

ABDOMINAL HYSTERECTOMY: INDICATIONS AND COMPLICATIONS

Y G S Chan, H K Ho, C Y H Chen

ABSTRACT

This retrospective study was conducted to evaluate the indications and complications for non-radical abdominal hysterectomy. Between 1 July 1990 and 30 June 1991, 176 women underwent abdominal hysterectomy in our Department. The indications for hysterectomy, the conservation of ovaries, type of concurrent procedures, choice of incision, choice of fascial closure in midline incisions, use of prophylactic antibiotics and complications of abdominal hysterectomy were analysed. The most common indication was uterine leiomyomata followed by pelvic endometriosis and premalignant disease. Haemorrhage requiring transfusion was the commonest intra-operative complication. Unintended surgical procedures occurred in almost 3% of patients.

Keywords: abdominal hysterectomy, indications, complications

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INTRODUCTION

Abdominal hysterectomy is one of the most frequently performed surgical procedures in Singapore. A review of the literature revealed a lack of local studies examining the indications for and the morbidity associated with abdominal hysterectomy.

To assess the current indications for non-radical hysterectomy and the associated morbidity, a retrospective review of abdominal hysterectomies performed over a one-year period in the Department of Reproductive Medicine, Kandang Kerbau Hospital, was undertaken. The medical records of women who had this surgical procedure done between 1 July 1990 and 30 June 1991 were retrieved and analysed.

MATERIALS AND METHODS

Between 1 July 1990 and 30 June 1991, 176 women underwent abdominal hysterectomy. No subtotal hysterectomy was performed during this review period. Radical hysterectomies were excluded.

The indications for abdominal hysterectomy, the conservation of ovaries, type of concurrent procedures, choice of incision, choice of fascial closure in midline incisions, use of prophylactic antibiotics, complications of abdominal hysterectomy, and length of hospital stay were analysed.

Table I - Age distribution of patients

Age (Years)	No. of Patients	%
Less than 31	2	1.1
31 - 40	33	18.7
41 - 50	120	68.2
More than 51	21	12
Total	176	100

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Table II - Profile of the single designated indication for each abdominal hysterectomy by age group

Indication	Age in years				No.	%
	<31	31-40	41-50	>50		
<i>Acute Condition</i>						0.6
Secondary post-partum haemorrhage	1	0	0	0	1	0.6
<i>Benign Disease</i>						82.9
Leiomyoma	0	15	73	8	96	54.5
Recurrent uterine bleeding	0	0	9	1	10	5.7
Endometriosis	0	8	6	0	14	7.9
Adenomyosis	0	2	8	0	10	5.7
Pelvic inflammatory disease	0	1	3	1	5	2.8
Adnexal mass	0	0	5	5	10	5.7
Others (*1)	0	0	1	0	1	0.6
<i>Cancer/Pre-malignant Disease</i>						11.9
Invasive Cancer (*2)	0	1	2	4	7	4.0
Pre-malignant disease (*3)	0	3	10	1	14	7.9
<i>Discomfort</i>						4.0
Uterine prolapse	0	3	3	1	7	4.0
<i>Extenuating Circumstances</i>						0.6
Sexual Sterilisation (*4)	1	0	0	0	1	0.6
Total	2	33	120	21	176	100

(*1) : This was a case of recurrent post-menopausal bleeding.

(*2) : This comprises 4 cases of carcinoma of the uterine corpus, 2 cases of carcinoma of the ovary and a case of microinvasive carcinoma of the cervix.

(*3) : This comprises 4 cases of cervical intra-epithelial neoplasia and 10 cases of adenomatous hyperplasia of the endometrium.

(*4) : This patient had Down's Syndrome.

SUBJECTS

The age of the patients ranged from 17 to 78 years. The mean age was 45 years. The youngest patient in this series was a 17-year-old girl with Down's Syndrome. Among these women, 2 (1.1%) were below 31 years of age, 33 (18.7%) were between 31 and 40 years of age, 120 (68.2%) were between 41 and 50 years of age and the remaining 21 (12%) were 51 years or more in age (Refer to Table I). The parity of the patients reviewed ranged from zero to 8, with a mean of 2.7.

