

Hysterectomy for benign conditions in a university hospital in Saudi Arabia

Khalid Sait,^a Maysoon Alkhatabi,^a Abdulaziz Boker,^b Jamal Alhashemi^b

From the Departments of ^aObstetrics and Gynecology and ^bAnaesthesia, King Abdulaziz University, Jeddah, Saudi Arabia

Correspondence and reprints: Dr. Khalid Sait · Department of Obstetrics and Gynecology King Abdulaziz University · PO Box 80206, Jeddah 21589 Saudi Arabia · T: +966-2-640-8310 · F: +966-2-640-8316 · khalidsait@yahoo.com · Accepted for publication May 2008

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BACKGROUND AND OBJECTIVE: Hysterectomy is a common surgical procedure among women with a life-time prevalence of 10%. The indications and complications of this procedure have not been previously reported from a teaching institution in Saudi Arabia. We examined the indications for hysterectomy and the surgical morbidity for women undergoing hysterectomy at a university hospital in Saudi Arabia.

PATIENTS AND METHODS: We reviewed the records of women who underwent hysterectomies for benign gynecological conditions between January 1990 and December 2002, at King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia, comparing patient characteristics, indications for hysterectomy and the rate of complications in women undergoing abdominal hysterectomy (AH) versus vaginal hysterectomy (VH).

RESULTS: Of 251 women, 199 (79%) underwent AH and 52 (21%) underwent VH. An estimated blood loss of ≥ 500 mL occurred in 104 patients (52.3%) in the AH group and in 20 patients (38.5%) in the VH group (difference not statistically significant). The most common indications for hysterectomy were uterine fibroids (n=107, 41.6%) and dysfunctional uterine bleeding (n=68, 27.1%). The most common indication for VH was uterine prolapse (n=45, 86.5%). The overall complication rates were 33.5%, 15.4% and 30.4% in women who underwent AH, VH and both, respectively. Intraoperative and postoperative complications occurred in 24 (9.7%) patients in the AH group and in 51 patients in the VH group (20.3%). Postoperative infection occurred in 42/199 (21.6%) in the AH group and 5/52 (9.6%) in the VH group (difference not statistically significant).

CONCLUSIONS: We describe a large series of hysterectomies, which provides information for surgeons on the expected rate of complications following hysterectomy for benign conditions. We found that the rate of complications was not significantly higher than other centers internationally.

Hysterectomy is the most common major gynecological operation in the world. For benign conditions, hysterectomy is most commonly performed using either the abdominal or vaginal approach. However, a small percentage of women with benign conditions undergo laparoscopic hysterectomy, which was introduced in the 1980s.³ The choice of approach and the rate of complications depend on the surgeon's expertise, the indication for surgery, the nature of the disease, patient characteristics and patient choice. Several studies have examined the risk of morbidity after vaginal or abdominal hysterectomy for benign conditions.^{1,4-6}

Forty percent of hysterectomies are for dysfunctional uterine bleeding with no gynecological pathology, but this rate has been in decline over the last 10 years due to more widespread use of medical therapy and increased use of endometrial ablation.⁷ The objective of the pres-

ent study was to provide information about the indications for and complications of simple hysterectomies for benign conditions in a teaching institute in Saudi Arabia.

PATIENTS AND METHODS

Between January 1990 and December 2002, patients who had a hysterectomy for a benign gynecological condition at King Abdulaziz University hospital (KAUH), Jeddah, Kingdom of Saudi Arabia, were identified using the KAUH database, and patient medical records for those patients were reviewed. Data from the medical records for those patients were collected and entered into a study database for analysis. Patients who had a hysterectomy done for a benign gynecological condition based on the final histopathology report. Patients with a pre-invasive disease were also included.

Patients with a diagnosis or history of cancer, pa-

tients who had an emergency hysterectomy for peripartum hemorrhage and patients who had a major co-procedure like thyroid, heart, breast, stomach, gallbladder, and colon and kidney surgery were excluded from the study. The procedures were performed by senior residents and registrars under the supervision of 20 different consultant gynecologists with different levels of experience. The data collected included patient demographics, presence of medical problems, previous laparotomy, pre- and postoperative hemoglobin, indications for hysterectomy, associated gynecological procedures, the use of prophylactic antibiotic and anticoagulation and intra- and postoperative complications, including hospital stay. Data were collected and entered into the statistics computer program NCSS 2000 for analysis. The Chi square test was used for statistical comparison and a *P* value of less than .05 was considered to be significant.

