

Does hysterectomy without salpingo-oophorectomy influence the reoperation rate for adnexal pathology?

A retrospective study

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Summary

Objective: The aim of this study was to assess if the abdominal, vaginal and laparoscopic approach to hysterectomy can affect the incidence of ovarian or adnexal pathology after hysterectomy without salpingo-oophorectomy.

Methods: In this study 17 cases out of 617 hysterectomies were found to have development of adnexal pathology; reoperation rate was 2.75%.

Results: The reoperation rate was significantly different ($p < 0.006$) in the observed approaches to hysterectomy (TAH 5.67%, VH 0.69%, LH 3.18%). The greatest difference was found between the abdominal and vaginal groups.

Conclusion: Our study results have sufficiently shown that the relationship of a number of factors (age, primary histologic findings, smaller peritoneal trauma) had an important impact on a significant difference in reoperation rate between vaginal, laparoscopic and namely abdominal hysterectomies in female patients with preserved adnexa.

Key words: Hysterectomy; Adnexal pathology reoperation rate.

Introduction

The retention of ovaries or adnexa following hysterectomy has been reported to cause reoperation in about 5% of cases (0.3%-8.9%) due to benign adnexal pathology [1-3]. Pain in the retained ovary or adnexa has been the most commonly cited reason [2]. There was a 3.95% reoperation rate demonstrated in a large retrospective study of more than 1,200 women who underwent hysterectomy for benign indications [4]. Hysterectomy combined with unilateral oophorectomy cases were noted to show twice the risk of secondary ovarian lesions compared to those without oophorectomy. No detailed significant assessment of hysterectomy-related routes within the postsurgical development of any adnexal pathology were included in the above-mentioned study.

Based on past literature data, such patients showed a malignancy incidence rate varying between 0.5 and 1.2% [5, 6]. More recently, Loft *et al.* [7] demonstrated a 2.7% incidence rate of ovarian cancer in a post-hysterectomy group, and 3.4% in the general population (age-standardized). The authors concluded that the risk of ovarian cancer was lower in post-hysterectomy cases as compared to non-hysterectomy cases.

Due to a dramatic development in the minimally invasive surgical techniques and hormonal replacement therapy (HRT), the disease relapse in the post-hysterectomy preserved ovaries has become a new matter of discussion. Lower morbidity and faster patient recovery make vaginal hysterectomy the procedure of choice whenever abdominal hysterectomy is not clearly indicated [8].

Laparoscopy-assisted hysterectomy is more advantageous than vaginal hysterectomy, making it possible to visualize and properly evaluate the abdomino-pelvic cavity, especially in patients with pelvic pain, adhesions and endometriosis [9].

The present study was aimed at assessing potential ways in the abdominal, vaginal and laparoscopic approach to hysterectomy which could have any impact on the incidence of adnexal pathology after hysterectomy without salpingo-oophorectomy as well as to answer the following question: "When in retention of an ovary is there any potential risk or not of a prospective oophorectomy for a benign or malignant disease?".

Materials and Methods

Reported data were obtained from the histories of women who underwent hysterectomy at the Department of Gynecology and Endoscopy Training Center, Baby Friendly Hospital Kladno, Czech Republic within five consecutive years from 1994 to 1998.

All charts were obtained for patients who had undergone hysterectomy for benign conditions without removal of both ovaries. Excluded were patients who underwent hysterectomy for cancer of the genital tract. A total of 617 cases was obtained and from them a subgroup of 297 (48.1%) who had vaginal hysterectomies, another subgroup of 194 (31.3%) had abdominal procedures, while the remaining 126 (20.4%) were subjected to laparoscopic hysterectomies (LH). In 26.5% of the female patients, the hysterectomy was combined with an additional procedure to manage pelvic floor relaxation, associated or not with urinary stress incontinence. A simple unilateral salpingo-oophorectomy was primarily performed in as many as 77 (12.4%) patients.

Clinical patient distribution data with regard to age at hysterectomy, weight (BMI), parity, and history of hormonal replacement are summarized in Table 1. Major indications and hysterectomy-related pathological biopsies are listed in Table 2. Cases of fibromyoma and adenomyosis were the most important indications for surgery. Histories of pelvic inflammation disease, endometriosis and suspected adhesive processes were assessed upon the outpatient and hospital records of 17 women, in whom reoperation was recommended within the period 1994 to 1999. A definite suspicion was noted upon evaluation of the above records, pelvic pain in the history as well as physical, ultrasound and laboratory examination (CA 125). Pathologies known to affect the residual adnexa are summarized in Table 3. The main indication for reoperation resided in a combination of adnexal mass with pelvic pain in 58.8% of patients. The mean follow-up period was three years, ranging from three up to 69 months postsurgery.

Statistics

The non-parametric Chi-square test and non-parametric Fisher's exact probability test were used due to non-Gaussian distribution of the data obtained. An independent bio-statistician performed the statistical assessment.