RESULTS

Indications

Table II lists the number of hysterectomies performed for each

indication in the various age groups. Only two patients below the age of 31 had a hysterectomy done. One was a 17-year-old girl with Down's Syndrome who had difficulty coping with her menstruation and the parents requested sterilisation. The other was a 27-year-old female for whom hysterectomy was done for severe secondary post-partum haemorrhage. Almost 70% of hysterectomies were performed in women belonging to the 41 - 50 age group.

About 83% of hysterectomies were done for benign pelvic disease. Cancer and premalignant disease accounted for almost 12% of hysterectomies done.

The commonest pre-operative indication for hysterectomy was uterine leiomyomata. About 55% of cases were done for this indication. The second most frequent indication for hysterectomy were pelvic endometriosis (7.9%) and premalignant disease (7.9%). There were ten cases (5.7%) for each of the indications of adenomyosis, adnexal mass and recurrent uterine bleeding. Surgery for the last indication was undertaken when bleeding was recurrent, severe and not responsive to medical treatment.

Subtotal Hysterectomy

None of the patients had a subtotal hysterectomy.

Concurrent Procedures

1. Removal of the Adnexae

In 93 patients (52.8%) undergoing hysterectomy, removal of both tubes and ovaries was performed at the same time. Seventeen patients (9.7%) had unilateral salpingo-oophorectomy or oophorectomy. Sixty-six patients (37.5%) did not have their adnexae removed.

2. Other Concurrent Procedures

Table III - Concurrent procedures performed at abdominal hysterectomy

Concurrent procedure	Number
Ureteric catheterisation	10
Ovarian cystectomy	4
Pelvic and/or para-aortic lymphadenectomy	4
Pelvic floor repair	2
Hernia repair	2
Burch colposuspension	1

Table III shows the other concurrent procedures undertaken at the same time as abdominal hysterectomy. Twenty-three patients (13.1%) had a concurrent procedure.

Besides oophorectomy, the most common concurrent procedure was ureteric catheterisation. This procedure was performed in cases where the surgeon anticipated a high risk of ureteric injury. Of the ten cases, seven had severe pelvic endometriosis. The other three were single cases of chronic pelvic inflammatory disease, a broad ligament leiomyoma and a benign ovarian cyst.

Choice of Skin Incision

The preferred skin incision was the Pfannenstiel incision. This skin incision was employed in 100 (56.8%) of the cases. The midline incision was used in 76 (43.2%) of the cases.

Closure of the Abdomen

In the midline skin incision, layered closure was the preferred method. Of 76 patients, mass closure technique for the musculo-aponeurosis was used in 29 cases (38.2%).

Table IV - Intra-operative complications

Intra-operative complication	Number	Complication rate %
Haemorrhage requiring transfusion	21	11.9
Unintended major surgical procedure		
Bowel injury	1	0.6
Bladder injury	1	0.6
Ureteric injury	3	1.7
Total	26	14.8

Prophylactic Antibiotics

The use of antibiotic prophylaxis differed depending on the surgeon's preference. Prophylactic antibiotics were given to 44 women (25%) who underwent abdominal hysterectomy.

Complications

Table IV lists the intra-operative complications encountered during abdominal hysterectomies.

The most common intra-operative complication was haemorrhage requiring blood transfusion. The next most common complication during surgery was urinary tract injury - three to the ureter and one to the bladder. Ureteric injury occurred in one case of pelvic endometriosis and two cases of uterine leiomyoma. The bladder was inadvertently injured in a patient with recurrent uterine bleeding. The patient who had small bowel trauma which required repair had adhesions from a previous laparotomy and severe pelvic endometriosis.

Table V lists the complications seen during the postoperative period. Twenty-nine patients (16.5%) had some form of complications after abdominal hysterectomy.