RESULTS

Of 251 women who met the inclusion criteria, 199 (79%) had an abdominal hysterectomy (AH), including 22 who had a subtotal hysterectomy. Fifty-two (21%) had a vaginal hysterectomy (VH), including 3 patients who had a laparoscopic-assisted VH. No statistically significant differences were found between the groups in medical problems, preoperative hemoglobin, body weight, preoperative and postoperative hospital stay, operative time, type of anesthesia, and use of prophylactic anticoagulation agents (Table 1). An estimated blood loss of ≥ 500 mL was found in 104 patients (52.3%) in the AH group and 20 patients (38.5%) in the VH group (not statistically significant). Of the 159 women (63.3%) younger than 50 years, 140 (70.4%) had an AH and 19 (36.5%) had a VH ($P < .0001$). The majority of VH were done in women older than 50 years (33, 63.5%). Hysterectomy had been done for women with parity > 2 in 208/251 (82.8%) of the patients. Sixty-two (24.7%) women had a history of previous laparotomy when performing the hysterectomy, and the majority of those women (55/62, 88.7%) had the procedure done abdominally. A prophylactic antibiotic was given to all except 16 women who had an AH (235, 93.6%), and the majority of women did not receive prophylactic anticoagulation (209, 83.3%).

The most common indication for hysterectomy was a uterine fibroid ($n=107$, 41.6%); all except two of these cases were performed abdominally (Table 2). Dysfunctional uterine bleeding (DUB) was the cause for 68 (27.1%) of the hysterectomies performed. The most common indication for VH was uterine prolapse ($n=45$, 86.5%). Forty (77%) women who had a VH underwent vaginal wall repair (anterior or posterior

Table 1. Demographic and clinical data on 251 women who received a hysterectomy for a benign condition.

Characteristics	Type of hysterectomy			
	Abdominal (n=199)		Vaginal (n=52)	
	n	%	n	%
Age (years)*				
<50	140	70.4	19	36.5
>50	59	29.6	33	63.5
Nationality *				
Saudi	79	40.5	30	57.7
Non-Saudi	120	59.5	22	42.2
Parity*				
0-1	39	19.6	4	7.7
≥ 2	160	80.4	48	92.3
Medical problem				
No	121	60.8	33	63.5
Yes	78	39.2	19	36.5
Preoperative hemoglobin				
<10	13	6.5	1	2
>10	184	92.5	51	98
unknown	2	1	0	0
Previous laparotomy*				
No	144	72.4	45	86.5
Yes	55	27.6	7	13.5
Weight				
<70	115	57.8	35	67.3
>70	82	41.2	16	30.7
Unknown	2	1	1	2
Preoperative hospital stay (days)				
1-3	132	66.3	31	59.6
>3	65	32.7	20	38.4
Unknown	2	1	1	2
Type of anesthesia				
Combined	177	89	48	92.3
General	13	6.5	4	7.7
Regional	8	4	0	0
Unknown	1	0.5	0	0

Table 1 (continued). Demographic and clinical data.

Prophylactic antibiotic*				
No	16	8	0	0
Yes	183	92	52	100
Prophylactic anticoagulant				
No	165	83	44	84.6
Yes	34	17	8	15.4
Estimated blood loss				
<500	79	39.7	28	53.8
≥500	104	52.3	20	38.5
Unknown	16	8	4	7.7
Operation time(hours)				
<2	84	42.2	17	32.7
>2	112	56.3	33	63.5
Unknown	3	1.5	2	3.8
Postoperative hospital stay (days)				
<4	27	13.6	5	9.6
>4	172	86.4	47	90.4

*P<.05, Abdominal vs vaginal hysterectomy.

or both) and only 5 had an oophorectomy at the same time, while 136 (63.3%) who had an AH underwent removal of one or both ovaries at the same time (Table 3). No significant differences in medical problems were found between the AH group and VH group, and 154 patients (61.4%) had no major medical disease (Table 4). Intraoperative and postoperative complications occurred in 9.7% (n=24) and 20.3% (n=51) of the total population (Tables 5). The most common intraoperative complication was blood transfusion, which occurred in 18 patients, (7.2% of the total population), including 15 patients (7.5%) in the AH group and 3 (5.8%) in the VH group; the difference was not statistically significant. The risk of bladder, ureteric and bowel injury was 0.8%, 0.4% and 1.2%, respectively. These occurred only in the AH group. Postoperative infection occurred in 47 (18.7%) patients, including 42 (21.6%) in the AH group and 5 (9.6%) in the VH group (difference not statistically significant). There were no cases of vaginal cellulites or pelvic abscess in either group. Only 3 women developed postoperative deep vein thrombosis (DVT) with a rate of 1.2%, all of which occurred af-

ter AH. Overall, only 42 patients (42/251, 8%) received prophylactic anticoagulation. No statistical correlation between the use of anticoagulant and the occurrence (or non occurrence) of DVT was found ($P=.4$).

Four patients (1.6%) required ICU admission because of intractable bleeding, one in the VH group and 3 in the AH group. Only two (one from each group) required re-operation. None of our study population experienced life-threatening events such as intraoperative or postoperative cardiac or respiratory pulmonary embolism, myocardial infarction or disseminated intravascular coagulation. There were no anesthesia complications, no cases of wound dehiscence and no postoperative incisional hernias in our study population.

