AN AUDIT OF HYSTERECTOMY AT THE LAGOS UNIVERSITY TEACHING HOSPITAL, LAGOS

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ABSTRACT

Context: Hysterectomy is a common major gynaecological operation in many nations of the world. Significant morbidities and death have been associated with the procedure.

Objective: To identify the indications, types and peri-operative events associated with hysterectomy in Lagos.

Study design: A retrospective study employing the use of a pre-structured questionnaire to extract information from the case records of patients who had hysterectomy at the Lagos University Teaching Hospital between January 1996 and September 2003.

Main outcome measures: Duration of surgery, length of hospital stay and blood transfusions.

Results: A total of 103 case records of hysterectomy patients were analyzed. The incidence of hysterectomy was 9.29% of all gynaecological operations. Most of the patients were married, multiparous {at least 4 children} professionals aged between 45-49 years. 84.5% of cases were for uterine fibroids while the commonest operation performed was total abdominal hysterectomy with bilateral salpingo-oophorectomy (59.2%).

The duration of surgery, units of blood transfused and length of stay in the hospital were significantly increased with cancer-associated indications. Absence of pelvic adhesions at surgery was significantly associated with a reduced risk of being transfused intra-operatively.

Conclusion: **The trend in the indications for hysterectomy has remained largely unchanged over the last half century. Also the patterns of complications and morbidity following the conventional hysterectomy types have not varied much. Establishment of** a national hysterectomy database will likely highlight areas of further training and skill acquisition in techniques of hysterectomy, reduce morbidities and improve the overall outcome of the procedure.

***Key words*:** Audit, hysterectomy, fibroids, Lagos.

INTRODUCTION

Hysterectomy, a term coined in 1889, originated from the Greek *hysteros* meaning **uterus.** It is simply the surgical extirpation of the uterus. The uterus has been implicated as having great importance in the well-being of women since antiquity. In fact, early scientists like Hippocrates described hysteria as a disease of women and considered the diseased uterus to be the source of the illness!

Tremendous controversies have been generated over the issue of the justification or otherwise of hysterectomy. Scientists on both sides of the divide firmly and fiercely expressed their opinions as would be noted from the following statements:

> *"We consider the extirpation of the uterus, not previously protruded or inverted, one of the most cruel and unfeasible operations that ever was projected or executed by the head or hand of man. We are very far from discouraging bold or untried operations, but there is a limit beyond which it may not be prudent to go".*
>
> **James Johnson,** *Editor of London Medico-Chirurgical Review, 1825.*

"*The uterus has but one function: reproduction. After the last planned pregnancy, the uterus becomes a useless, bleeding, symptom-producing, potentially cancer-bearing organ and therefore should be removed".*

- **Wright, RC.** *1969.*

Interestingly, only 150 years after Johnson's comment, hysterectomy was the most common non-obstetric operation performed in the United States, accounting for 750,000 operations in 1975,[2] with an annual average of 622,000 hysterectomy surgeries done in the decade ending in 2005. Also in Denmark, an estimated 1 out of every 10 women

undergo hysterectomy in their lifetime. These rates have remained relatively stable in spite of a large number of potential alternatives to hysterectomy for the management of benign diseases.

Current indications for hysterectomy have evolved considerably from the time when sterilization, fear of cancer and undiagnosed pelvic pain were common reasons for the procedure to the present period when the procedure is indicated in several common gynaecologic problems which include uterine leiomyomata with symptoms such as substantial bleeding, pelvic pain or pressure, or anaemia refractory to iron replacement; dysfunctional uterine bleeding; genital prolapse to achieve symptom relief and restore normal anatomy and function; endometriosis; endometrial adenocarcinoma, uterine sarcoma and early invasive cervical cancer.[7] Massive postpartum haemorrhage may also require hysterectomy if it does not respond to uterine stimulant or other fertility-conserving therapy.

