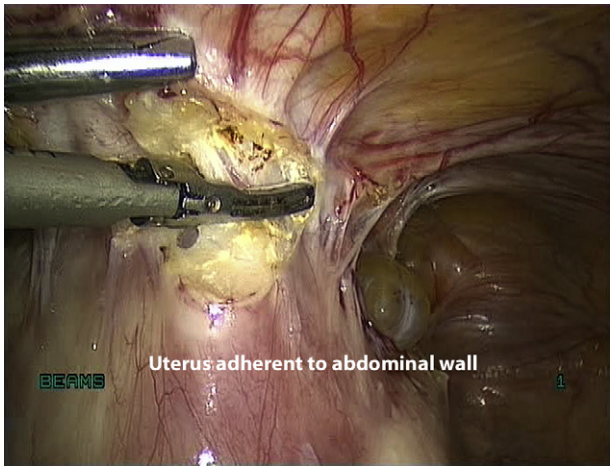

Fig. 2. Adhesion of bladder to uterus and anterior abdominal wall in a woman with 3 previous lower segment cesarean sections.