Operative technique of laparoscopic, abdominal and vaginal hysterectomy

Laparoscopic procedure

Following diagnostic laparoscopy, the surgeon uses monopolar and bipolar electrocautery or a harmonic (ultrasound) scalpel. Clips and needles are applied rather sporadically, unlike electrocautery, and are efficient in most cases.

In addition a suction-irrigation probe and grasping forceps are used. The conventional surgical procedure is used in the vaginal phase.

Laparoscopy-assisted vaginal hysterectomy with vaginal colpotomy (LAVH-VC)

The hysterectomy is started by laparoscopy. Severing the round ligament, dissection of the upper portion of the broad ligament, severing the tubo-uterine junction and the utero-ovarian ligament, preparation of the bladder flap and severing the bladder pillars are performed in the laparoscopic phase, but severing of the uterine vessels, cardinal-uterosacral ligament complex, performing anterior and posterior culdotomy and closure of the vaginal cuff are finished vaginally.

Laparoscopy-assisted vaginal hysterectomy with laparoscopic colpotomy (LAVH-LC)

All steps are performed under laparoscopy, with only the exception of severing the uterine vessels and closure of the vaginal cuff which are completed vaginally.

Open and vaginal procedure

All abdominal (through suprapubic access) and vaginal hysterectomies are performed using a standard technique.

Results

There were 617 hysterectomies without removal of both or one adnexa performed in women at the Kladno

Table 1. — *Characteristics of a total of 617 women with post abdominal, vaginal and laparoscopic hysterectomies for benign conditions.*

	TAH	(%)	VH	(%)	LH	(%)	P-value
Age (years)	43.08	(31-49)	54.5	(37-80)	42.53	(28-51)	p<0.0001
Weight (kg)	72.5	(45-108)	69.74	(53-105)	66.16	(58-102)	NS
Parity	1.98	(0-7)	2.01	(0-4)	2.01	(0-5)	NS
Hormonal replacement or oral contraceptives (n)	16	(8.16%)	23	(7.74)	14	(11.02)	NS

Results are the mean or number (n) of ranged values expressed in percent (in parentheses).

Abbreviations: TAH (total abdominal hysterectomy)

VH (vaginal hysterectomy)

LH (laparoscopic hysterectomy)

NS (non-significant)

Table 2. — *Histologic findings at hysterectomy.*

Histologic findings	TAH	(%)	VH	(%)	LH	(%)
Fibromyoma	153	(78.8)	180	(60.6)	84	(66.6)
Adenomyosis	27	(13.9)	34	(11.4)	17	(13.5)
Endometrial hyperplasia	2	(1.0)	7	(2.3)	4	(3.2)
Cervical dysplasia (CIN)	5	(2.5)	19	(6.4)	5	(4.0)
Unspecified benign findings	0	(0.0)	54	(18.2)	4	(3.2)
Adnexal pathology, if one adnexa removed	7	(3.6)	3	(1.0)	12	(9.5)
Total	194	(100)	297	(100)	126	(100)

Table 3. — *Histologic findings at reoperation.*

Histologic findings	TAH	VH	LH	Total
Inflammatory findings (adhesions)	6	1	1	8
Endometriosis	2	0	2	4
Cystic adenomas	1	1	0	2
Benign ovarian cyst	1	0	1	2
Unspecified benign findings	1	0	0	1
Total	11	2	4	17

Table 4. — *Relationship between the route of hysterectomy to reoperation rate.*

Route of hysterectomy	No of patients	(%)	Re-operation	(%)
Abdominal	194	(31.4)	11	(5.67)
Vaginal	297	(48.1)	2	(0.69)
Laparoscopic	126	(20.4)	4	(3.18)
Total	617	(100)	17	(2.75)

We found a significant correlation between rate of reoperation in the respective groups (Chi-square, p=0.006)

Hospital within the period 1994 to 1998. Seventeen patients (2.75% reoperation rate) had developed some secondary ovarian or adnexal pathologic findings. Six hundred and seventeen women underwent hysterectomies for a variety of gynecological benign conditions. The procedures used – abdominal, vaginal or laparoscopic – were compared. From the 194 patients with abdominal hysterectomy at the first operation, 11 (5.67%) were re-admitted for reiterated surgery due to a severe condition of the remaining adnexal mass. From the 297 patients with vaginal hysterectomy and the 126 patients with laparoscopic hysterectomy, there were two (0.69%) and four

(3.18%) patients with pathologic factors in the retained adnexa, respectively. Our groups showed a significant difference in the reoperation rate (Table 4, $p < 0.006$), especially for the abdominal and vaginal groups. On comparison of the mean age in these groups (Table 1), the authors found a significant difference (43.08 yrs for the TAH, 54.50 for the VH, and 42.53 for the LH, respectively, $p < 0.0001$). From the hysterectomies with unilateral adnexectomy, only two patients underwent reoperation due to adnexal conditions. No case of carcinoma of the ovary or fallopian tube was found. When comparing the frequency of pathological biopsies in the individual groups at reoperation (Table 3), the authors noted a significant difference in inflammatory findings and adhesions between the TAH and the VH (Fisher's exact test, $p < 0.02$).