Hysterectomy could either be total or subtotal (leaving the cervix *in situ*), and with or without the removal of the adnexa. Depending on the route of surgery, it could also be abdominal, vaginal or laparoscopic hysterectomy. Laparoscopic hysterectomy is further subdivided into (i) Laparoscopic-Assisted Vaginal Hysterectomy LAVH where a vaginal hysterectomy is assisted by laparoscopic procedures that do not include uterine artery ligation; (ii) Laparoscopic Hysterectomy where the laparoscopic procedures include uterine artery ligation and (iii) Total Laparoscopic Hysterectomy where there is no vaginal component and the vaginal vault is sutured laparoscopically.[7]

Historically the first vaginal hysterectomy was performed by Conrad Langenbeck in 1813, the first subtotal abdominal hysterectomy by Walter Burnham in 1853, the first elective abdominal hysterectomy by Clay and Koeberle in 1863, and the first laparoscopic hysterectomy by Harry Reich in 1988.[11]

Despite the fact that hysterectomy is a popular operation, it has a number of complications associated with it. The most common are haemorrhage, infection, and injuries to adjacent organs; unintended major surgical procedures and second operations occur in approximately 4% of patients undergoing hysterectomy, while the rates of visceral injuries range between 0.5 to 2%. Reported mortality rates after hysterectomy range from 6-11 per 10,000 for indications not involving pregnancy or cancer, and 70-200 per 10,000 when the indication is associated with cancer.[7,8] Other long-term adverse effects of hysterectomy have been reported including urinary symptoms, early ovarian failure, the retained ovary syndrome (a poorly understood syndrome of pelvic pain after hysterectomy), changes in sexual interest and function, depression and other psychiatric morbidity.[1]

Since clinical performance indicators, audits and national database collaboration are useful in monitoring and improving outcome after hysterectomy, this paper was designed to identify the indications for hysterectomy and the attendant morbidities in a tertiary institution in Lagos, Nigeria.

MATERIALS AND METHODS

Design: A retrospective review of the case records of patients (who had hysterectomy) obtained from the Medical Records Department.

Setting: The Gynaecological Clinics and Modular Theatre of the Lagos University Teaching Hospital, Lagos.

Study Duration: January 1997 to September 2003.

Methods: Using a pre-structured questionnaire, information about the socio-demographic characteristics of the patients, indications for hysterectomy, intra-operative findings, type of procedure, operative morbidity and post-operative improvement in presenting symptoms were obtained from the case records.

Data Analysis: Data was encoded and analyzed using the Epi Info Version 6.04 statistical software package. Analysis included simple percentages and chi-square test where appropriate. A p value < 0.05 was regarded as significant.

RESULTS

A total of 201 hysterectomy cases were done during the review period out of which 103 available case records were obtained from the Medical Records department for review.

2,163 gynaecological operations were performed during the same period, so that hysterectomy constituted 9.29% of the total.

Table 1 showed that hysterectomy was accepted more by married, educated (middle-to-upper class) women who were aged between 40 and 49 years and who had at least 4 children.

From Table 2, it could be seen that the commonest

indication for hysterectomy was uterine fibroids (84.5%) with malignancies occupying a distant second (7%). 'Others' represented 1 case of uterine perforation and one unspecified indication.

The commonest type of procedure was total abdominal hysterectomy with bilateral salpingo-oophorectomy (59.2%) followed by hysterectomy with ovarian conservation (28.2%). The more radical Wertheim's hysterectomy is the least performed procedure (1.9%) (Table 3).

79.6% of the patients had post-operative improvement in their presenting symptoms and were satisfied with the procedure while in 17.8%, there was no definite record of patients' opinion about the procedure (Table 4).

Table 5 revealed that operations indicated for uterine fibroids had the shortest duration (1-2hours) whereas those hysterectomy cases done on account of malignancies required longer duration ($\geq$3hours) of surgery. This observation was found to be statistically significant. An association between malignant indications for hysterectomy and a higher estimated blood loss was also noted, although this did not reach significant levels. The duration of hospital stay was significantly increased when the indication for the hysterectomy was a malignancy.

