Results of total vaginal hysterectomy in patients with cervical intraepithelial neoplasia

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Abstract

Introduction: Cervical intraepithelial neoplasia (CIN) is considered a precancerous lesion and is usually treated aggressively. Total hysterectomy is indicated in some cases and can be performed through the abdomen, vaginally, through laparoscopic surgery and robotic surgery combined with laparoscopic surgery. It is necessary to study to evaluate the effectiveness of total vaginal hysterectomy.

Patients and methods: Clinical non-controlled interventional study in 32 patients with high - grade squamous intraepithelial lesions who underwent a total vaginal hysterectomy at Department of Oncology and Palliative Care at Hanoi Medical University Hospital from August 2018 to May 2021.

Results: The average age in the study was 48,9 years old,mainly in the age group < 44 years old, accounting for 37,5%. The majority of patients came to the clinic because of vaginal discharge. All patients had a detailed clinical examination, gynecological ultrasound, PAP test, cervical biopsy to confirm the diagnosis before surgery. The average surgery time was 55,9±14,9 minutes, and the average volume of blood loss was 76,8 ± 23,5ml. Post-operative patients recover movement soon, the level of pain is reduced. There was none of case with intra- and postoperative complications were recorded. During the follow-up process, no vaginal intraepithelial neoplasia and abdominal lymphadenopathy recurrence was detected.

Conclusion: Total vaginal hysterectomy in patients with high grade squamous intraepithelial lesion is considered as safe and feasible.

Key words: Cervical intraepithelial neoplasia, total vaginal hysterectomy. Human papiloma virus.

Introduction

Squamous intraepithelial lesion (SIL) category which encompasses a spectrum of squamous cell lesions starting from the precancerous lesions of low-grade SIL (LSIL) to high-grade SIL (HSIL), and ultimately invasive squamous cell carcinoma. High-grade squamous intraepithelial lesions (HSIL) of the cervix is an HPV-associated squamous cell abnormality, which previously included moderate dysplasia (CIN2), severe dysplasia (CIN3), and carcinoma in situ (AIS). The term HSIL was now introduced in the 1988 Bethesda System for reporting cervical/vaginal cytological diagnoses, and then further used in the Lower Anogenital Squamous Terminology (LAST) project and World Health Organization (WHO) guideline in 2012 and 2014, respectively [1]. Although not all HSILs progress to invasive cancer, it is considered precancerous lesion and is usually treated aggressively [2].

Treatment of CIN depends on several factors, including age, the demand for fertility preservation, menstrual status, general health, immune status, and willingness to receive long-term follow-up care. For example, a total hysterectomy would be indicated if patients cannot stick to follow-up care or have no need for childbearing. Other indications for total hysterectomy include: positive resection after loop electrosurgical excision procedure (LEEP) or cold knife cone (CKC) in patients not in need of childbearing; HSIL in postmenopausal patients; squamous intraepithelial lesion revealed by cervical biopsy or LEEP, in association with benign uterine disease (e.g, uterine fibroids, ...) or symptomatic patients (eg, menorrhagia, heavy bleeding) [3]. According to the American College of Obstetricians and Gynecologists (ACOG), patients with severe cervical dysplasia (HSIL) after total hysterectomy will continue to be screened for cervical cancer for 20 years after surgery [4].

Total hysterectomy can be performed abdominally, vaginally, laparoscopically, and laparoscopically combined with robotic surgery. Vaginal hysterectomy was initially used only for prolapse, but it is now used for menstrual abnormalities when the uterus is of relatively average size. Vaginal hysterectomy is regarded as less invasive than abdominal hysterectomy [5]. The choice of surgical method is based on the patient's medical condition (benign or malignant disease) and several factors such as uterine size, pelvic size, the diameter of the vagina, previous surgery or radiation, and inflammatory diseases that cause adhesions to the pelvic organs

Abdominal hysterectomy is still the most commonly used method, accounting for about 60% of hysterectomy cases. However, this technique injures the abdominal wall. However, it holds many disadvantages, such as a higher risk of postoperative infection and more extended hospital stay than less invasive methods like vaginal or laparoscopic hysterectomy. For laparoscopic surgery, the patient is still required to be anesthetized and suffers from trocar incisions in the abdominal wall, which could have been avoided with a total vaginal hysterectomy. According to a systematic review and meta-analysis, there is no difference between total vaginal hysterectomy and laparoscopic hysterectomy in treating benign uterine lesions in complications, including conversion rate to open surgery, pain in 48 hours postoperatively, length of hospital stay, and recovery time.

