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Research Article

Indications and Outcomes of Abdominal and Vaginal Hysterectomies at Tertiary Hospital in Nnewi, Nigeria

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Abstract

Background: Hysterectomy is a common gynecological surgery done for malignant and benign conditions of the uterus and structures around it. Uterus can be assessed through various routes with each having its indications, contraindications and associated complication.

Objectives: To determine the prevalence and compare biosocial characteristics, indications, complications of procedure, durations of stay in the hospital and mortality between both abdominal and vaginal hysterectomies.

Methods: The study is retrospective cross-sectional comparative in design on gynecological hysterectomies done at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi from 1st January, 2013 to 31st December, 2018. The patients' case files were retrieved from the medical records department and relevant information obtained from the folders. Primary outcomes were gynecological hysterectomy rate and indications for the hysterectomy. The data was analyzed using SPSS version 25. Pearson chi-squared test was used for categorical variables to determine statistically significant differences between the groups. Statistical significance was accepted when *p*-value was <0.05.

Result: A total of 94 gynecological hysterectomies were done between 01/01/2013 and 31/12/2018 out of the 925 gynecological surgeries giving gynecological hysterectomies rate of 10.2%. A total of 78 case files were retrieved for this study; giving a retrieval rate of 83.0%. Sixty-one subjects (78.2%) had abdominal hysterectomy and 17 (21.8%) had vaginal hysterectomy. The mean age for all the hysterectomies was 51.3 ± 8.3 years, while abdominal and vaginal hysterectomies had mean ages of 48.8 ± 7.4 years and 60.0 ± 5.1 years respectively. For vaginal hysterectomy, most (82.4%) of the patients were grandmultiparous. The parity for majority of patients who had abdominal hysterectomy was 1-4 (57.4%). Uterine fibroids 33 (54.1%) was the commonest indication for abdominal hysterectomy, while other indications include endometrial hyperplasia, carcinoma of cervix and endometrium and ovarian tumors. Uterovaginal prolapse was the only indication for vaginal hysterectomy. The number of days stayed in the hospital for majority of the patients who had abdominal hysterectomy was 8-14 days while the hospital stay in majority of those who had vaginal hysterectomy was less than or equal to 7 days. Post operative pyrexia

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was commoner in vaginal hysterectomy than abdominal hysterectomy (11.8% vs 6.6%; p<0.05). Abdominal hysterectomy had more complications than vaginal hysterectomy. Abdominal hysterectomy (3.3%) was associated with more mortality than vaginal hysterectomy that had no mortality (0%).

Conclusion: Vaginal hysterectomy is associated with less post operative complications, shorter duration of hospital stay and case fatality. Gynecologists should promote and acquaint themselves with the requisite skills for vaginal hysterectomy as it will help reduce these complications.

Introduction

Hysterectomy is said to have been done when the uterus with or without the adnexal structures are surgical removed. This could be done through the laparoscopic, vaginal or abdominal route [1,2]. It is a common gynecological surgery performed on women in the peri and postmenopausal period [3].

Many factors may influence the choice of approach. This include the surgeon's skill, the reason for the surgery, as well as other clinical conditions [4]. Abdominal and vaginal hysterectomies are commonly utilized in low and middle-income countries due to reduced skills and facility for laparoscopic approach. Abdominal hysterectomy entails harvesting the uterus through an abdominal incision. Vaginal hysterectomy entails harvesting the uterus via the vagina and thereafter aborting the space the uterus originally occupied with tissues derived from its lateral attachments [5]. Hysterectomy via laparoscopic route leads to increased operating time and decreased intra- and postoperative complications [6]. Abdominal hysterectomy has the disadvantage of larger incisions, handling of the abdominal organs and an extended time of recovery. Less invasive techniques like vaginal hysterectomy and laparoscopically assisted vaginal hysterectomy are increasingly popular among gynaecologists [7]. In comparing with abdominal hysterectomy, vaginal hysterectomy has shorter operating time, shorter duration of stay in the hospital, more rapid recuperation, reduced complications, reduced cost to the patient, lower overall complications while laparoscopically assisted vaginal hysterectomy leads to less pain postoperatively and shorter duration of stay in the hospital [7].