Twelve patients (6.8%) had wound infection. One patient had a burst abdomen. Vaginal vault granulation was documented in 9 cases during the follow-up visits after hysterectomy.

Table V - Post-operative complications

Post-operative complication	Number	Complication (*1) Rate %
Incisional wound infection	12	6.8
Burst abdomen	1	0.6
Haemorrhage requiring laparotomy (*2)	1	0.6
Prolonged paralytic ileus	2	1.1
Pulmonary thromboembolism (*3)	1	0.6
Vaginal vault granulation	9	5.1
Vaginal vault prolapse	1	0.6
Incisional hernia (*4)	2	1.1
Total	29	16.5

(*1) : Complication rate is the complication rate per 100 women undergoing hysterectomy.

(*2) : At laparotomy no bleeding vessels were detected.

(*3) : The patient died at home two weeks after hysterectomy for carcinoma of the endometrium.

(*4) : Both cases of incisional hernia occurred in midline incisions.

Of the 116 patients analysed, 151 (85.8%) had an uneventful convalescence.

Mortality

No patient in the study died in the intra-operative period. One patient died at home about two weeks after surgery for carcinoma of the endometrium. Postmortem showed pulmonary thromboembolism.

Hospital Stay

The total hospital stay ranged from 6 to 32 days. The mean hospital stay was 8.4 days. The patient who stayed for 32 days had a wound infection.

DISCUSSION

Although abdominal hysterectomy is one of the most frequent major surgical procedures performed in women, no recent studies have been conducted locally to determine the relative importance of indications for abdominal hysterectomy and the risk of complications. Hysterectomy, like all surgical procedures, should be performed to save or prolong life, correct deformity, or relieve suffering.

A classification system representing the complete list of indications was developed by Gambone et al, 1989, when they studied the validation of hysterectomy indications and the quality assurance process⁽¹⁾. The classification system was used in a modified form in this study.

Benign disease was the most common reason for a hysterectomy. It accounted for slightly more than 80% of the pre-operative indications for abdominal hysterectomy. Uterine leiomyomata alone was the single designated indication in slightly more than half of all the indications combined. This finding is comparable to that of Dicker's series where uterine leiomyomata accounted for some 40% of all indications for abdominal hysterectomy⁽²⁾. In Gambone's series, leiomyomata is also the most frequent for 31% of all hysterectomies⁽¹⁾.

In our series, adenomyosis was the stated pre-operative indication in about 6% of abdominal hysterectomies. Gambone et al evaluated a quality assurance process to verify the surgical indications for hysterectomy. They found that adenomyosis had a low verification rate of 38% and recommended that adenomyosis be no longer considered a reliable pre-operative indication in his hospital⁽¹⁾. The recommendation, therefore, for the indication for surgery should be that of the presenting symptom (eg recurrent uterine bleeding) as adenomyosis is a histological diagnosis.

Removal of both ovaries was performed in 52.8% of the 176 patients. This incidence of bilateral salpingo-oophorectomy was expected as a sizeable number of women were in the perimenopausal and menopausal age group, and most patients with pelvic endometriosis and those with pelvic malignancy had concomitant bilateral salpingo-oophorectomy at the time of hysterectomy.

The morbidity for hysterectomy ranges from 25 to 50% and mortality for all indications combined averaged between one to two deaths per 1,000 hysterectomies performed^(2,3). In our series, the complication rate per 100 women was 14. As the study population is different, it is not possible to comment on the difference in morbidity.

The most common intra-operative complication in our series was haemorrhage requiring transfusion. Our incidence of 12% compares favourably with Dicker's series where the incidence was 15.4%⁽²⁾.

