Bahrain Medical Bulletin, Vol.23, No.3, September 2001

Subtotal Versus Total Abdominal Hysterectomy

Hassan Jamal, MD, CABOG* Z Amarin, MD, MSc, FRCOG**

Objectives: To study subtotal compared to total hysterectomy.

Design: Retrospective, comparative analysis.

Setting: King Abdulaziz University Hospital.

Subjects: Consecutive forty four patients undergoing subtotal and ninety patients undergoing total abdominal hysterectomy for benign indications were included in this study.

Intervention: Patients were subjected to either subtotal or total abdominal hysterectomy according to anticipated technical difficulty providing that all previous cervical smears had been normal.

Main outcome measures: Various intra-operative and post-operative variables, hospital stay, urinary and sexual morbidity.

Results: A total of 134 patients were studied. Menorrhagia was the dominant indication for surgery in 89.5%, dysmenorrhoea was present in 38.7% followed by pelvic and back pain in 35.8%. Fibroids were present in 58.2% of patients. There was no statistically significant difference in the intra or post-operative complication rate except for wound bruising which was a more significant event in total than subtotal hysterectomy.

There was no statistically significant change in urinary frequency and nocturia in both groups. A significant improvement in the symptoms of dyspareunia, coital desire and frequency was observed in the total, but not so in the subtotal hysterectomy group.

Conclusion: This study demonstrated a better overall sexual outcome in total abdominal hysterectomy but no significant difference in urinary symptoms with both types. Large controlled prospective studies are awaited to identify the logical more

---

* Consultant & Associate Professor
Department of Obstetrics & Gynaecology
King Abdulaziz University Hospital
Jeddah, Saudi Arabia

** The Maner House Hospital
North End Road
Golders Gree
London, UK

subtle symptomatic advantages of subtotal over total abdominal hysterectomy.

Bahrain Med Bull 2001;23(3):119-23.

Abdominal hysterectomy is the most commonly performed major operation for women of reproductive age[1]. It is generally considered a safe procedure with a low mortality rate of only 6 per 10000 for benign indications[2]. However, operative morbidity can be as high as 42.8 per 100 women when the abdominal route is used[1].

The incidence of hysterectomy varies considerably between countries. In the United States, in 1980 the rate was 65 per 10000 women. In the United Kingdom, according to the Oxford-Family Planning Association (Oxford-FPA) it was estimated that almost 20% of the women in the study would have had a hysterectomy by the age of 55 years[3].

Abdominal hysterectomy usually involves removing the uterine cervix. Although sometimes the indication for the operation necessitates removal of the cervix, the commonest conditions, fibroids and menstrual disorders, do not involve cervical disease. According to the United Kingdom Department of Health and Social Security in 1985[4], 18600 hysterectomies were performed for menstrual disorders. In the series of Vessey et al of 1992[3], 38.5% and 35.3% respectively were for fibroids and menstrual disorders while only 6.5% of the hysterectomies were for prolapse, 5.6% for malignant disease and about 8% were for chronic cervicitis, abdominal pain or endometriosis. In the Oxford-FPA study of 1985 hysterectomies, 87.2% were by the abdominal route, and only 0.7% were subtotal hysterectomies with emphasis on sexual function and micturition pattern.

This study was conducted to evaluate the general morbidity following subtotal and total abdominal hysterectomies.

METHODS

All 44 patients who had undergone subtotal abdominal hysterectomy (STAH) between 1st July 1991 and 30th June 1995 were identified from the hospital's operation register and were included in the study. Ninety patients from the same period who had undergone total abdominal hysterectomy were randomly chosen for a comparative analysis.

Radical hysterectomies and hysterectomies for malignancies were excluded as were all vaginal hysterectomies.

In total, 134 patients were included in this audit. All operations were for benign conditions and were performed by the same team. The case notes of these patients were obtained and analysed. A questionnaire was mailed post-operatively. The main questions asked are listed in Table 1.