In Table 6, 4 out of 11 (36.4%) women who had vaginal hysterectomy were transfused with $\geq$2 units of blood while 28 out of 92 (30.4%) whose surgeries were done abdominally had the same amount of blood transfused ($p<0.05$). However, though 59% of the patients who underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy did not require intra-operative blood transfusion, half of the women who had Wertheim's hysterectomy were transfused with 3 units of blood. This association was statistically significant. Also from Table 6, both patients who had Wertheim's hysterectomy had significantly extended hospital stay compared with other types of hysterectomy.

Table 7 showed that the presence of intraperitoneal adhesions increased the risk for blood transfusion significantly.

Although complications such as wound sepsis, wound dehiscence and urinary tract infection were noted post-operatively during the study, there were no documented vesical or visceral injuries. Also, there were no mortalities referable to the procedure in the case records.

Table 1: Socio-Demographic Characteristics

INDICATOR	FREQUENCY	%	CUMMULATIVE %
AGE (GROUPED) [Years]			
30 – 39	13	12.6	12.6
40 – 49	68	66	78.6
50 – 59	19	18.5	97.1
=60	3	2.9	100
PARITY			
0	3	2.9	2.9
1	7	6.8	9.7
2 – 3	31	30.1	39.8
=4	62	60.2	100
MARITAL STATUS			
Married	93	90.3	90.3
Single	2	1.9	92.2
Separated	2	1.9	94.1
Divorced	2	1.9	96
Widowed	4	3.9	100
OCCUPATION			
Professional	32	31.1	31.1
Skilled	27	26.2	57.3
Semi-skilled	26	25.2	82.5
Unskilled	18	17.5	100

Table 2: Indications for Hysterectomy

INDICATIONS	FREQUENCY	%	CUMMULATIVE %
Uterine Fibroids	87	84.5	84.5
[a]DUB	2	1.9	86.4
[b]Malignancies	7	6.8	93.2
Genital Prolapse	5	4.9	98.1
[c]Others	2	1.9	100
Total	103	100	100

[a] Dysfunctional Uterine Bleeding.

[b] These were endometrial, ovarian and invasive cervical cancers.

[c] 1 case each of uterine perforation and an unspecified indication.

Table 3: Types Of Hysterectomy

TYPE	FREQUENCY	%	CUMMULATIVE %
[a]TAH	29	28.2	28.2
[b]TAH + BSO	61	59.2	87.4
Vaginal Hysterectomy	11	10.7	98.1
Wertheim's Hysterectomy	2	1.9	100
Total	103	100	100

[a] Total Abdominal Hysterectomy

[b] TAH with Bilateral Salpingo -oophorectomy

Table 4: Post-Operative Improvement In Symptoms

RESPONSE	FREQUENCY	%	CUMMULATIVE %
Improved	82	79.6	79.6
Indifferent	3	2.9	82.5
Unrecorded	18	17.5	100
Total	103	100	100

Table 5: Indications and Operative Morbidities

MORBIDITY	**INDICATION**				
	Fibroids	**DUB**	**Malignancies**	**Prolapse**	**Others**
DURATION OF SURGERY [Hours]					
1 – 2	51	1	1	0	1
3	29	1	3	5	0
4 – 5	7	0	3	0	1
$\chi^2 = 19.37$; $p < 0.05$					
ESTIMATED BLOOD LOSS [milliliters]					
<500	11	0	1	1	1
500 – 999	52	2	2	3	1
1000 – 1999	19	0	1	1	0
=2000	5	0	3	0	0
$\chi^2 = 41.22$; $p < 0.25$					
LENGTH OF HOSPITAL STAY [Da ys]					
=7	39	2	0	3	2
8 – 10	38	0	2	2	0
=11	10	0	5	0	0
$\chi^2 = 26.11$; $p < 0.05$					

Table 6: Surgery Type and Post-Operative Events

PROCEDURE	**POST – OPERATIVE EVENTS**			
	NUMBER OF UNITS OF BLOOD TRANSFUSED			
	0	1	2	3
TAH	13	8	6	2
TAH + BSO	36	6	19	0
Vaginal Hysterectomy	6	1	3	1
Wertheim's	1	0	0	1
$\chi^2 = 23.61$; $p < 0.05$				
	DURATION OF HOSPITAL STAY [Days]			
	=7	8 – 10	=11	Total
TAH	17	8	4	29
TAH + BSO	25	28	8	61
Vaginal Hysterectomy	4	6	1	11
Wertheim's	0	0	2	2
Total	49	42	15	103
$\chi^2 = 16.57$; $p < 0.05$				

