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## Research Article,

# Reappraisal of an Intraoperative Resource for Performing Vaginal Hysterectomy in Patients with Prior Pelvic Surgery

Dr. Alejandro Siu-Au<sup>1</sup>, Diego Siu-Chang<sup>2</sup>

Department, Universidad Peruana Cayetano Heredia Peru

Email Address: [alejandro.c.siu@gmail.com](mailto:alejandro.c.siu@gmail.com)

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### Summary:

Prior pelvic surgery is a relative contraindication for vaginal hysterectomy. The authors describe a procedure to be used as an Intraoperative resource, which helps in clearing any doubt for performing this surgical procedure, offering greater safety for the surgeon and preserving the patient's bodily integrity.

The aforementioned procedure was performed in two hundred and ten patients, who all underwent vaginal hysterectomy.

\*Obstetrics and Gynecology Professor, Universidad Peruana Cayetano Heredia; former Head of the Gynecology and Obstetrics Department, Arzobispo Loayza National Hospital.

\*\*Physician, MD

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### Interoduction:

Prior pelvic surgery is a relative contraindication for performing vaginal hysterectomy (1), (2), (3), (4), (5), (6); it is sort of scary and it would lead to some degree of insecurity when performing the surgical procedure because of the likely presence of adhesions and alterations of pelvic anatomy. Therefore, nowadays some surgeons avoid performing vaginal hysterectomy and they prefer an endoscopic approach, or they may go for an endoscopy-assisted laparoscopic procedure. Also, total laparoscopic hysterectomy may be preferred over vaginal hysterectomy, so the latter conventional procedure has become unusual. We propose the reappraisal of this intraoperative resource (7), and we think this will reduce the use of laparoscopy for assisting a vaginal hysterectomy or a laparoscopic hysterectomy.

Using a laparoscope or performing abdominal hysterectomy in these patients represents greater physical trauma, greater expenses, and greater exposure to anesthesia; and results are quite similar to those obtained with vaginal hysterectomy (8). Performing vaginal hysterectomy represents greater money savings and less surgical risk (4), (5), (9). Vaginal hysterectomy (3) requires shorter hospitalization, operative, and recovery time. It also implies using less anesthetic medications, a

shorter postoperative time, and shorter expenses compared to the aforementioned surgical techniques.

The objective of this study is to prove that adequate patient selection for performing a relatively simple surgical procedure may help us to decide using the vaginal approach for hysterectomy without putting the patient's bodily integrity at risk, allowing us to perform vaginal hysterectomy in almost all cases with no major complications and not requiring video-assisted surgery.

### Material and methods:

This is a prospective, descriptive, and retrospective study that was performed in the Gynecology Service of the Gynecology and Obstetrics Department at Arzobispo Loayza National Hospital in Lima, Peru.

Two-hundred and ten patients were studied comprising the time period from January, 1999 to December, 2019.

Admission criteria for patients entering the study protocol were as follows:

1. Having a diagnosis in which vaginal hysterectomy is indicated with or without anteroposterior colpoperineorrhaphy, stress urinary incontinence.

2. History of a laparotomy and/or pelvic surgery prior to admission, except for those procedures performed because of infectious causes, genital cancer, endometriosis, and extensive myomectomy.
3. Complete clinical record, including preoperative studies encompassing: Hematocrit, hemoglobin, complete blood count, VDRL, chest X-ray film, urine culture, glycemia, urea, creatinine, blood type and RH factor, prothrombin time and concentration, clotting and bleeding time, cardiovascular and pulmonology surgical risk evaluations, cervical Pap smear, and endometrial biopsy when deemed necessary.

It was mandatory for patients to have all their results well within the normal range so they would be scheduled for surgery.

4. Physical preparation for patients encompasses the following:

A. Vaginal Preparation

Applying an antibacterial and antifungal vaginal suppository on a daily basis for 10 days before the procedure.

If patients were postmenopausal, an additional estrogen vaginal suppository was added.

B. Abdominoperineal shaving and administration of an evacuant enema on the night prior to the intervention.

5. The surgical technique is performed as follows:

1. The uterine cervix is clamped using two Pozzi forceps, one for the anterior aspect and the other for the posterior aspect, and then the uterine cervix is circumcised upon the vesicocervical peritoneum as it is shown with the forceps in Figure 1. Then, some maneuvers are performed, which will determine whether hysterectomy may be carried out or not.
2. a). Once the uterine cervix circumcision is performed, the posterior peritoneum is opened (Figure 2), and the index or middle digit of the left or right hand is inserted, to be totally placed inside the vagina, as it is shown in Figure 3.
- b) Having the digit inserted in Douglas pouch, the anterior and posterior aspect of the uterus is explored, as

well as both parametria (Figure 4).

