

The Windsor Medical Group

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An Audit of Surgical Practice for Hysterectomy

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John McManus

Dr Geoff McCracken

Professor Neil McClure

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Abstract

Objective

- 1 To determine, through audit, the relative percentages of abdominal, vaginal, laparoscopically assisted vaginal and laparoscopic hysterectomies performed in the study population.
- 2 To determine, through audit, indications, complication rates and lengths of stay for these different approaches to hysterectomy in this study population.

Design

Retrospective Audit

Population

52 patients who underwent a hysterectomy between between 1 January 2009 and 31 May 2009.

Method

Patients were identified from system records and their files scrutinised for: age, parity, menopausal status, BMI, indication for surgery and previous surgery, type of hysterectomy planned, type of hysterectomy performed, duration of operation, other procedures carried out contemporaneously, intra-operative factors that may have led to a conversion to another type of hysterectomy and length of stay. Intra-operative, immediate post-operative and longer-term follow-up complications were also reviewed. The data was analysed using Microsoft Excel 2007.

Results.

In total 80.77% of the patients in this study population were treated using minimal access approaches (vaginal, laparoscopically assisted or laparoscopic hysterectomy). In 92.3% of cases the intention to treat was with a minimal access approach but 6 cases were converted to abdominal hysterectomy. Only one serious complication was observed. Length of stay, on average, was shorter in the minimal access groups, however all patients, bar two, were discharged by day 2.

Conclusions

While very high levels of minimal access surgery and an even higher level of intention to treat via minimal access approaches are being achieved, there may be a strong case to increase the numbers of VH being attempted in conditions other than utero-vaginal prolapse. Complications rates and length of stay compare favourably with those seen in the literature on this subject. There is a need for a regional review of practice.

Introduction

It is now widely accepted that minimal access surgery has significant benefits for the patient over the conventional open approach through both decreased physical trauma and a reduced recovery interval. In addition, there are also potential economic benefits for the health care purchaser compared with open access approaches. However, the minimal access approach offers a greater surgical challenge requiring a high level of training and dexterity on the part of the surgeon. In addition, as a result of shifting the approach of choice to a minimal access approach, those residual cases not suitable for this approach are, by their nature, more complex and also demand a greater degree of surgical dexterity.

Aims of the Study

1. To determine, through audit, the relative percentages of abdominal, vaginal, laparoscopically assisted vaginal and laparoscopic hysterectomies in the study population
2. To determine, through audit, variations in indication, operative time, complication rate and length of stay for abdominal, vaginal, laparoscopically assisted vaginal and laparoscopic hysterectomies in the study population.

Methods

This study is a retrospective audit and observational study of a sequential population of patients who underwent hysterectomy with a group of 5 consultant gynaecologists (The Windsor Medical group [WMG]) for benign gynaecological conditions. All patients operated on by WMG between January and May 2009 were included in the study. Surgery was performed in one hospital. All case notes were available for the study and were reviewed retrospectively and independently by JMcM.

The following information was recorded: age, BMI, parity, menopausal status, and whether the patient had undergone abdominal surgery previously; the planned and the actual type of hysterectomy performed; the duration of surgery; intra-operative indications for conversion if appropriate; and whether additional procedures were carried out concurrently. The data collected on complications included: intra-operative complications, post-operative

complications recorded in notes and problems noted at the 6 week follow-up review appointment. The data was collated and analysed using Microsoft Excel 2007.

Results

Patient Details

In total, 52 hysterectomy case notes were reviewed. The surgical procedures were distributed as follows: VH 33 (63.46%), TAH 10 (19.23%), LAVH 3 (5.76%) and TLH 6 (11.54%). This can be further subdivided into minimal access (VH+LAVH+TLH = 42 [80.77%]) and open access (TAH =10 [19.23%]).

The average age of the patients in the study was 52.13 years (sd 11.99). The lowest mean age was seen in the LAVH group (39.7; sd 2.52); the average age for the other groups was: TAH 45 (sd 5.19); TLH 50.65 (sd 9.52) and VH group 55.72 (sd 12.76).

The average parity of the group was 3.34 (sd 1.3). The highest parity was in the VH group 3.51 (sd 1.43). Average parity for the other groups was LAVH 3.33(sd 0.58), TLH 3.16 (sd 0.75), and TAH 2.9(sd1.3).

The average BMI for the patients was 27.41 kg/m² (sd 4.49). The highest BMI was in the LAVH group with a mean BMI of 34.3 (sd 0.58); for VH it was 27.3 (sd 4.49), TAH 26.68 (sd 5.57) and for the TLH group 25.42(sd 5.12).