Meanwhile, total vaginal hysterectomy had a shorter operative time and lower pain in 24 hours postoperatively compared with laparoscopic hysterectomy [6], [7]. Currently, no studies are evaluating the results of the treatment of HSIL with a total vaginal hysterectomy at Hanoi Medical University Hospital. Thus, we conducted this study to evaluate the surgical and oncological outcomes of total vaginal hysterectomy in treating HSIL patients.

Patients and Methods

A single-arm, clinical intervention study was performed on 32 patients undergoing total vaginal hysterectomy due to CIN at the Department of Oncology and Palliative Care at Hanoi Medical

University Hospital from August 2018 to May 2021. This study was approved by the Director Board of Hanoi Medical University Hospital. All information was only used for scientific purposes.

Inclusion criteria: 1) CIN confirmed by pathology with or without combined uterine benign diseases such as uterine fibroids, adenomyosis; 2) patients without fertility requirement; 3) patients who gave their informed consent to participate; 4) patients who have no contraindication for vaginal hysterectomy.

Exclusion criteria were: 1) malignant cancers; 2) uterine size equivalent to > 12 weeks gestation; 3) desire to perform salpingo-oophorectomy; 4) patients with fertility requirement.

Procedure:

Cervix incision:We perform a circumferential incision in the vaginal epithelium at the junction of the cervix to aid entry into the peritoneum.

Entry into the abdomen:We enter the abdomen by dissecting along avascular planes anterior and posterior to the uterus (posterior cul-de-sac entry and anterior cul-de-sac entry).

Hysterectomy: we identify, clamp, cut, and suture ligated the uterosacral ligaments, cardinal ligaments, proceeds to uterine vessels, broad ligaments and utero-ovarian ligaments.

Uterus removal: Once the ligaments are cut, the uterus is pulled gently through the vagina for delivery. Women with an enlarged uterus can require a wedge resection or hemisection to deliver the uterus.

Adnexal evaluation and surgery:After removing the uterus, the fallopian tubes and ovaries are inspected for abnormalities.

Closure: We perform an apical support procedure, reevaluate all pedicles for hemostasis before cuff closure, close the vaginal cuff with an absorbable suture, and place packing in the vagina.

Outcomes:The following parameters were recorded: patients general information such as age and body weight, chief complaint, intraoperative and postoperative complications, postoperative histopathology, postoperative pain, the number of days before out-of-bed activity, and duration of hospital stay. A numeric pain rating scale was used, in which patients rated their own pain using a scale of 0-10.

Statistical analysis was performed with the use of SPSS 20.0.

Results

Table 1. Age distribution

Age group	n	%
≤ 44	12	37.5
45- 49	7	21.9
50- 54	4	12.5
≥ 55	9	28.1
Total	32	100

The mean age was 48.9 ± 8.0 (30 - 62 years old). In this study, most patients gave birth twice or more, accounting for 71.9%; no case of nulliparous patient was recorded. There were three patients with a history of previous surgery, including 1 having laparoscopic surgery and 2 having cesarean sections.

Table 2. Chief complaint

	n	(%)
Abnormal vaginal bleeding	4	12.5
Abnormal vaginal discharge	14	43.8
Abnormal pain	3	9.4
Routine checkups	11	34.4
Total	32	100

The most common reason for admission was abnormal vaginal discharge, accounting for 43.8%. 34.4% of patients were detected after periodic health check-ups. Only 12.5% of patients were admitted to the hospital because of abnormal vaginal bleeding. On preoperative assessment,

50% of patients did not detect any lesions on ultrasound; 50% of patients have combined lesions, mainly uterine fibroids, accounting for 40.63% of total patients. PAP test results showed that 65.6% were HSIL; atypical squamous cells (ASCUS, ASC-H) accounted for 15.7%. Cervical biopsy confirmed HSIL in 90.6% of all cases. 83.3% (15/18) of patients with PAP test results as HSIL had concordant cervical histopathology results. In the study, there were 15 patients with high-risk HPV types: 40% of patients had HPV 16; 26.7% of patients with HPV 18; 20% of patients infected with 12 other high-risk HPV types, and 13.3% of patients infected with 2 types of HPV.

The average time of surgery was 55.94±14.94 minutes, ranging from 35 to 85 minutes. The average amount of blood loss was 76.8±23.5ml (50-150ml). Our study did not see intraoperative complications, including rectal perforation, bladder perforation, urethral injury, small bowel injury, and heavy bleeding (>200ml). After surgery, there were 4 patients (12.5%) with vaginitis.