- c) Should loose or epiploic adhesions be found, use digits for releasing them. If intestine or bladder is firmly adhered to the uterus, hysterectomy will not be performed. Both posterior peritoneum and cul-de-sac are closed; then, Manchester-Fothergill procedure is performed or simple anteroposterior colpoperineorrhaphy.
  - d) If there are no adhesions, the bladder is finally pushed and the anterior peritoneum is opened (Figures 4, 5, and 6). Then, hysterectomy is performed according to the usual technique, as it will be described later on (10), (11), (12).
3. The bladder is pushed off and once identified, the anterior peritoneum is opened.
  4. Cardinal and uterosacral ligament clamp, cut, and suture using N° 1 chromic or N° 1 Vycril. Markers are placed.
  5. Uterine artery clamp, cut, and suture using N° 1 chromic.
  6. Infundibulopelvic and round ligament clamp, cut, and suture using N° 1 chromic. Markers are placed. Hemostasis verification and inspection of every organ that could have been adhered.
  7. Peritoneum closing with N° 1 chromic using a tobacco-pouch suture technique.
  8. Opening the anterior wall of the vagina, urethral plication using atraumatic '0' silk with an MR-30 needle, performing U-shaped stitches and fixing upon the bladder neck. Surgical repair of cystocele using N° 1 chromic, according to Vance and Curtis technique, or applying a TOT suburethral sling (10). Resection of the remaining vaginal walls and closing the wound using N° 0 chromic catgut with separate stitches.
  9. The vaginal dome is suspended, using the markers left when hysterectomy was performed.
  10. Surgical cure of the posterior colporrhaphy using N° 0 chromic. N°1 chromic is used for repairing muscle

tissue.

11. Transurethral insertion of a N° 16 or N° 18 Foley catheter, which is to be left completely opened and it is to be taken out the following day. No vaginal stopper is left.

**Table1: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
General Data	
Number of patients	210
Mean age, years	48.2
Average number of children	6.2

**Table2: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
Surgical History	
-Lower segment transverse (LST) Cesarean section, once	81
-LST Cesarean section, twice	47
-LST Cesarean section, three times	10
-LST Cesarean section, 4 times	6
-Cesarean section	3
-Unilateral salpingo oophorectomy	32
-Bilateral tubal blockage	8
-Salpingectomy because of an ectopic pregnan	8
-Cesarean section, three times + tubal blockage	5
-Unilateral salpingo oophorectomy plus	5
-Cesarean section + unilateral salpingo oophorectomy	5
<b>TOTAL</b>	<b>210</b>

**Table3: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
Preoperative diagnoses	
Urethral cystocele with stress urinary incontinence	194
Uterine procidentia	16
<b>TOTAL</b>	<b>210</b>

**Table4: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
Postoperative Complications	
Urinary tract infection	124
Negative urine culture, with abnormal urine examination, Clinical symptoms, and improving with therapy	49
Non-infected vaginal dome hematoma	32
Infected vaginal dome hematoma	72
Vaginal dome infection	83
Urinary retention after taking out the transurethral catheter	8

**Table5: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
Bacteria recovered in urine cultures	
E. coli	48
Enterococcus	28
Klebsiella	25
Enterobacter aerogenes	17
Proteus vulgaris	6
<b>TOTAL</b>	<b>124</b>

**Table6: Reappraisal of an intraoperative resource for performing vaginal hysterectomy in patients with prior pelvic surgery.**

Arzobispo Loayza Hospital	
Switching to abdominal hysterectomy	
Firm uterovesical adhesions	1
Firm uterorectal adhesions	1
<b>TOTAL</b>	<b>2</b>



**Figure1: Pointing out the reflection area of the vesicocervical peritoneum**

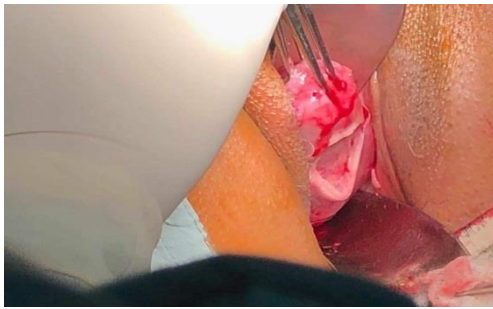


Figure2: Opening the Douglas pouch

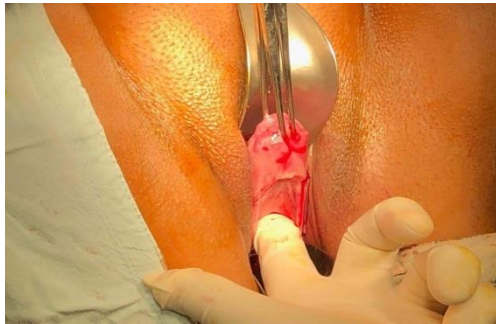


Figure3: Inserting the left forefinger

### Results:

Two-hundred and ten patients were included in the study. Their mean age was 49.2 years, and their average number of children was 6.2 (see Table 1). With respect to their past surgical history, 81 patients (eighty-one) had one prior Cesarean section; 47 (forty-seven) had two previous Cesarean sections, 10 (ten) had three previous Cesarean sections, 6 (six) had four previous Cesarean sections, and 3 (three) had undergone a previous corporal Cesarean section. Thirty-two (32) patients had undergone unilateral salpingo oophorectomy, eight (8) had undergone bilateral tubal blockage, eight (8) had undergone salpingo oophorectomy because of an ectopic pregnancy, five (5) had undergone an unilateral salpingo oophorectomy and a Cesarean section, five (5) had undergone salpingo oophorectomy and appendectomy, and five (5) had undergone three Cesarean sections and bilateral tube blockage (see Table 2).