Table 7: Intra-Operative Findings Versus Blood Transfusion

ADHESIONS	NUMBER OF UNITS OF BLOOD TRANSFUSED				TOTAL
	0	1	2	3	
Present	9	4	14	0	27
No Adhesion	45	14	14	3	76
Total	54	18	28	3	103
$\chi^2 = 11.95$; $p < 0.05$					

DISCUSSION

The incidence of hysterectomy obtained in this review was 9.29%. This is lower than that reported in the United Kingdom[1] (where hysterectomy is performed on 1 in 5 women at some stage in their lives), United States of America[3,] (with over 600,000 cases performed in 2003 alone and one-third of the women can be expected to have hysterectomy by the age of 60) and Denmark[4] (with a lifetime prevalence rate of 10.4% for hysterectomy). Similarly, a low rate for the procedure (57/1000 gynaecological operations) has been reported in Enugu, a southeastern Nigerian city. This could be because many African women have an aversion for surgeries resulting in loss of the womb because of the cultural and, at times religious belief of reincarnation (without their wombs!) and an attachment to preservation of menstruation and childbearing.[,]

From the data presented, the operation was commonly performed on women aged 40 - 49 years (66%). This is similar to reports from the UK and Saudi Arabia where the average age is in the early forties and between 20-25% of women would have had a hysterectomy by the time they reach their mid-fifties. As was also reported in a study from Karachi,[7] most of the patients were multiparae having had at least 4 deliveries (60.2%). A British study noted that hysterectomy tended to increase with age and had a strong relation with parity. This is logical considering the fact that most patients would likely consent to an elective sterilization from hysterectomy only after completing their families.

During the study period, 89.3% of the procedure was done through the abdominal route and 10.7% vaginally. Generally, large studies have shown that, while 70 – 80% of the surgeries are done abdominally, the vaginal route is employed in about 10% of all cases.[,] This preference for the abdominal route is in spite of the indications that there are greater advantages with the vaginal approach. The radical Wertheim's hysterectomy is the least performed. This may be due to the earlier detection and treatment of the pre-invasive phases of cervical cancer possibly leading to fewer surgeons having the requisite skills, the need for considerable expertise and comprehensive technical and infrastructural support coupled with the possibility of significant intra- and postoperative complications which include ureteric fistulae, urinary incontinence and infections.

Studies have shown that the vast majority of hysterectomy procedures are performed for benign

disease.[4, 8, 17, 21,] This was also noted in this study as 84.5% of the surgeries were performed on account of uterine fibroids, often complicated by menorrhagia. Other benign indications noted in the study include dysfunctional uterine bleeding (1.9%) and utero-vaginal prolapse (4.9%). Reasons why it may be commoner in benign conditions may include the fact that the surgery is done to correct serious problems that interfere with normal functions and to improve the quality of life.

The dilemma over whether to remove or conserve the ovaries at the time of hysterectomy has been debated for decades. In the absence of a diseased ovary, current thinking is to discuss oophorectomy in women over the age of 40 years, recommend it in women over the age of 45 years and encourage it in women who are post-menopausal.[20,] This is because of the risk of residual ovary syndrome and cancer of the ovary in patients with conserved ovaries.[28,] In a nationwide case-controlled study, Loft *et al* found that the incidence of ovarian cancer was 0.27 per 1000 person-years in women who had hysterectomy compared with 0.34 per 1000 person-years in the general age-matched population, and that the extrapolated lifetime risk of developing ovarian cancer was 2.1% after hysterectomy versus 2.7% in the general population (RR 0.78, 95% CI 0.60 – 0.96). Since more patients who had hysterectomy in this study were 40 years and above, that could explain the reason why bilateral prophylactic salpingo-oophorectomy featured more than ovarian conservation. This was also the pattern noted in Zaria, northern Nigeria where the mean age of the women who had hysterectomy was 44.6years and 90.9% of the procedures were associated with salpingo-oophorectomy. However, for women between the ages of 45 to 50 years, the decision should be individualized, with consideration given to the patient's menopausal status, the risk of ovarian cancer, and the ability to take oestrogen replacement therapy.[28, 30]