Table 1. Summary of questionnaire on symptoms three months before and up to five months after hysterectomy.

Coital frequency on average per week. Sexual desire frequency on average per week. Orgasm frequency: never / rarely / mostly / always Deep dyspareunia: yes / no Overall sexual outcome after hysterectomy: improved / unchanged / deteriorated Frequency of micturition in minutes or hours Nocturia: never / rarely / mostly / always

Prior conservative therapy implied any treatment, apart from dilatation and curettage (D+C), intended to improve symptoms, this included prostaglandin synthetase inhibitors, progestogens, tranexamic acid, antigonadotrophins and Gonadotrophin-releasing hormone analogues.

Prophylactic antibiotics were administered in the form of Cefuroxime 1.5gm and Metronidazole 500 mg intravenously with induction of anaesthesia, then 8 hourly for 24 hours.

Prophylactic anticoagulation with subcutaneous heparin was given in a dose of 5000IU 1 hour before the operation and 5000IU twice daily for five days post-operatively.

Post-operative pyrexia was considered as sublingual temperature of 38.0^0C or greater on two or more occasions post-operatively, excluding the first 24 hours after the operation in accordance with criteria of the American College of Obstetricians and Gynaecologists[5].

Urinary tract infection was defined as a count $\geq 10^5$ organisms/ml.

The decision to perform subtotal hysterectomy was taken at the time of surgery if it was anticipated that removing the cervix would be technically more difficult than otherwise, providing that all previous cervical smears were normal. As a routine, electro-cautery of the endocervical canal was done in an attempt to ablate any remaining endometrium. Pelvic drain was inserted routinely and removed the following day. This practice was used to decrease the amount of blood that invariably accumulates to variable degrees in the Pouch of Douglas according to authors' experience.

For statistical analysis, the standard X^2 test was used for comparisons of pre-operative and post-operative symptoms.

RESULTS

The case notes of 134 abdominal hysterectomy patients were studied. Of those, 90 (67.1%) were total and 44 (32.8%) were subtotal hysterectomy.

Sixty eight women replied to this postal questionnaire, 39 from the TAH and 29 from the STAH groups. Follow-up ranged from 5 to 48 months post-operatively. The characteristics of each hysterectomy type group are listed in Table 2.

Table 2. Characteristics of TAH and STAH groups

	TAH	%	STAH	%
Age (yrs)				
mean	45.3		45.2	
max	54		61	
min	30		31	
Weight (kg)				
mean	68.6		75.8	
max	102.5		130	
min	44		49	
Parity				
Del ≤ 2	59	(65.5)	28	(63.6)
Del > 2	33	(36.6)	14	(31.8)
Race				
Caucasians	80	(88.8)	30	(68.1)
Afrocarribean	8	(8.8)	8	(18.15.9)
Indian	1	(1.1)	7	(15.9)

Somatic complaints before surgery

Heavy menstrual bleeding and dysmenorrhoea were dominant symptoms (Table 3). Fibroids were diagnosed pre-operatively in 54 (40.2%) patients.

Table 3. Somatic symptoms before surgery

Heavy menstrual bleeding	120	(89.5%)
Dysmenorrhoea	52	(38.8%)
Pelvic pain / backache	48	(35.8%)
Dyspareunia	20	(14.9%)
*PMB	1	(0.7%)

** PMB: Post-menopausal bleeding*

Histopathological diagnosis

Leiomyoma was the most frequent diagnosis found in 58.2% of cases as illustrated in Table 4. There were a few cases of adenomyosis, endometriosis, endometrial hyperplasia and ovarian cysts.