The rate of hysterectomy varies worldwide according to geographic distribution [8]. Annually about 600000 hysterectomies are done in the USA, 64% of these were via abdominal route while in UK 1 in 5 women by age 60 would have had a hysterectomy [8,9]. Most studies on practice of hysterectomy showed that 70-80% of them are done through the abdominal route [2].

Vaginal and laparoscopic hysterectomies are associated with less complications. However, the incurred charge, skill, and non availability of equipment make abdominal hysterectomy procedure of choice in low and middle-income countries [10]. The prevalence rate of 9.4% for hysterectomies was reported in Lagos state in Nigeria [11].

In our environment, the most common indication for abdominal hysterectomy is uterine fibroids while for vaginal hysterectomy; the most common indication is uterovaginal prolapse [8]. Other indications for hysterectomy may include adenomyosis, premalignant lesion of uterus and cervix after completion of family size, chronic pelvic pain, abnormal uterine bleeding, cancer of the endometrium, cervical polyp and cancer of the cervix [8]. After hysterectomy, most of women are relieved of their symptoms and this gives them a high level of satisfaction with the procedure [3].

The complications that may follow hysterectomy include injury to the surrounding structures, postoperative pyrexia, infections, hematoma in the pelvis among others [4]. Hysterectomy is affected by a lot of beliefs (cultural, psychosocial and religious), especially in our environment where women often have aversion for surgery, loss of femininity or refusal of sex by their partners [3,13].

To the best of the knowledge of the researcher, comparisons of different gynecological hysterectomies have not been studied in our institution, hence the need for this work. The aim of the study is to determine the prevalence, biosocial characteristics and to compare the outcomes of the gynecological hysterectomies done at NAUTH, Nnewi, Nigeria as this will help in proper selection of type of hysterectomy and thus improve the outcome.

Methods

Study design: A retrospective cross-sectional comparative study.

Study population: The study was conducted among women that had gynecological hysterectomies.

Study site:

Gynecological theater and gynecological ward of Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. This hospital has many consultant obstetrician-gynecologists, trainee doctors (registrars and senior registrars) and ancillary medical staff. It is a training center for medical post-graduate studies in Nigeria. It is a government-funded referral center for maternal and newborn care. It provide comprehensive emergency and elective gynecological care, and serves as major referral center for gynecological services in south-eastern Nigeria.

Eligibility Criteria

Inclusion criteria:

This included women that underwent gynecological hysterectomies during the study period (from 1st January, 2013 to 31st December, 2018).

Exclusion criteria:

Women who had myomectomy were excluded from the study. The cases of missing or incomplete data were also excluded from the study.

Sample size determination

The sample size was an all population based study.

Sample technique: Non-random sampling approach. All available case files were examined.

Study Outcome Measures

Hysterectomy rates, types of hysterectomy, duration of stay in the hospital, complications and mortalities.

Procedures Involved

The main theatre, gynecology ward and gynecology theatre records were reviewed to identify women that underwent gynecological hysterectomy during the study period. The patients' case records were then retrieved from the hospitals' medical record department. For the gynecological variables, data were extracted from the gynecological Registers and medical records by trained data collectors using a data retrieval form. The patients' socio-demographic characteristics include age, parity and other information like hysterectomy type, duration of stay in the hospital, complications and mortalities were retrieved from the patients' case notes and analyzed. Completed forms were then assessed by a data coordinator for completeness and accuracy before being entered into the Excel spread sheet by the data entry and management team.

Statistical analysis

The cleaned data were exported to Statistical Package for Social Sciences (SPSS) version 25 (IBM Corp.) for analysis. We used descriptive statistics to compare the hysterectomy types of the women, and applied the Pearson chi-squared test was used for categorical variables to determine statistically significant differences between the groups. Statistical significance was accepted when *p*-value was <0.05.