The average uterine mass for the group was 109.1g (sd 123.27) range 28-228g. The TAH group had the highest average mass 225g (sd219.38; range 70-705g with 3 cases weighing more than 280g); for the TLH group the mean mass was 105.5g (sd 104.22; range 32-312g: it should be noted that this figure was skewed by one 1 case as all others in this group weighed less than 100g); VH 76.44g (sd18.03 range 28- 228g: again apart from two cases all weighed less than 100g). The lowest average mass was in the LAVH group with an average of 58.66g (sd 24.66; range 42-87g).

The indications for hysterectomy are given in table 1:

Table 1: Indications for all hysterectomies (n=52)

Indication	N (%)
Menorrhagia	10 (19.23)
Prolapse	28 (53.84)
Endometriosis	1 (1.92)
Pain	2 (3.84)
Menorrhagia & endometriosis	1 (1.92)
Menorrhagia& fibroids	3 (5.76)
Menorrhagia, fibroids & endometriosis	1 (1.92)
Menorrhagia, pain & dysmenorrhoea	6 (11.52)

Prolapse surgery was all performed using minimal access approaches. However, for the other indications, where “operation intended” and “operation performed” are considered 5 of the 9 TAHs were originally planned to be by a minimal access approach but were changed in theatre. Therefore, the planned operations for the other indications group had been 19 (82.61%) minimal access hysterectomies and 4 (17.38%) open access.

The number of operations completed as planned was 44 (84.62%) leaving 8 (15.38%) cases where the originally planned approach was converted, predominantly intra-operatively. Out of the 8 converted approaches, 5 LAVHs were converted to TAH. One case was due to previously unidentified gynaecological pathology (a fibroid uterus, which was known about but with very limited lateral access). Two operations were converted due to unexpected pelvic and abdominal adhesions. The fifth case was converted due to an intraoperative failure of the laparoscopic equipment. Another LAVH was converted to a VH immediately before surgery due to a previous laparoscopy having caused an umbilical hernia. A TLH was converted to a TAH due to poor lighting and venous back bleeding. In one case an LAVH was converted to a TLH but the indication was not specified.

Previous abdominal and pelvic surgery were subdivided into none, minor or major. Minor surgery included laparoscopy, thermal balloon endometrial ablation, D&C, sterilisation, removal of IUCD under general anaesthetic, polypectomy, treatment for cervical ectopy, evacuation of uterus, hysteroscopy and a LLETZ procedure.

Major surgery included any non-gynaecological operation occurring in the abdominal or pelvic areas including Caesarean section, transvaginal tape insertion and bladder repair. The results are presented in Table 2.

Table 2: previous surgery by hysterectomy type

Hysterectomy type	Number	None (%)	Minor (%)	Major (%)
All Cases.	52	16(30.76)	20 (38.48)	16(30.76)
VH	33	13(39.39)	13(39.39)	7(12.21)
TLH	6	1 (16.67)	3 (50)	2 (33.33)
LAVH	3	1 (33.33)	0 (0)	2 (66.67)
TAH	10	1 (10)	4 (40)	5 (50)

The duration of surgery is presented in table 3 but subdivided depending on whether the hysterectomy was performed in isolation or alongside additional procedures. The operating times are not exact and were calculated from the case notes or theatre diary and represent the total time spent in theatre including anaesthetic time at the start and end of the operation.

Table 3: Time: Hysterectomy only

Hystectomy type	Number	Average Duration (mins)	Sd	Median	Rank
VH	6	58.83	16.84	57	1
TLH	3	135	10	135	5
LAVH	3	110	25	110	4
TAH planned	1	75	0	N/A	2
TAH unplanned	3	97.33	16.62	95	3

Table 4: Time: Hysterectomy and McCalls

Hyst type	Number	Average Duration	Sd	Median	Rank
VH	1	83	0	N/A	1
TLH	3	126.6	16.07	120	2

Table 5:Time: Hysterectomy and Oophorectomy

Hyst type	Number	Average	Sd	Median	Rank
VH	1	120	0	N/A	2
TAH plan	3	67.33	11.84	61	1
TAH unplan.	2	182.5	81.31	182.5	3

Other Operations (time:mins)**Table 6: Time:VH and Ant/Post repair**

Number	Average	Sd	Median
8	72.13	18.12	63

Table 7: Time:VH and McCalls&Ant/Post repair (time:mins)

Number	Average	Sd	Median
16	89.94	18.54	80

VH and Ant. Repair + TVT-O

n=1 time: 90 mins

TAH unplanned and oophorectomy + Fenton's procedure

n=1 time: 135 mins

The average length of stay in hospital for the all patients was 1.61nights (sd1.61). The shortest stay was observed in the TLH group with an average stay of 1.17 nights (sd 0.4), followed by VH 1.58 nights (sd 1.17), LAVH 1.67 nights (sd1.15) and the longest average stay was found in the TAH group 2 nights (sd 0).