Unintended major surgical procedures occurred in 5 patients (2.9%). Dicker reported an incidence of 1.7%⁽²⁾. Gambone et al (1990) found an incidence of 4.3% of unintended procedures in their patients⁽⁴⁾. In most series, ureteric injury occurred in 0.5 to 1.0% of all pelvic operations⁽⁵⁾. In our series ureteric injury occurred in 3 patients (1.7%). One had severe pelvic endometriosis and the other two were cases of uterine leiomyomata, one in the cervical region and the other in the broad ligament. Of the 10 cases in which ureteric catheterisation was carried out, none of them suffered intra-operative ureteric injury. There may be a place for pre-hysterectomy ureteric catheterisation in those which are at high risk for ureteric injuries. This would include patients with severe adhesions from pelvic endometriosis and chronic pelvic inflammatory disease, and those with uterine leiomyomata which may distort the pelvic anatomy (eg those in the cervical or broad ligament regions).

One patient who underwent hysterectomy for endometrial carcinoma died suddenly at home two weeks after surgery. She had an uneventful peri- and post-operative period and was well on discharge. The diagnosis of pulmonary thromboembolism was established at post-mortem. The mortality in this series would have been zero if death occurring during the same hospitalisation as the hysterectomy was considered. As there is no universally accepted definition of hysterectomy-associated mortality, difficulty arises in establishing data for comparison. Dicker et al, in 1982, suggested a 42-day post-operative period as this is consistent with definitions of maternal mortality and tubal sterilisation mortality⁽²⁾. In their series their mortality rate was 1.08 per 1,000. Likewise, their mortality rate would have been zero had they used the traditional definition of death occurring during the same hospitalisation as hysterectomy. This difference in rates demonstrates the importance of including some period after discharge in the definition of hysterectomy-related mortality.

Vault granulation tissue was documented in nine cases during outpatient visits following surgery. Due to inadequate documentation of suture material used for vault closure and vault appearance during outpatient follow-up visits, it is difficult to comment on this entity in our series. Manyonda et al (1990) studied the influence of suture material on vault granulation tissue and concluded after a survey of 1,147 members and fellows of the Royal College of Obstetricians and Gynaecologists that polygalactide (Vicryl) was more acceptable than chromic catgut for vault closure⁽⁶⁾.

In our series, there were two cases of incisional hernia (1.2%) and a case of a burst abdomen (0.6%). These patients had continuous fascial closure in layers with absorbable sutures for the midline incision. While layered closure of the midline abdominal incision was considered sacrosanct in the past, Ellis et al in 1983 reported that mass closure reduced the incidence of burst abdomen from 3% to 0.9%⁽⁷⁾. It, however, did not improve the rate of incisional hernias. Wallace et al (1980), found the mass closure by the Smead-Jones technique superior to layered closure in the prevention of wound disruption⁽⁸⁾. In the experience of 1,000 abdominal wound closures, Knight et al (1983), reported a 0.4% incidence of wound dehiscence and 0.7% incidence of incisional hernia using continuous monofilament polypropylene (Prolene) sutures⁽⁹⁾. The figures in our study showed a low preference for mass-closure technique of the musculo-aponeurosis for midline incision although this has been shown to be a superior method compared to layered closure. The reasons for this were not elucidated in the study.

Although the efficacy of prophylactic antibiotics with abdominal hysterectomy is less well-established than for vaginal hysterectomy, 25% of women who underwent an abdominal hysterectomy received prophylactic antibiotics. In this series of 176 patients, 7% of patients had a wound infection. It is difficult to interpret the usefulness, or the lack of it, of prophylactic antibiotics in relation to the relatively high incidence of wound infection because of selection bias.

This study provided useful information about the indications for abdominal hysterectomy. It also highlighted the type, severity and frequency of complications that can arise during and after surgery. The loss of one life in this series underscores the importance of performing surgery only upon genuine indication. It must not be undertaken except to "save or prolong life, correct deformity, or to relieve suffering".

With the increasing scope of and trend towards endoscopic surgery, there may arise fewer indications for hysterectomy via an open laparotomy. This may result in decreased morbidity and reduced duration of hospital stay. The use of

gonadotrophin-releasing hormone analogues may also change the surgical management of uterine leiomyoma from that of hysterectomy to myomectomy following medical treatment.

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