Table 3. Postoperative histopathological results

	Histopathological results	n	(%)
Cervical lesions	CIN2	6	18,8
	CIN3/AIS	21	65,6
	Invasive cancer	3	9,3
	CIN1	2	6,2
	Total	32	100
Combined lesions	Uterin fibroids	16	50
	Endometriosis	5	15,6
	None	11	34,4
	Total	32	100

Postoperative histopathology showed 65.6% CIN3/AIS; 18.8% CIN2. There were 3 patients (9.3%) diagnosed with FIGO IA1 stage invasive cancer, the pathological results did not meet Seldis criteria and the patients were followed up periodically. 50% of patients have associated uterine fibroids; 5 patients had endometriosis; while 34.4% had no accompanying uterus lesions.

After the first day of surgery, no patient could sit up or walk. On the second day, most patients could sit up in bed (81.25%). On the third day, most of the patients were able to walk (87.5%). On day 4, all patients in the study were able to walk. The VAS scale assessed the postoperative pain at 24 hours, 48 hours, and 72 hours after surgery with three levels: mild pain (1-3 points), moderate pain (4-6 points), and severe pain (≥ 7 points).

At 24 hours after surgery, most patients had moderate and severe pain. By the second and third day after surgery, the proportion of patients with moderate pain and severe pain decreased. At 72 hours after surgery, most patients had only mild pain (81.25%) and no severe pain. The number of patients who had to take pain medication after surgery was 25, accounting for 78.13%. Most patients respond to first-line analgesics such as: Ketorolac 30mg, paracetamol 1g; 15.62% of patients used second-line analgesics: paracetamol 325mg combined with tramadol 37.5mg.

After the total hysterectomy, the drain was placed in pouch of Douglas. The drain was removed when the drainage volume was < 50ml/day. On the first day after surgery, the drainage fluid was pink with an average volume of 78.44 ± 23.02 ml; 71.9% of patients had drainage removal and 90.6% of patients had urethral catheter removed. On the second postoperative day, all patients had their urethral catheter removed; by the fourth day after surgery, 100% of patients had drainage removal.

At the end of the study, the postoperative follow-up by PAP test and abdominal ultrasound did not record any cases of recurrence at the vaginal cuff or abdominal lymph nodes.

Discussion

This study's mean age was higher than Le Duy Toan's study, possibly because the patients with

HSIL were young, and the need for childbearing did not indicate a total hysterectomy [8].

The most common presenting symptom was abnormal vaginal discharge (43.8%) probably due to unfavorable sanitary conditions in Vietnam. Meanwhile, the rate of patients coming to our hospital because of vaginal bleeding is low (12.5%). The proportion of patients who gave birth twice or more accounted for 71.9%, there were no patients who had never given birth. In a total vaginal hysterectomy, the patient's history of cesarean delivery will help to enlarge the surgical field and thus facilitate surgery. Most of the patients in the study had no previous surgical history. There were only 3 patients who had undergone abdominal surgery, however, there were no intraoperative complications in these patients. All patients had a thorough clinical examination, gynecological ultrasound, PAP test, cervical biopsy to confirm the diagnosis before surgery. Some patients do HPV test, among patients with HPV virus, HPV 16 or 18 accounts for 80%. Histopathological results after surgery showed that most of the patients had HSIL lesions (84.4%); 2/32 patients had inflammatory/LSIL and were accompanied by uterine fibroids; 3/32 patients had invasive cancerous lesions.

In our study, the average surgical time was 55.94±14.94 minutes. The shortest surgery time was 35 minutes and the longest was 85 minutes. According to the study of Nguyen Duc Hinh, et al, the average operative time is 51.5±16.77 minutes [9]. Fernandez's study recorded a decrease in operative time over the years related to factors: surgeon's experience, uterus size, fibroid location, degree of abdominal adhesion, history of cesarean section, endometriosis, and surgical equipment [10].

The patient recovered early after surgery. This result is similar to the study of Nguyen Dinh Toi in patients with vaginal hysterectomy. After surgery, 100% of the patients were still in bed on the first day, and 84% could sit up on the second day [11].

The outstanding advantage of this technique is that there is no damage to the skin and muscles like in abdominal surgery, so the pain level after surgery is markedly reduced. Avoiding abdominal surgery scars also maintain aesthetics, and reduce the risk of infection. Besides, bowel movement recovery is earlier, and the hospital stay is reduced.

In terms of oncology, postoperative follow-up on 27 HSIL patients who had undergone surgery showed no lesions at the vaginal cuff, initially showing the effectiveness of this method.

Conclusion

The study of 32 patients undergoing total vaginal hysterectomy found that this is a safe and effective technique in both surgical and oncological aspects. However, it should be performed in a suitable group of patients, in a center with extensive experience in total vaginal hysterectomy and interpreting histopathology results.

Conflict of interest: The authors declare that they have no conflict of interest.

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