Table 4. Histopathological diagnosis after surgery

	Total	%	TAH	%	STAH	%
Fibroids	78	(58.2)	52	(57.7)	26	(59.0)

Endometriosis	6	(4.4)	3	(3.3)	3	(6.8)
Adenomyosis	13	(9.7)	9	(10.0)	4	(9.0)
Endometrial hyperplasia	6	(4.4)	3	(3.3)	3	(6.8)
Ovarian cysts	2	(1.4)	1*	(1.1)	1**	(2.2)
CIN I ***	2	(1.4)	2	(2.2)	0	(0.0)

** dermoid cysts*
*** Brenner tumour*
**** CIN I: Cervical intraepithelial neoplasia*

Pre-operative medications and investigations

Conservative treatment pre-operatively was given in 23.1% and 10.4% of patients had been on HRT at the time of the operation. Dilatation and Curettage (D+C) was performed before the procedure in 45.5% of total and 26.1% of subtotal hysterectomy.

Removal of the adnexae

In 90 patients (67.1%) undergoing hysterectomy, removal of both tubes and ovaries (BSO) was performed at the same time and 5 patients (3.7%) had unilateral salpingoophorectomy. From these, 4 had left salpingoophorectomy (LSO) and 1 right salpingoophorectomy (RSO). Table 5 illustrates the percentages of the patients who had the adnexae removed and the administration of hormone replacement therapy (HRT) post-operatively.

Table 5. Types of operative procedure undertaken, concurrent removal of adnexae and HRT administration post-operatively

	TAH	%	STAH	%
Operation	90		44	
BSO	60	(66.6)*	30	(68.1)**
LSO	3	(3.3)	1	(2.2)
RSO	0	(0)	1	(2.2)
HRT	57	(63.3)	21	(47.72)

** Age <45 years : 17 (12.6%), range (36 to 45 years)*
*** Age < 45 years: 9 (6.7%), range (35 to 45 years)*

Concurrent procedures

Thirteen patients (9.7%) had a concurrent procedure as follows in Table 6.

Table 6. **Concurrent procedures**

Marshall-Marchetti-Krantz	8
Burch Colposuspension	1

Vaginal repair*	3
Umbilical hernia repair	1

** 2 anterior, 1 posterior*

Prophylactic antibiotics were given to 132 patients (98.55). In the 2 remaining patients antibiotic administration was apparently omitted. Prophylactic anticoagulation was given to 72 patients (53.7%).

Complications

Haemorrhage requiring blood transfusion was the most common intra-operative complication (Table 7).

Table 7. **Intra-operative complications**

Intra-operative Complication	TAH	%	STAH	%
Haemorrhage	9	10.0	5	11.3
Bladder Injury	0	0	1	2.2
External Iliac Artery Injury	1	1.1	0	0.0

Bladder injury occurred in one case because it was adherent to the lower segment of the uterus and STAH was chosen to avoid further damage. In one case the external iliac artery was inadvertently injured during the insertion of a deep pelvic drain to avoid blood accumulation at routine total hysterectomy and bilateral salpingoophorectomy. This was primarily sutured. Few months later the patient required ilio-femoral bypass in view of claudication.

The most common post-operative complications (Table 8) were wound discharge and wound bruising, the latter being a statistically more significant event in total than subtotal hysterectomy ($P< 0.05$). Heparin was used in 64.7% and 71.4% of the cases respectively. One incisional hernia occurred in a midline incision and was repaired six months after the hysterectomy. Vaginal vault granulation was documented during the follow-up visits in six cases. All the cases in which granulation tissue was documented and the 1 case of incisional hernia, were associated with the use of chromic catgut sutures. An oestradiol implant (50mg) was removed in one case, fifty days after insertion as it was advised by the Neurologist, following complaints of severe headaches. Serum oestradiol levels were within normal range.

Apart from wound bruising no statistical significance was observed between either type of hysterectomy in all of the other variables studied (Table 8).