Ethical approval

The study was approved by the Ethics Review Board of the hospital (reference number: 0163/10/2022; date of approval: 1st October, 2022). The study was conducted according to the Helsinki declarations on ethical principles for medical research involving human subjects.

Results

A total of 94 hysterectomies were done out of 925 gynecological surgeries within the study period, giving a hysterectomy rate of 10.2%. Seventy-eight case files were retrieved and used for this study giving a retrieval rate of 83.0%. Sixty-one (78.2%) of the cases had abdominal hysterectomy while 17 (21.8%) had vaginal hysterectomy.

Table 1 shows the biosocial characteristics of these patients. Abdominal hysterectomy was common between the ages of 40 and 59 years and accounting for 70.5% of the cases while majority (70.6%) of those that had vaginal hysterectomy were sixty years and above. The mean age of all the patients who had hysterectomy was 51.3 ± 8.3 years, while it was 60.0 ± 5.1 years for those who had vaginal hysterectomy and 48.8 ± 7.4 years for those who had abdominal hysterectomy. The majority (54.1%) of abdominal hysterectomies was done between the ages of 40 and 49 years while majority (70.6%) of vaginal hysterectomies was done from 60 years and above. The age group 50-59 years was the second most common for both abdominal hysterectomy and vaginal hysterectomy and accounted for 16.4% and 29.4% respectively.

Most (82.4%) of vaginal hysterectomies were done on grandmultiparous women while only 34.4% of abdominal hysterectomies was done on grandmultiparous women. Only 5 (8.2%) of the woman who had abdominal hysterectomy was nulliparous while none (0%) of the women who had vaginal hysterectomy was nulliparous.

Table 2 shows the frequency of the types of hysterectomies. Majority of the patients (78.2%) had abdominal hysterectomy while 21.8% had vaginal hysterectomy.

The most common indication for vaginal hysterectomy in this study was uterovaginal prolapse, which accounted for 100% (17) of the cases while the commonest indication for abdominal hysterectomy was uterine fibroids accounting for 54.1% (33) of the cases. This is shown in table 3.

Table 4 shows the duration of stay in the hospital. The mean duration of stay in the hospital for all the patients was 10.1 ± 4.2 days, but the patients who had vaginal hysterectomy had a shorter duration of stay in the hospital. Fourteen (82.4%) of the patients who had vaginal hysterectomy were discharged within one week of the surgery while only eight (13.1%) of those who had abdominal hysterectomy were discharged in the first week from the hospital. Majority (78.7%) of the patients who had total abdominal hysterectomy were discharged in the second week of surgery.

The post operative complications pattern was shown in table 5. Patients who had abdominal hysterectomy developed more complications than those who had vaginal hysterectomy (44.3% versus 17.6%) respectively. Primary hemorrhage was seen in six patients who had abdominal hysterectomy and in two of those who had vaginal hysterectomy. This was the commonest complication. This is followed by post operative pyrexia which was present in four patients who had abdominal hysterectomy and two patients who had vaginal hysterectomy. Thirty four (55.7%) and 14 (82.4%) of the subjects that had total abdominal and vaginal hysterectomies respectively had no complication after surgery. Two (3.3%) mortalities occurred post abdominal hysterectomy while none was recorded following vaginal hysterectomy.

Table 1: Shows the Biosocial Characteristics.

Age (years)	Abdominal Hysterectomy n (%)	Vaginal Hysterectomy n (%)
30-39	5 (8.2%)	0 (0.0%)
40-49	33 (54.1%)	0 (0.0%)
50-59	10 (16.4%)	5 (29.4%)
≥60	13(21.3%)	12(70.6%)
TOTAL	61 (100%)	17(100%)
Parity		
0	5 (8.2%)	0 (0%)
01-Apr	35 (57.4%)	3 (17.6%)
≥5	21 (34.4%)	14 (82.4%)
TOTAL	61 (100%)	17 (100%)

Table 2: Types of hysterectomies.