Preoperative diagnoses were as follows: one-hundred and ninety four (194) patients had urethral cystoectocoele plus stress urinary incontinence, and sixteen (16) had uterine procidentia (see Table 3).

The average operative time was 70 minutes.

Postoperative complications in our series were as follows: urinary tract infection, 124 (one-hundred and twenty-four); 49 (forty-nine) had a negative urine culture, abnormal urine examination, clinical symptoms, and their condition improved with

therapy; 32 (thirty-two) had non-infected vaginal dome hematoma; 72 (seventy-two) had infected vaginal dome hematoma, vaginal dome infections were found in 83 (eighty-three) patients, and 8 (eight) had urinary retention after taking out the transurethral catheter (see Table 4).

Bacteria found in the 124 (one-hundred and twenty-four) positive urine cultures were: *E. coli*, 48 (forty-eight) cases; *Enterococcus* sp., 28 (twenty-eight) cases; *Klebsiella*, 25 (twenty-five) cases; *Enterobacter aerogenes*, 17 (seventeen) cases; and *Proteus vulgaris*, 6 (six) cases (see Table 5).

Hospital stay after the procedure was on average 7.6 days.

Antibacterial prophylaxis was used in 198 (one-hundred and ninety-eight) patients.

Two patients (0.95%) had to be switched to abdominal hysterectomy because very firm adhesions were found when using the intraoperative resource, and these could not be released, because of risk for causing lesions in other organs, one case corresponded to uterovesical adhesions, and the other corresponded to uterorectal adhesions (see Table 6).



Figure4: Exploring the pelvic cavity and the anterior aspect of the uterus, looking for adhesions and releasing them.

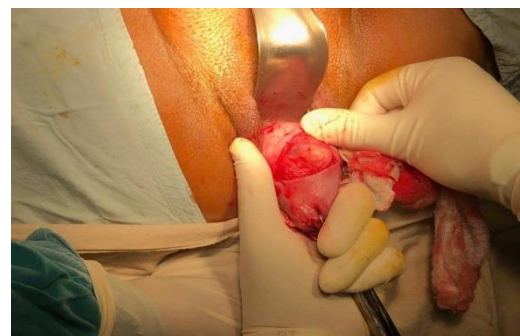


Figure5: Exposing the anterior peritoneum with the finger(s)

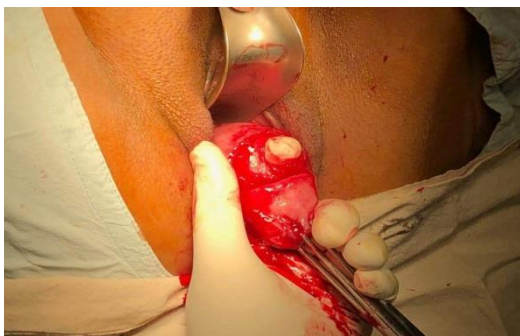


Figure6: Opening the anterior peritoneum

### Discussion:

Our findings reinforce the results of Coulam (1) and Pratt (6); they mentioned that previous pelvic surgery is a relative contraindication for performing vaginal hysterectomy.

Other authors published studies comparing vaginal hysterectomy, laparoscopy-assisted vaginal hysterectomy, and total abdominal hysterectomy, and they mentioned that the latter procedure had less morbidity (4), (5), (9) (13), (14), (15), (16), as well as lower costs (17), similar to our findings.

Urinary tract infections are due to the use of a transurethral catheter, and other postoperative complications in vaginal hysterectomy are related to its usual maneuvers, but not to this intraoperative resource, concordantly with the findings from other studies (10), (12), (18), (19).

We offer no comments on antibacterial prophylaxis, since this is not the objective for the present study.

Patients who developed urinary retention after the urinary catheter was taken out had catheters reinserted for five additional days. Their progression was satisfactory thereafter.

Only 0.95% of all patients were switched for abdominal hysterectomy.

Using the described intraoperative resource, and also with appropriate patient selection, we offer an additional surgical approach with no additional risks, as shown by our results.

### Conclusions:

This intraoperative resource allows performing vaginal hysterectomy in patients with a previous history of pelvic surgery with maximum safety, and it may widen the universe of women who may benefit with this intervention.

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