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Video Article

Laparoscopic radical hysterectomy without uterine manipulator or vaginal tube use

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ABSTRACT

In the Laparoscopic Approach to Cervical Cancer trial, minimally invasive surgery (MIS) has been associated with significantly lower disease-free survival and overall survival rates. The proposed reasons for the increased recurrence and mortality associated with MIS are uterine manipulation, the effect of insufflation gas (CO_2), and intracorporeal colpotomy. We applied 2 techniques during surgery to reduce tumor spillage in laparoscopic radical hysterectomy (LRH), which included avoiding using a uterine manipulator and containing the colpotomy using an endoscopic stapler. We aimed to introduce an easy and comfortable traction method with tagged uterine sutures instead of a manipulator or vaginal tube for minimally invasive radical hysterectomy (RH). The patient underwent LRH. After entering the peritoneal cavity, tubal ligation was performed with an endoscopic clip to prevent tumor spillage via the fallopian tubes. Then, the uterine fundus was tied with needle-straightened multifilament Vicryl 2-0, and the tagged uterus was manipulated. Thereafter, pelvic lymphadenectomy was performed before RH. Thereafter, we performed intracorporeal colpotomy by resecting the vagina twice using an endoscopic stapler. Finally, the stapled vaginal stump was resected to retrieve the specimen via the vaginal opening using monopolar scissors after the vagina was washed several times with sterile water. After removing the specimen, the vaginal stump was endoscopically closed with a barbed suture. LRH can be feasibly performed in patients with uterine cervical neoplasm by retracting tagged uterine sutures without the use of a uterine manipulator.

Keywords: Uterine cervical neoplasm; Hysterectomy

VIDEO CLIP

Video can be found with this article online at https://ejgo.org/src/sm/jgo-34-e63-s001.mp4.

The treatment for patients with stage IB1 to IIA2 uterine cervical neoplasm, diagnosed according to the 2018 International Federation of Obstetricians and Gynecologists (FIGO) classification system, includes radical hysterectomy (RH) and pelvic lymphadenectomy [1,2].

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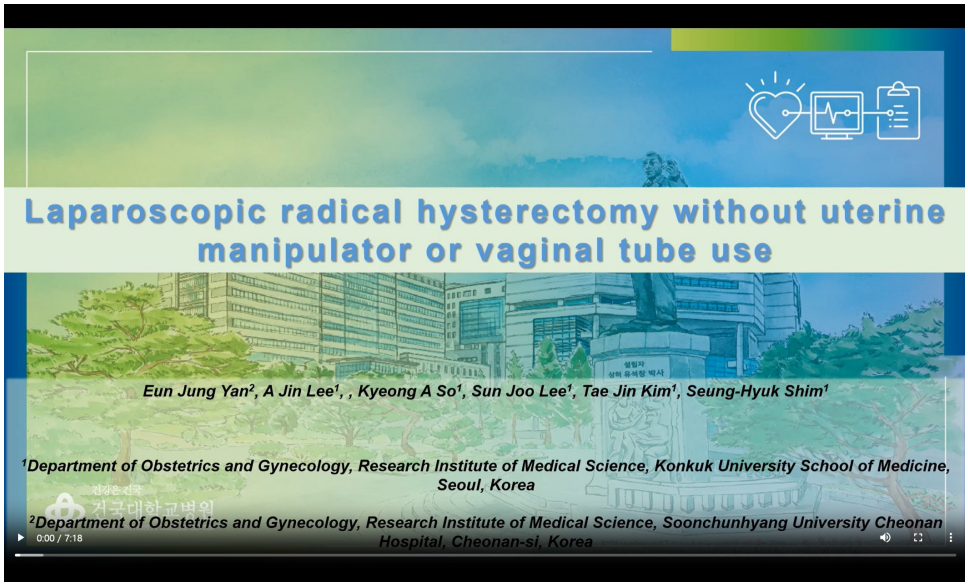
Conflict of Interest
No potential conflict of interest relevant to this article was reported.