The interval between the first and the second surgical procedure averaged 22.9 months (10 to 60 mos). At present, those under current follow-up from the total group are the seven (41.2%) patients who developed an adnexal pathology within the first post-hysterectomy year. Another six women had adnexal masses requiring reoperation after 2-3 years post-primary surgery. Estimated risk at present is 2.1% for eventual reoperation on the preserved adnexa within three years post-primary hysterectomy and 0.65% respective risk within the fourth and fifth years post-primary surgery.

Discussion

Accordingly to the literature, the rate of elective oophorectomy ranges between 50 and 66% of women aged 40-64 years who undergo hysterectomies [10, 11]. The data from the Center for Disease Control and Prevention collected from 1988 to 1993 concur that ovarian retention occurs in approximately 40-50% of patients who undergo hysterectomy at 40 years of age or older [12]. In the USA, about 1,000 ovarian cancer cases are believed to be avoidable if prevented by prophylactic oophorectomy; it should be performed in all women older than 40 who undergo hysterectomy. The dilemma for the patient and the clinician is whether the estimated number of cancer cases benefit from the number of oophorectomies performed. The benefit of prophylactic oophorectomy may be offset by the consequence of precocious loss of estrogen [13].

The authors preclude it would be more suitable, when assessing either the benefit or the risk of ovarian retention, to emphasize the further developmental context of adnexal pathologies rather than only taking into account the development of ovarian diseases. An autonomous ovarian pathology was demonstrated by authors in only four (23.5%) of the total of 17 reoperated female patients. Moreover, either the tube or adjacent pelvic peritoneum appeared to be invariably affected in the remaining cases. Neither ovarian nor fallopian tube-related cancer was found in any case. Little is known as yet about any potential impact of ovarian tissue on inducing malignant

changes. A median interval of about 8 to 10 years was reported between hysterectomy and proof of ovarian carcinoma [14, 15]. Nevertheless, certain cases of ovarian malignancies were reported to be diagnosed in less than a 3-year post-hysterectomy period [14].

There are no studies evaluating an increased risk or morbidity of surgery at the time of abdominal morbidity when prophylactics are included. Ballard *et al.* [16] found no significant increase in surgery duration, estimated blood loss, length of hospital stay or postoperative morbidity between the patients who had and those who had not had their ovaries removed.

Oophorectomy was reported to add 23.4 minutes to the total surgery time as compared to vaginal hysterectomy [17].

One of the first and very well designed comparative studies was by Plockinger and Kölbl [4], who compared the outcomes of unilateral oophorectomy at the time of hysterectomy and those without oophorectomy. They reported that women who underwent unilateral oophorectomy had twice the risk of secondary ovarian lesions. Age, parity, gravidity and history of hormonal administration were correlated with the risk of ovarian pathologic factors due to a simple hysterectomy. They reported on 50 patients who experienced secondary ovarian pathology after vaginal hysterectomy (42%) and abdominal hysterectomy (58%). This difference was not studied further in detail. Based on a recent national survey of 12,316 ovarian cancer cases, Averette *et al.* [18] noted that 18.2% of patients underwent hysterectomies with ovarian preservation. From the above hysterectomies, abdominal represented 7.2%, vaginal 4.2%, and unspecified 6.8%, respectively.

In this study, we investigated the difference in reoperation rates of adnexal pathology after abdominal, vaginal and laparoscopic approaches to simple hysterectomy. Seventeen cases from the total of 617 hysterectomies revealed a secondary development of ovarian or adnexal pathology with a total reoperation rate of 2.75%. The reoperation rate showed a significant difference ($p < 0.006$) depending on the observed approaches to hysterectomy (TAH 5.67%, VH 0.69%, LH 3.18%), especially between the abdominal and vaginal groups. In addition significant differences were reported in relation to age (43.08 versus 54.50, $p < 0.0001$) and histologic inflammatory findings ($p < 0.02$) between abdominal and vaginal hysterectomies. Moreover, a significant proportion of unspecific findings and a higher grade of CIN in the VH total should be considered as favorable in terms of prognosis due to a lower reoperation rate [19].

Only two patients with adnexal pathology after hysterectomy with unilateral adnexectomy were found in our study. We did not determine any higher risk as above mentioned by Plockinger and Kölbl [4] in the development of adnexal pathologies post-hysterectomy + unilateral adnexectomy.

In conclusion, our study results have sufficiently documented the relationship of a number of factors (higher age, primary histologic finding, smaller peritoneal trauma) on significant differences in reoperation rates

among vaginal, laparoscopic and abdominal hysterectomies in women with preserved adnexa. In our opinion, the younger a woman is at hysterectomy, the longer it will take to develop any non-malignant adnexal disorders which will require adnexectomy. Conclusions have also been acknowledged from our previous study in which we had identified minimum damage to the tissue in female patients when undergoing vaginal and laparoscopic hysterectomies as compared to abdominal hysterectomy [20]. A major benefit of the vaginal and laparoscopic approach to hysterectomy resides in avoidance of any abdominal incision [21]. Nevertheless, the laparoscopy-assisted vaginal hysterectomy is in no case an alternative to vaginal surgery.

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