Table 8. **Post-operative complications**

Post-operative Complications	Total n =134	%	TAH n=90	STAH n = 44	Statistical Significance
wound infection	6	(4.4)	5	1	P>0.1

wound discharge	17	(12.6)	9	8	P>0.1
wound haematoma	11	(8.2)	9	2	P>0.1
wound bruising	14	(10.4)	13	1	P>0.05
wound inflamation	1	(0.7)	1	0	P>0.1
wound resuturing	1	(0.7)	1	0	P>0.1
pelvic haematoma	5	(3.7)	4	1	P>0.1
vaginal infection	5	(3.7)	4	1	P>0.1
urinary tract infection (UTI)	15	(11.1)	10	5	P>0.1
removal of drain under GA	2	(1.4)	2	0	P>0.1
incisional hernia	1	(0.7)	1	0	P>0.1
granulation tissue	6	(4.4)	6	0	P>0.1
removal of oestradiol implant	1	(0.7)	1	0	P>0.1
pelvic pain / tenderness	2	(1.4)	1	1	P>0.1
Pyrexia	12	(8.9)	9	3	P>0.1

Haemoglobin drop

The mean Hb drop was 1.8 g/dl (0-6.4) and 1.6 g/dl (0.1 - 4.1) for the TAH and STAH groups respectively.

Hospital stay

The mean post-operative hospital stay was 7.5 days (5 - 15) for patients undergoing TAH and 7.3 days (5 - 22) for the STAH group. The patient who stayed for 22 days had laparoscopic adhesiolysis, following investigations for post-operative pyrexia.

Urinary symptoms

Urinary frequency and nocturia outcome varied in both groups with those symptoms improving, remaining the same or even getting worse. When the results were statistically analysed there was no significant difference in urinary frequency or nocturia within each of the total and subtotal abdominal hysterectomy groups or in between the two groups (Table 9).

Table 9. **Urinary symptoms following hysterectomy**

Urinary Frequency	TAH	%	STAH	%	Statistical significance
Improved	10	(25.6)	5	(17.2)	P>0.1

No change	18	(46.1)	18	(62.0)	P>0.1
Deteriorated	11	(28.2)	6	(20.6)	P>0.1
Nocturia					
Improved	9	(23.0)	6	(20.6)	P>0.1
No change	25	(64.1)	16	(55.1)	P>0.1
Deteriorated	5	(12.8)	7	(24.1)	P>0.1

Sexual morbidity

Coital frequency, desire frequency and overall sexual outcome were described as improved, significantly more in the total hysterectomy than the subtotal hysterectomy group (P>0.05). Dyspareunia and orgasm frequency showed no significant difference between the two types of hysterectomy (Table 10).

Table 10. **Sexual symptoms following hysterectomy**

	TAH (n=39)	%	STAH (n = 29)	%	Statistical Significance
Overall Sexual Outcome					
Improved	24	(61.5)	10	(34.4)	P<0.05
Unchanged	10	(25.6)	10	(34.4)	P>0.1
Worse	5	(12.8)	9	(31.0)	P>0.1
Coital Frequency					
Increased	18	(46.1)	6	(20.6)	P<0.05
Unchanged	14	(35.8)	14	(48.8)	P>0.1
Decreased	7	(17.9)	9	(31.0)	P>0.1
Desire Frequency					
Increased	17	(46.5)	5	(17.2)	P<0.05
Unchanged	14	(35.8)	13	(44.8)	P>0.1
Decreased	8	(20.5)	11	(37.9)	P>0.1
Orgasm Frequency					
Increased	10	(25.6)	6	(20.6)	P>0.1
Unchanged	23	(58.9)	13	(44.8)	P>0.1
Decreased	6	(15.3)	10	(34.4)	P>0.1
Dyspareunia					
Improved	14	(35.8)	10	(34.4)	P>0.1
Deteriorated	5	(12.8)	7	(24.1)	P>0.1
No Dyspareunia before or after operation	20	(51.2)	12	(41.3)	P>0.1

Coital frequency of at least once per week increased post-operatively in the TAH group and decreased in the STAH group. Similarly, feeling desirous for intercourse at least once per week and orgasm frequency gave the same results. The changes were statistically significant.