DISCUSSION

Hysterectomy is one of the most common operations done in women, with an expected lifetime prevalence of 10%.⁸ In this descriptive study we compared the indications and complications of AH versus VH. We had a total of 251 women who had had a hysterectomy over a 13-year period. AH accounted for 79% and VH for 21% of hysterectomies, coinciding with previous reports.^{4,9,10} We found that the most common indication for VH was uterine prolapse (86.5%), which occurs mostly in women greater than 50 years old, while the most common indications for AH were uterine fibroids and DUB (84.5%) which mostly occur in women less than 50 years old. The incidence of intra-operative complications in our study population was 9.7%, similar to previous studies, which report 2% to 11%.^{12,13} AH had more intra-operative complications than VH; 10.5% and 5.8% as shown in Table 5. Nevertheless, the difference did not reach statistical significance. The need for blood transfusion is the major category of intraoperative complication in our study. The total incidence was 7.2% and no significant difference was noted between the AH and VH group (7.5%) and (3%) ($P=.66$). Ten women who required blood transfusion (55%) had a hysterectomy for a uterine fibroid. We found that this rate of blood transfusion was higher than previously reported in similar studies,^{1,4,5} and that might contribute to the fact that most of our hysterectomies were for large uterine fibroids and DUB, procedures that tend to be bloody, in patients who already had low hemoglobin preoperatively.

Febrile morbidity was the most prevalent of the postoperative complications in our study. The overall rate for fever was 13.9% with a trend toward more febrile events among AH patients compared with VH patients (15.1% vs 9.6%, respectively, $P>.05$). We were unable to demonstrate the benefits of antibiotic prophylaxis in

Table 2. Indications for hysterectomy.

Indication	Type of hysterectomy					
	Abdominal (n=199)		Vaginal (n=52)		Combined (n=251)	
	n	%	n	%	n	%
Fibroid	105	52.8	2	3.9	107	42.6
Prolapse	3	1.5	45	86.5	48	19.1
Pelvic mass	22	11	0	0	22	8.8
Dysfunctional uterine bleeding	63	31.7	5	9.6	68	27.1
Other	6	3	0	0	6	2.4

Other indications were endometriosis, CIN I, II, and molar pregnancy

Table 3. Associated procedures.

Procedure	Type of hysterectomy					
	Abdominal (n=199)		Vaginal (n=52)		Combined (n=251)	
	n	%	n	%	n	%
None	61	30.7	10	19.2	71	28.3
Oophrectomy	136	68.3	1	1.9	137	54.6
Repair	0	0	36	69.2	36	14.3
Non-gynecological	2	1	1	1.9	3	1.2
Oopharectomy and repair	0	0	4	7.7	4	1.6

Table 4. Medical problems in the study population.

Medical problem	Type of hysterectomy					
	Abdominal (n=199)		Vaginal (n=52)		Combined (n=251)	
	n	%	n	%	n	%
None	121	60.8	33	63.5	154	61.4
Diabetic	21	10.6	3	5.8	24	9.6
Hypertension	18	9	6	11.5	24	9.6
Thyroid disease	2	1	4	7.7	6	2.4
Other	37	18.6	6	11.5	43	17

Other problems included bronchial asthma, thalassemia trait, sickle cell trait, G6PD deficiency

reducing febrile morbidity because of the small number of patients who did not receive antibiotic prophylaxis. However, randomized controlled trials support the use of prophylactic antibiotics to significantly reduce postoperative infectious morbidity.^{14,15} The overall complication rates were 33.5%, 15.4% and 30.4% in women who underwent AH, VH and both, respectively. However, if we exclude the patients who had a blood transfusion,

the overall complication rate was 22.7%, which is similar to the international rate.^{4,11} An analysis of 160 000 hysterectomies in Ohio found a complication rate of 9.1% for abdominal and 7.8% for vaginal operations.¹⁶ We found that there were no statistically significant differences between pre- and postoperative hospital stay, use of anesthesia, preoperative hemoglobin level, the presence of medical problems, previous laparotomy,

Table 5. Complications associated with hysterectomy.

Complication	Type of hysterectomy					
	Abdominal (n=199)		Vaginal (n=52)		Combined (n=251)	
	n	%	n	%	n	%
Intraoperative complications						
Bladder injury	1	0.5	0	0	1	0.8
Ureteric injury	1	0.5	0	0	1	0.4
Vessel injury	1	0.5	0	0	1	0.4
Bowel injury	3	1.5	0	0	3	1.2
Blood transfusion	15	7.5	3	5.8	18	7.2
Total	21	10.5	3	5.8	24	9.7
Postoperative complications						
Wound infection	10	5	0	0	10	8
Fever	30	15.1	5	9.6	35	14
Venous thrombosis	3	1.5	0	0	3	1.2
Bowel obstruction	1	0.5	0	0	1	0.4
Urinary tract infection	2	1	0	0	2	0.8
Total	46	23	5	9.6	51	20.3

age and overall complication rate. However, there was a trend toward more complications occurring in the AH group, since AH is usually done for high-risk indications, i.e. fibroid, pelvic mass, and endometriosis.

This study described a large series of hysterectomies performed in a single teaching institution in Saudi

Arabia, providing information about morbidity in relation to the type of operative approach. It provides physicians with information on which to base advice about the expected local rate of complications before planned surgery. We found that the rate of complications was not different from other centers internationally.

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