One case out the 52 operations encountered an intra-operative complication and this was one of the converted operations (LAVH to TAH; equipment failure). The operation was technically quite difficult due to adhesions and had a higher than average blood loss. This is an intra-operative complication rate for all cases of 1.92%.

There was 1 serious complication which occurred in a TAH patient who was returned to theatre for an exploratory laparotomy for post-operative bleeding.

The following table is a breakdown of post-operative complications by type of hysterectomy.

Table 9: Post operative complications

Hysterectomy type	Number	Minor	Major	Percentage
VH	33	4	0	12.12
TLH	6	1	0	16.67
LAVH	3	1	0	33.33
TAH	10	2	1	30

The haemoglobin (Hb) levels preoperatively and postoperatively were not available in many of the patients' notes. Therefore, any change in Hb post-operatively could not always be calculated. The smallest change in Hb was observed in the VH group (n=19) with an average decrease of 1.18g/dl (sd0.97); in the TLH group (n=1) 1.8g/dl (in the LAVH group it was 1.1 g/dl but the information was only available for one case). The greatest decrease was seen in the TAH group (n=3): -2.13g/dl.

Patients were routinely reviewed between 6 and 10 weeks after surgery. The following table shows the breakdown of patient followed up.

Table 10: Outpatient Follow up (n=52)

What happened	Number (%)
Followed up	41 (78.84)
DNA	1 (1.92)
No F/U booked	3 (5.76)
Care transferred to BCH	1 (1.92)
No record of F/U in notes	6 (11.54)

Of the 41 patients who were seen at follow up, 33(80.48%) were entirely happy with their outcome. Eight (19.52%) of the patients who attended for follow up reported a problem - one patient's problems were independent of the operation and due to the fact that histological examination of the uterus had revealed an unexpected endometrial cancer. Four (9.76%) patients required extra follow up out of 41 patients who attended their reviews.

Table 11: Patients with follow up problems by type of hysterectomy

Based on the patients who attended follow up

Hysterectomy type	Number	Pt. with Problems	Percentage	Further F/U	Percentage
VH	26	5	19.33	2	7.69
TLH	5	0	0	0	0

LAVH	3	1	33.3	1	33.3
TAH	7	2	28.57	1	14.29

DISCUSSION

It must be remembered that this is an audit of cases and not a randomised clinical trial. Cases were taken as they presented and their clinical management based on the judgement of the clinicians at the time. Therefore, for example, subjects allocated to the vaginal hysterectomy group were more likely to be parous with vaginal deliveries and a normal sized uterus. In addition, the vaginal route was particularly chosen where there was co-existent prolapse – uterine, cystocele, enterocele or rectocele. Abdominal hysterectomy was considered by all five surgeons as a last resort option reserved for those with a very large uterus, pelvic adhesions or other co-existing complications that made either laparoscopic or vaginal surgery an inappropriate choice. This is reflected in the finding that the highest mean uterine mass was found in the TAH group.

In reviewing the results it is interesting to note that the average BMI of the study group was 27.41kgm⁻².

The percentage of cases where the operation was converted to an open procedure was at first sight high (15.38%). However, one case was converted because of equipment failure, reducing the percentage to 11.54. The majority of these cases were converted due to appropriate clinical indications – predominantly unidentified pathology or co-existent pathology that was more severe than could have been appreciated by clinical examination in the outpatient setting.

The duration of surgery, in this study group, was less for vaginal hysterectomy than for abdominal hysterectomy. Ten years ago this might not have been the case as abdominal hysterectomies were performed frequently and for uteri of a normal size and in a pelvis without adhesions or other complication. This increase in mean duration of surgery is likely to represent the complexity of the cases now performed by the abdominal route.

One of the criticisms commonly levelled against abdominal hysterectomy is the increased duration of stay in hospital post-operatively. In this particular group, despite the complexity of the cases performed by this route, all patients stayed only 2 nights. The largest post-operative decrease in haemoglobin was also seen in the TAH group but, again, this probably reflects the complexity of the surgery.

Recommendations and Conclusion.

- 1 A significant percentage of hysterectomies are being planned for and successfully carried out by the laparoscopic approach: this represents safe, prudent surgical practice.

- 2 The percentage of hysterectomies being performed by the vaginal route should be addressed and could possibly be increased. An additional audit of factors taken into consideration in making pre-operative decision would be of benefit. Vaginal hysterectomy is a shorter and less expensive approach than laparoscopic or laparoscopically assisted vaginal hysterectomy.

- 3 A regional audit of surgical practice would be of clear benefit in developing and improving standards of care and in particular identifying and exploring variations in clinical practice throughout N Ireland. This would allow for targeted training in an endeavour to reduce the percentage of patients having what might be argued to be less appropriate surgery.