Author Contributions
Conceptualization: S.S.H.; Data curation: S.K.A., K.T.J.; Investigation: Y.E.J., L.A.J.; Methodology: L.A.J.; Project administration: S.K.A.; Resources: L.S.J.; Software: Y.E.J., L.S.J.; Writing - original draft: Y.E.J.



RH can be performed using open radical abdominal hysterectomy or minimally invasive surgery (MIS). The MIS may be performed laparoscopically by a robot, and seems to be safe in existing clinical settings [3,4]. However, in the 2018 Laparoscopic Approach to Cervical Cancer trial, MIS was associated with a significantly lower disease-free and overall survival [5]. The proposed reasons for the increased recurrence and mortality following MIS are the use of uterine manipulation, the effect of insufflation gas (CO_2), and intracorporeal colpotomy [5,6].

We applied 2 intraoperative techniques to reduce tumor spillage in laparoscopic radical hysterectomy (LRH); avoiding the use of a uterine manipulator and concealed colpotomy using an endoscopic stapler [7,8].

We aimed to introduce an easy and comfortable traction method, using tagged uterine sutures instead of a manipulator or vaginal tube, when performing minimally invasive RH. This technique was targeted at patients with stage IB1, IB2, and IIA1 uterine cervical neoplasm according to the revised 2018 FIGO staging system, and patients with tumors sized <4 cm. Although cervical conization is not a necessary technique to perform this surgical procedure, many retrospective studies have recently come out that preop cervical conization is helpful in efforts to lower the risk of MIS, and this research team has recently performed conization before surgery [9,10].

This video shows an LRH, in which the uterus was manipulated by tagging instead of using a cervical manipulator or vaginal tube. A 55-year-old postmenopausal patient, with a history of left breast cancer, underwent loop electrosurgical excision for a high-risk human papillomavirus infection and high-grade squamous intraepithelial lesions. Histopathology of the cervical tissue revealed invasive squamous cell carcinoma and a benign deep margin. Preoperative magnetic resonance imaging and positron emission tomography-computed tomography showed tissue defects after conization. No parametrial or vaginal invasion was observed. The patient had uterine cervical neoplasm, FIGO stage IB2, and did not receive adjuvant treatment after surgery. Until now, 6 months have passed and there is no evidence of

recurrence. The patient consented to the dissemination and publication of this video article. A video editing program and an artificial intelligence voice dubbing program were used.

This video shows the step-by-step procedure of LRH. After entering the peritoneal cavity, tubal ligation was performed using an endoscopic clip to prevent tumor spillage via the fallopian tubes. Then, the uterine fundus was tied with a needle-straightened multifilament Vicryl 2-0, and the tagged uterus was manipulated. Thereafter, pelvic lymphadenectomy, including the external, internal, and obturator regions, was performed before RH. Then, rectovaginal septum dissection and bilateral uterosacral ligament resection were performed. For safety, the bladder was dissected from the uterus, and the anterior peritoneum was tied and tagged with a needle-stretched multifilament Vicryl 2-0 and fixed. The bilateral uterine arteries were ligated using endoscopic clips, and then, cut. The ureter was isolated from the paracervical site. When the vesicovaginal space is developed and the bladder is sufficiently lowered downward, the cervix and the level corresponding to the upper part of the vagina are exposed, and the vagina part has more elastic tissue than the cervix, so it is easily distinguished from the cervix level by the consistency and intensity of the tissue when touched or pressed with a forcep. An endoscopic stapler is inserted through a 12 mm trocar, flexed at a 45° angle, and the resection margin performed with a vaginal incision 2 cm below the level of the cervix. Next, the stapled vaginal stump was resected to retrieve the specimen via the vaginal opening using monopolar scissors. Then, the vagina was washed several times with sterile water. Finally, after removing the specimen, the remaining vaginal margin was incised and a frozen biopsy was performed to confirm that there was no tumor on the vaginal margin. Then the vaginal stump was endoscopically closed with a barbed suture.

LRH can be feasibly performed in patients with uterine cervical neoplasm by retracting tagged uterine sutures without the use of a uterine manipulator.

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