Letter to the Editor

The Feasibility of an Internal Bladder Retractor in Facilitating Bladder Dissection During Laparoscopic-Assisted Vaginal Hysterectomy

To the Editor:

Urinary bladder injury remains a potential intraoperative risk during laparoscopic surgery. In our previous report, the incidence rate was 0.4% (6/1507) among overall laparoscopic surgeries.[1] Moreover, it happened more commonly in laparoscopic-assisted vaginal hysterectomy (LAVH), with an incidence rate ranging from 0.14% (6/422) to 1.4% (7/489).[2,3] Most of the bladder injuries happen during the sharp dissection of the vesicouterine space caudally, with or without electrocautery.[2] With our previous experience of using an internal bladder retractor to facilitate the dissection of vascular pedicles during laparoscopic radical cystectomy for bladder cancer in female patients,[4] we applied this technique to facilitate the dissection on the vesicouterine junction during LAVH.

From September 2002 through May 2003, 32 patients with benign uterine lesions (uterine myoma [13 cases], adenomyosis [11 cases], and cervical carcinoma in situ [8 cases]) refractory to medical treatment were recruited into this study. The mean patient age was 42.3 years, with a range of 32 to 53 years; the mean parity was 2.8, with a range of 1 to 4.

The laparoscopic procedures have been described elsewhere.[5] Briefly, the patients were positioned in the modified lithotomy position with hips slightly flexed and abducted, and the buttocks were placed at the edge of the operating table. The Valtchev uterine mobilizer (Conkin Surgical Instruments Ltd., Toronto, Ontario, Canada) was inserted into the uterine cavity following the direction of the cervical canal and the uterine cavity. We electrodesiccated and cut the uterine vessels at the level of the internal cervix using bipolar Kleppinger forceps and scissors. We then inserted a retractor (Diamond Flex, Genzyme Products, Tucker, GA) through the urethral orifice into the bladder. The tip was locked by screwing the rear handle to give it the oval configuration of its distal part.[4] It acted as an internal bladder retractor for the mobilization of the bladder. Meanwhile, a uterine mobilizer was used for counter traction to the retractor. Thus, the vesicouterine space was enlarged and visualized clearly during dissection (Figure 1). The bladder base was mobilized for an adequate distance, which would not have been achieved easily with standard laparoscopic techniques. After the bladder base had been mobilized away from the uterus, anterior colpotomy was performed on the anterior fornix of the vagina. Finally,

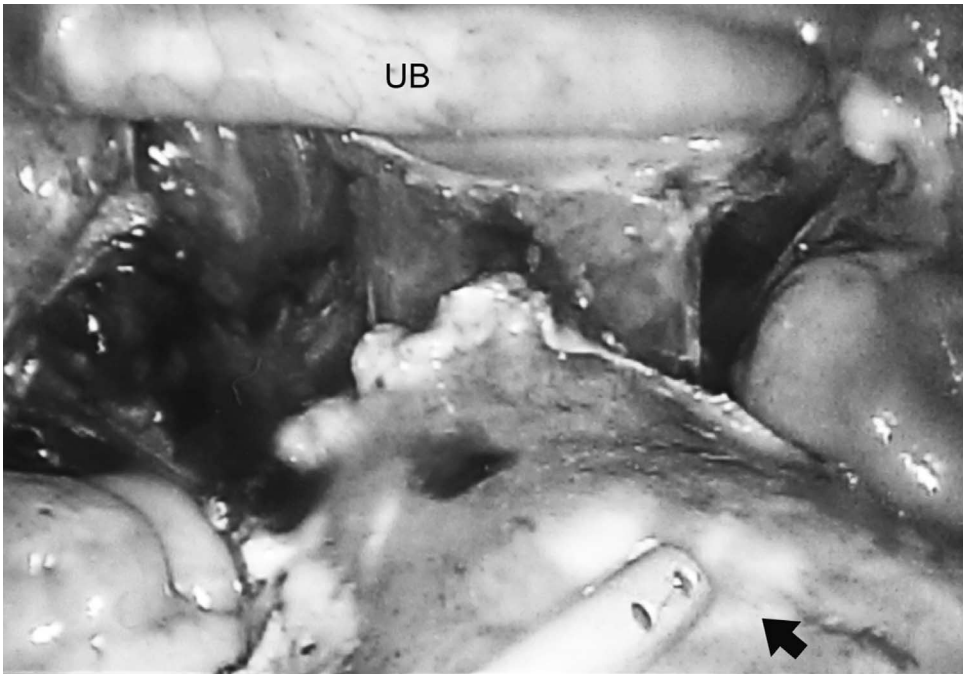

FIGURE 1. With the upward traction of the internal bladder retractor, the bladder was mobilized away from the uterus. The vesicouterine space was exposed for a clear visualization, and the adhesion band between the urinary bladder and uterus was depicted more clearly. The arrow points to the anterior wall of the uterus. UB = urinary bladder.

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posterior colpotomy was performed using monopolar electrocoagulation, followed by the conventional vaginal approach for the rest of the procedure. After the surgical specimen was removed, the vaginal stump was sutured vaginally.

In all 32 patients, LAVH was performed without incidence, including in patients with a history of cesarean section (eight patients). Among the women with a previous cesarean section, five were found to have severe fibrous condensation of connective tissue between the urinary bladder and uterus, which obliterated the vesicocervical space. The margins of the bladder base were obscured and could not be dissected with the traditional approach in these patients. With the assistance of an internal bladder retractor, the margins of the bladder base could be delineated and mobilized. Anterior colpotomies were also performed safely without injury to the urinary bladder.

Urinary bladder injury deserves careful attention during LAVH due to the anatomic closeness to the uterus and frequent history of cesarean section. Several techniques have been suggested to prevent or immediately recognize bladder injury (e.g., retaining some fluid in the urinary bladder when pushing away from the anterior surface of uterus).[3] It is a general surgical principle to keep tissue under tension to facilitate dissection in traditional open surgery. However, it is not easy to do so in the limited laparoscopic surgical field, especially in an enlarged uterus located deeply within the pelvis or in the presence of dense fibrous adhesions during LAVH.[4]

Therefore, we propose the use of an internal bladder retractor to mobilize the urinary bladder during dissection of vesicouterine space. The application of the retractor is safe due to its oval shape and smooth corners.[4] It is easy to use and allows more precise control of the bladder base. With the help of an internal bladder retractor used for counter traction, the vesicouterine space can be visualized very clearly. This helps to overcome the difficult dissection in the vesicouterine space limited by the vesicocervical ligaments in the middle and bladder pillars on both sides of the cervix. Thus anterior colpotomy can be performed safely.

In conclusion, the internal bladder retractor is feasible in facilitating dissection on the vesicouterine junction during LAVH and preventing bladder injury.

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