A decrease of no statistical significance was also observed in the symptom of dyspareunia after the operation in both subgroups (Table 10).

DISCUSSION

Abdominal hysterectomy for benign or minimally invasive disease is a common gynaecological operation. In general, the operation is safe. The mortality rate from various studies reports 1 death in 1000 cases on average[6]. On the other hand reports of morbidity associated with abdominal hysterectomy vary widely and cover a vast array of symptoms.

In the last few years there has been a major shift to less invasive means of treating benign gynaecological disorders. The addition of subtotal hysterectomy to the surgical options available has been advocated[7]. This applies to patients with dysfunctional uterine bleeding who have had regular negative cervical smears after proper counselling about the likely benefits, risks and implications, such as the need to continue having regular cervical smears as if the uterus was still intact. In addition there is need to prescribe combined sequential oestrogen and progesterone, rather than oestrogen only hormone replacement therapy when required[8].

A retrospective survey of patients who had STAH was undertaken against the background of patients undergoing total abdominal hysterectomy in order to assess the incidence of morbidity and the preliminary results of subtotal hysterectomy,.

Simple hysterectomy is associated with a significant incidence of post-operative vesicourethral dysfunction with an identifiable neurological abnormality[9]. An improvement in urinary symptoms has been reported by Kilkku[10] in patients undergoing subtotal as opposed to total abdominal hysterectomy. Our results however, disagree with both studies. There was no statistical difference in urinary frequency or nocturia within each group or in between.

Reports on the effect of hysterectomy on libido are contradictory[11]. In our study each patient acted as her own control. A significant improvement in the symptoms of dyspareunia , sexual desire and coital frequency was observed in the total abdominal hysterectomy group.

CONCLUSION

In our unit the decision to perform subtotal as opposed to total hysterectomy is usually taken intra-operatively. Inadequate study power was an issue in our study.

To identify the advantages and disadvantages of the two procedures, large carefully controlled prospective studies are lacking. Until some become available, it is reasonable to allow patient preference to influence the choice of operation[12].

REFERENCES

1. Dicker CD, Greenspan JR, Strauss LT, et al. Complications of abdominal and vaginal hysterectomy among women of reproductive age in the United States. The Collaborative Review of Sterilization. Am J Obstet Gynaecol 1982;144:841-8.
2. Wingo PA, Huezo C, Rubin GL, et al. The mortality risk associated with hysterectomy. Am J Obstet Gynaecol 1985;152:803-8.
3. Vessey MP, Villard-Mackintosh L, McPherson K, et al. The epidemiology of hysterectomy: findings in a large cohort study. Br J Obstet Gynaecol 1992;99:402-7.
4. Department of Health and Social Security and Office of Population Censuses and Surveys. Hospital in-patient enquiry. DHSS:London, HMSO:1985.
5. The American College of Obstetricians and Gynaecologists. Standards for Obstetric – Gynaecologic Services. Seventh Edition. Washington, 1989;106.
6. Boyd ME, Groome PA. The Morbidity of Abdominal Hysterectomy. CJS 1993;36:155-9.
7. Drife J. Conserving the cervix at hysterectomy. Br J Obstet Gynaecol 1994;101:563-5.
8. Amarin Z, Harlow R. Conserving the cervix at hysterectomy. Br J Obstet Gynaecol 1995;102:77-8.
9. Parys BT, Haylen BT, Hutton JL, et al. The effect of simple hysterectomy on vesicourethral function. Br J Urology 1989;64:594-9.
10. Kilkku P. Supravaginal uterine amputation versus hysterectomy with reference to subjective bladder symptoms and incontinence. Acta Obstet Gynaecol Scand 1985;64:375-9.
11. Kilkku P. Supravaginal uterine amputation vs hysterectomy: Effects on libido and orgasm. Acta Obstet Gynaecol Scand 1983;62:147-52.
12. Magos AL. Conserving the cervix at hysterectomy. Br J Obstet Gynaecol 1995;102:77.