Procedure	Frequency	Percentage (%)
Total Abdominal Hysterectomy (TAH)	61	78.2
Vaginal Hysterectomy	17	21.8
TOTAL	78	100.0

Table 3: Indications for Hystrectomy.

Indication	TAH	Vaginal Hysterectomy
Utero-vaginal prolapse	0	17 (100.0%)
Cervical cancer	8 (13.1%)	0 (0.0%)
Endometrial Hyperplasia	5 (8.2%)	0 (0.0%)
Ovarian tumor	12(19.7%)	0 (0.0%)
Uterine fibroids	33(54.1%)	0 (0.0%)
Endometrial cancer	3 (4.9%)	0 (0.0%)
TOTAL	61 (100%)	17 (100.0%)

Table 4: Complication rates and duration of hospital stay following hysterectomy.

Outcome		TAH	Vaginal hysterectomy
Complications	None	34 (55.7%)	14 (82.4%)
	Present	27 (44.3%)	3 (17.6%)
	Total	61 (100.0%)	17 (100.0%)
Hospital stay (days)			
	≤7	8 (13.1%)	14 (82.4%)
	8 – 14	48 (78.7%)	3 (17.6%)
	> 14	5 (8.2%)	0
	Total	61 (100.0%)	17 (100.0%)

Table 5: Complications (outcomes) of the hysterectomies.

Outcome		TAH	Vaginal hysterectomy
Primary hemorrhage	None	55 (90.2%)	15 (88.2%)
	Present	6 (9.8%)	2 (11.8%)
	Total	61 (100%)	17 (100%)
Pyrexia	None	57 (93.4%)	15(88.2%)
	Present	4 (6.6%)	2 (11.8%)
	Total	61 (100%)	17 (100%)
Wound infection	None	57 (93.4%)	17 (100%)
	Present	4 (6.6%)	0 (0.0%)
	Total	61 (100%)	17 (100%)
Post operation anemia	None	58 (95.1%)	17 (100.0%)
	Present	3 (4.9%)	0 (0.0%)
	Total	61 (100.0%)	17 (100.0%)
Wound dehiscence	None	59 (96.7%)	17 (100.0%)
	Present	2 (3.3%)	0 (0.0%)
	Total	61 (100.0%)	17 (100.0%)
Death	None	59 (96.7%)	17 (100.0%)
	Present	2 (3.3%)	0 (0.0%)
	Total	61 (100.0%)	17 (100.0%)

Discussion

A total of 94 gynecological hysterectomies were done out of 925 gynecological surgeries giving a rate of 10.2%. This is similar to the prevalence reported in Lagos and Sokoto, Nigeria [7,20]. Higher prevalence of 10.7%, 25% and 28% were reported in Nigeria such as in Gombe, Jos and Nnewi respectively [14-16]. The value is higher than what was found from some other centres in Nigeria like Kano [2]. Prevalence rates of 25%, 50%, 40-50% and 28% have been reported in United States, France, Australia and Saudi Arabia respectively [8]. The reduction in the prevalence in this study when compared with high-income countries could be due to poor acceptance of hysterectomy in our women as they often have aversion for surgery, loss of femininity, and sexual rejection by their spouses, or because of lots of beliefs (cultural, psychosocial and religious) on preservation of menstruation and childbearing [3,13].

The overall mean age for the women who had hysterectomies was 51.3 ± 8.3 years, while it was 60.0 ± 5.1 years for vaginal hysterectomy and 48.8 ± 7.4 years for abdominal hysterectomy. This explanation to this could be from the major indications for each procedure (uterovaginal prolapse for vaginal hysterectomy and leiomyoma for abdominal hysterectomy). From the study, the hysterectomy was performed commonly on women who aged 40-49 years. This is comparable to what was found in other studies in Nigeria [3,12,16].

The mean parity was 4.7 ± 2.3 for all hysterectomies. Most (82.4%) of vaginal hysterectomies were done on grandmultiparous women while 34.4% of abdominal hysterectomies was done on grandmultiparous women. Only 5 (8.2%) nulliparous woman had abdominal hysterectomy while none (0%) of the nulliparous women had vaginal hysterectomy. The finding was similar to that reported in Rivers state Nigeria [3]. The high parity noted with vaginal hysterectomy could be due to the fact that high parity is a predisposing factor for uterovaginal prolapse and this was the most common indication for vaginal hysterectomy in this study.

