

Abdominal, laparoscopic, and vaginal hysterectomy with bilateral salpingo-oophorectomy

A feasibility study for further evaluation in randomized trials

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Abstract

Background: The abdominal route is the traditional method of performing hysterectomy with bilateral salpingo-oophorectomy. In a feasibility study, we compared a non-conventional (vaginal) route for bilateral salpingo-oophorectomy at the time of vaginal hysterectomy (VH + BSO) to similar forms of hysterectomy performed abdominally or with operative laparoscopy.

Methods: Fifty-nine patients were subject to either total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH + BSO; $n = 19$), or laparoscopic-assisted vaginal hysterectomy and bilateral salpingo-oophorectomy (LAVH + BSO; $n = 19$) or VH + BSO ($n = 21$).

Results: VH + BSO resulted in a shorter operating time compared to LAVH + BSO ($p < 0.001$), shorter hospital stay compared with TAH + BSO ($p = 0.001$), and quicker long-term recovery compared to the other two operations.

Conclusion: This preliminary but significant study shows that the vaginal route for salpingo-oophorectomy at the time of vaginal hysterectomy is superior to other methods of hysterectomy. A randomized trial is needed to confirm these initial findings.

Key words: Abdomen — Laparoscopy — Vagina — Hysterectomy — Salpingo-oophorectomy

When a decision is made to perform a hysterectomy with bilateral salpingo-oophorectomy, the traditional method is to use a suprapubic transverse incision (total abdominal hysterectomy and bilateral salpingo-oophorectomy; TAH + BSO). This technique requires skills that are easily learned and requires a low capital outlay. Its relative drawbacks include longer inpatient stay, slower postoperative recovery, and large abdominal scars. Laparoscopic-assisted vaginal

hysterectomy with bilateral salpingo-oophorectomy (LAVH + BSO) has recently become popular as an alternative method [8]. Although this technique reduces the potential for trauma and morbidity, it takes longer to perform, requires the training of surgeons in new and unfamiliar skills, and necessitates a higher capital investment for equipment [9]. One of its main advantages is a better cosmetic result (it leaves only three or four small abdominal scars), although this assertion has been questioned [2]. Vaginal bilateral salpingo-oophorectomy at the time of vaginal hysterectomy (VH + BSO) is a valid alternative; this method would ultimately represent the most minimally invasive technique, since there are no abdominal scars.

Attempts to promote wider use of VH + BSO have led to the development of transvaginal endoscopic techniques that allow better visualization of the ovaries [4, 6]. This method, however, has drawbacks similar to operative laparoscopy. There are also reports of oophorectomy/salpingo-oophorectomy being performed either unilaterally or bilaterally using conventional clamps [1, 4, 7, 10]. However, in most of these cases, the adnexal part of the operation needed to be done in stages—i.e., by dividing the round ligament separately before taking small bites of the mesovarium or infundibulopelvic ligament. We therefore designed a conventional instrument for performing vaginal salpingo-oophorectomy that could be accomplished with a single clamp bite. We call this new tool the “Gupta-Frank clamp” [5].

However, although we used a novel clamp in this study, the main focus of the study was to judge the feasibility of a proposed randomized controlled trial by assessing the outcome of hysterectomy and BSO performed by three different routes (TAH + BSO, LAVH + BSO, and VH + BSO). We believe that there is a serious need to conduct such feasibility studies on new health technology issues before embarking on randomized trials [3].

Materials and methods

Over a 1-year period beginning November 1996, all patients under one consultant's care who were listed for hysterectomy and bilateral salpingo-

Table 1. Characteristics and outcome measures of hysterectomy and bilateral salpingo-oophorectomy performed by three different operative methods

	TAH + BSO (n = 19)	LAVH + BSO (n = 19)	VH + BSO (n = 21)	p Value
<i>Baseline characteristics</i>				
Age (yr)	51.5 [47.2–55.9]	49.7 [46.5–53.0]	52.4 [49.5–55.4]	
<i>Indication for operation</i>				
Stage IA endometrial cancer	5 (26.3)	—	—	
Benign ovarian cysts	5 (26.3)	2 (10.5)	1 (4.7)	
Fibroids (8–14 wks size)	7 (36.8)	7 (36.8)	9 (42.9)	
DUB	1 (5.3)	2 (10.5)	2 (9.5)	
Unscheduled bleeding on HRT/tamoxifen treatment	1 (5.3)	8 (42.1)	9 (42.9)	
<i>Outcomes</i>				
Operative time (min)	51.3 [46.2–56.5]	117.5 [104.3–130.7]	53.0 [44.1–61.9]	<0.001
Inpatient stay (days)	3.7 [3.3–4.2]	3.0 [2.4–3.6]	3.0 [2.7–3.3]	0.001
Perioperative hemoglobin change (g/dl)	2.2 [1.6–2.8]	2.0 [1.4–2.6]	1.9 [1.5–2.4]	0.83
Recovery period (wks)	8.3 [5.9–10.7]	6.5 [4.7–8.4]	4.7 [3.5–5.9]	0.01

DUB, dysfunctional uterine bleeding; HRT, hormone replacement therapy; LAVH + BSO, laparoscopic-assisted vaginal hysterectomy and bilateral salpingo-oophorectomy; TAH + BSO, total abdominal hysterectomy and bilateral salpingo-oophorectomy; VH + BSO, vaginal hysterectomy and bilateral salpingo-oophorectomy.