Satisfaction following surgery was noted in almost four-fifths of the patients in this study. Some women have found that hysterectomy, whether subtotal or total, enhances their quality of life and psychological outcome because it provides relief of symptoms and offers definite contraception.[6, 28,]

Nieboer *et al* reported that for benign conditions, vaginal hysterectomy had the benefits of speedier return to normal activities, fewer febrile episodes or unspecified infections and shorter duration of hospital stay when compared with the abdominal route. They concluded that because of the equal or significantly better outcomes on all parameters, vaginal hysterectomy should be performed in preference to the abdominal route where possible. However, this study noted that more women where transfused with ≥2 units of blood following vaginal hysterectomy than with the abdominal approach. This could be due to (i) the consideration of both benign and malignant indications together in this study, (ii) the few vaginal procedures in the centre (11 out of 103) which might lead to fewer surgeons having excellent skills for this route, with the possibility of increased morbidities, and (iii) possibly, the need for adnexectomy/morsellation or the presence of adhesions during the vaginal surgeries (which could increase the duration of the surgery and blood loss[27] as was observed in Table 7).

One worrisome observation from this study was that while a number of papers reported mean hospital stay of between 1 – 5days for all types of hysterectomy,[34,] a significant proportion of the patients studied spent ≥8days on admission. This could be because skin closure was done using non-absorbable sutures such that patients who had both Pfannenstiel and midline incisions were discharged between 8 – 10days when sutures were removed! Uzoigwe *et al* noted that a similar practice existed in Port Harcourt, Nigeria. It could also be because the extra financial burden on the patients was not considered in their overall management.

Since Harry Reich performed the first laparoscopic hysterectomy in 1988, the application of laparoscopic techniques has gained momentum. The value of employing laparoscopy is that it allows the surgeon to dispense with many of the relative contraindications to vaginal surgery by performing the surgery at the same time by operative laparoscopy. The laparoscopic-assisted vaginal hysterectomy (LAVH) is particularly useful when the ovaries are to be removed at the same time as vaginal hysterectomy, as they could be sometimes difficult to extirpate. However the laparoscopic technique is not as cost effective as the conventional hysterectomy (abdominal or vaginal) and was not available in the institution during the study period.

This retrospective study could be criticized because both benign and malignant indications and simple and 'radical' hysterectomy options were included in the evaluation. However, this was done to reflect the total picture of the pattern of hysterectomy in the centre and to boost the sample size. The strengths of the study consist of its large patient cohort, clinical

relevance, simple and sincere analysis and interpretation of the results obtained.

Future areas for research should preferably include the outcome of earlier suture removal, randomized comparisons of the abdominal and vaginal approaches for benign indications and the impact of widespread use of laparoscopic techniques on the outcome measures.

CONCLUSION

The trend in the indications for hysterectomy has remained largely unchanged over the last half century. Also the patterns of complications and morbidity following the conventional hysterectomy types have not varied much. Once a proper indication for hysterectomy exists, the gynaecologic surgeon must decide whether to remove the uterus abdominally or vaginally.

Complications are likely to be reduced by employing less radical surgeries, improved surgical skills especially with laparoscopic assistance, effective blood transfusion services and infection control.

A key theme for consideration before a hysterectomy is done is the absolute necessity for appropriate communication with the patient, in terms she can understand, so that she can make an informed decision.

Also, there is a need for a national hysterectomy database which will highlight areas of further training and skill acquisition in techniques of vaginal hysterectomy, reduce morbidities, and identify factors that can guide treatment decisions for patients with benign gynaecological diseases, especially uterine myoma which is a common disorder in this environment.

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