Abdominal hysterectomy was the commonest hysterectomy done in our facility and accounted for 78.2% while vaginal hysterectomy accounted for 21.8%. Similar rates of 79.3% and 20.8% were reported in Gombe, Northern Nigeria for abdominal and vaginal hysterectomies respectively [16]. In Kano state, Nigeria, total abdominal hysterectomy accounted for 93% of gynecological surgeries thus higher than the findings in our centre [2]. Uterine leiomyoma (with or without menorrhagia) and uterovaginal prolapse were the most common indication for abdominal hysterectomy and vaginal hysterectomy respectively in this study. This was comparable to findings reported in Benin and Lagos, in Nigeria [6,11]. This was in contrast to the work of Hadi et al; where dysfunctional uterine bleeding was the most common indication for abdominal hysterectomy [18]. Uterine leiomyoma is commoner in blacks and majority of the subjects studied were blacks, hence may be the reason for fibroids being the commonest indication for abdominal hysterectomies. high-income countries, hysterectomy is done most of the time to improve the quality of life of the women but this is different from what obtains in low and middle-income countries where the uterus is seen as a symbol of womanhood and hence consent for removal of the uterus are difficult to obtain from many women [5]. Studies from high-income countries have also demonstrated increased acceptance and increased rate of vaginal hysterectomy over abdominal hysterectomy while the reverse is the case in low and middle-income countries. In Nigeria, vaginal hysterectomy is not well utilized as is the case in most low and middle-income countries despite the obvious benefits of vaginal over abdominal hysterectomies. This is majorly due to the choice and skills of the surgeons [5].

The overall mean duration of stay in the hospital was 10.1 ± 4.2 days, but those that had vaginal hysterectomy had a less duration of stay in the hospital. Most of the patients who had vaginal hysterectomy were discharged within the first week of

the surgery while majority of the patients that had total abdominal hysterectomy were discharged in the second week of surgery. This conforms with studies from both high-income and low and middle-income countries that vaginal hysterectomy is associated with less duration of stay in the hospital compared to abdominal hysterectomy [3-5].

More complications are found in women who had abdominal hysterectomy than in those who had vaginal hysterectomy. This is comparable to findings from other studies [5,12]. This could be due to extensive tissue dissection with its associated morbidity in abdominal hysterectomy when compared with vaginal hysterectomy. Post operative pyrexia was higher in vaginal hysterectomy subjects. This could be due to high rates of urinary tract infections which has been found to be higher in vaginal hysterectomy. The mortality rate for abdominal hysterectomy was 3.3% and none for vaginal hysterectomy. Ovarian malignancy was responsible for all the mortalities recorded in this study. Vaginal hysterectomy has been shown to be a safer procedure as was also reported in other works [2].

Our study is not without limitations. The study design is retrospective in nature. This may have introduced sampling/selection bias and the data may not be representative of whole population of patients.

Conclusion

From the study, vaginal approach offers good cosmesis, quick recovery and less operative morbidity. It benefits include quick recovery, less duration of stay in the hospital, lack of scar and being minimally invasive. The gold standard for decision making is absence of contraindications and findings on examination. The number of hysterectomies are low and calls for serious implication for training residents in performing vaginal hysterectomy. This calls for a greater use of other indications other than genital prolapse. This should not underscore the experience and proficiency of the surgeon and availability of equipment for this procedure.

Declarations

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Author contributions: CBO, OOE, CGO and G.U.E were involved in the overall conceptual design and implementation of the project, and overall revision of the manuscript. C.C.O., EPI, and COE contributed to data collection, analysis, and manuscript writing. MEN and JII were involved in the writing of this manuscript and overall revision. The authors read, approved the final manuscript, and agreed to be accountable for all aspects of the work.

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