Data are presented as means (95% confidence interval) or *n* (%).

oophorectomy were invited to take part in this prospective observational pilot study. After counseling, patients with suspicious ovarian cysts (determined by ultrasound features and CA125 levels) or frank malignancy, as well as those who did not wish to have a laparoscopic or vaginal operation, were listed for abdominal hysterectomy. No patient had a clinical history or finding of uterovaginal prolapse.

Abdominal and vaginal hysterectomy were performed by standard methods [11]. A single intravenous prophylactic antibiotic dose was given routinely to all patients at the beginning of the operation.

LAVH + BSO entailed the sole dissection of the infundibulopelvic and round ligaments with bipolar coagulation using a three-puncture reusable trocar technique (umbilical 10-mm trocar for the laparoscope and two 5-mm lower abdominal lateral trocars). A standard vaginal hysterectomy was then performed. After the vault was closed, a final check with irrigation was made laparoscopically to ensure complete hemostasis of all the pedicles.

VH + BSO began with a standard vaginal hysterectomy. The uterosacral ligaments and uterine artery pedicles were secured on both sides. After removal of the uterus, a gauze swab was inserted into the pouch of Douglas to prevent bowel herniation and possible damage. The clamps medial to the ovaries and fallopian tubes were kept in place without suturing the pedicles. These clamps were used as gentle levers. The ovaries and fallopian tubes were initially eased into direct vision by digital manipulation and then by using additional tissue forceps. By applying gentle traction in a downward and medial direction, the infundibulopelvic and round ligaments were isolated. The Gupta-Frank clamp was then applied lateral to the ovaries and fallopian tubes. The specimen was excised and the pedicle transfixed. The same procedure was repeated on the other side. After the gauze swab was removed, the operation was completed by incorporating the uterosacral ligaments into the vault to prevent future vaginal vault prolapse.

The outcome measures of interest in our study were operative time in minutes, duration of inpatient stay (counting the operating day as day 0), hemoglobin change between the preoperative day and the 3rd postoperative day, need for blood transfusion, complications, and recovery period in weeks. "Recovery time" was defined as the time taken to return to normal (physical, emotional, and psychological) activities. This was ascertained by a clerk via a telephone interview; the clerk was unaware of the method of hysterectomy. "Pyrexia" was defined as a temperature of >38°C recorded at least once after the 1st postoperative day.

Statistical comparison between the three groups was performed using the nonparametric Kruskal-Wallis analysis of variance test.

Results

Fifty-nine patients were recruited prospectively for the study; 19 had TAH + BSO, 19 had LAVH + BSO, and 21

had VH + BSO. The patient characteristics and outcome measures are shown in Table 1.

One case of LAVH + BSO required a two-unit blood transfusion as a result of excessive bleeding at the laparoscopic dissection of the right infundibulopelvic ligament. There were three complications in the TAH + BSO group—hematuria, bladder tear, and pyrexia. There were three complications in the LAVH + BSO group—atonic bladder, bladder, tear, and pyrexia. In the VH + BSO group, there was one case of pyrexia.

All bladder complications were managed conservatively with an indwelling catheter for ≤7 days. Pyrexia was treated with antibiotics. There were no cases of pelvic hematoma or abscess. There were no ureteric injuries. There were no conversions from the intended operation. Histological diagnosis confirmed complete salpingo-oophorectomy in all cases.

Discussion

This study was undertaken to satisfy the need to conduct feasibility studies on new health technology issues before embarking on randomized controlled trials [3]. In this case, both the use of a novel clamp and a nonconventional (vaginal) route to perform BSO at the time of hysterectomy were being assessed. Previous studies have reported either vaginal oophorectomy alone or vaginal BSO using conventional clamps, but these procedures have usually necessitated taking several small bites of the round ligament and mesovarium/infundibulopelvic ligament [1, 4, 7, 10]. In one study, adnexal surgery prolonged the overall vaginal operation by an average of 23 min [4]. Our study indicates that taking a single clamp bite for vaginal salpingo-oophorectomy is feasible and that this technique can be accomplished quickly, easily, and safely. It suggests that VH + BSO combines the advantages of the other two methods of hysterectomy—namely, a shorter operating time, an earlier discharge from hospital, and the overall shortest long-term recovery period. However, further research into this subject is required. This study has allowed us to design

such a randomized controlled trial, which represents the only way to objectively assess the potential complications between the three methods of hysterectomy, particularly where BSO is required.

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