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Analysis of Histopathological Lesions in Hysterectomy Specimens at Two Teaching Hospitals in Rwanda: A Two Year Review

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Abstract

Background: Hysterectomy specimens constitute a significant proportion of the specimens analysed in the anatomical pathology department. In Africa, a limited number of studies have analysed the histopathological lesions in hysterectomy specimens. This study reviewed the histopathological lesions identified in hysterectomy specimens at two teaching hospitals in Rwanda over a two year period.

Objectives: To determine the type of histopathological lesions diagnosed in hysterectomy specimens, to determine the degree of correlation between the pre-operative clinical diagnoses and the histopathological diagnoses, and to determine the type incidental lesions found in hysterectomy specimens.

Materials and methods: Using SPSS 22, we retrospectively analyzed the clinical and the histopathological data of all the cases of hysterectomy specimens processed in the anatomical pathology units at the University Teaching Hospital of Kigali and at the University Teaching Hospital of Butare, over the time period of January 1, 2015 to December 31, 2016.

Results: In total, 299 hysterectomy specimens were analysed. The peak age range among these women was 40-49 years, and the majority of them were multiparous. The most common indications of hysterectomy were symptomatic uterine fibroids (33.1%), malignancies of the female reproductive organs (20.4%), and gestational trophoblastic disease (10.7%).

The common lesions on histopathology were uterine leiomyomata (35%), malignant tumors of the female reproductive organs (16.8%), and cervical dysplasia (9.7 %). Overall, 83% of all the clinical indications for hysterectomy were confirmed by histopathology. The correlation between clinical diagnosis and histopathology was strong and significant, with a correlation coefficient of 0.724, and the significance level <0.05, using Pearson correlation. The most common lesion found incidentally on histopathology was adenomyosis.

Conclusions: The correlation between preoperative diagnoses and postoperative histological diagnoses was strong and significant. However, there is room for diagnostic improvement. Some of the lesions that were diagnosed by histopathology could have been diagnosed preoperatively, with consideration of conservative management. Many benign lesions do not require a total hysterectomy for definitive treatment. Therefore, hysterectomy should not be the treatment of choice if adequate conservative treatments are available especially, in young pre-menopausal women.

Keywords: Hysterectomy; Indications; Histopathology; Correlation;

Abbreviations

BSO: Bilateral salpingo-oophorectomy

CHUB: University Teaching Hospital of Butare

CHUK: University Teaching Hospital of Kigali

DUB: Dysfunctional uterine bleeding

GTD: Gestational trophoblastic disease

LAVH: Laparoscopically assisted vaginal hysterectomy

PID: Pelvic inflammatory disease

PMB: Post-menopausal bleeding

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Introduction

Worldwide, hysterectomy tops the list of performed major gynecological operations [1], with the abdominal approach utilized more frequently than the vaginal approach [2]. A number of factors influence the rate of hysterectomy for a given country, and these factors include, among others, patient morbidity, economic resources, tradition and mentality [1]. In the United States of America, 37% of women have their uterus removed by 60 years of age [3]. In developing countries approximately 20% of women have their uterus removed by 55 years of age [1]. In some African cultures, women are still reticent towards hysterectomy [4], because the uterus is considered as a marker of feminity, and because of traditional beliefs about the absence of menstruations [5].

Different procedures of hysterectomy exist, and include mainly, total abdominal hysterectomy with or without bilateral salpingo-oophorectomy (BSO), subtotal abdominal hysterectomy, total vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy (LAVH), and radical

hysterectomy [6]. The choice of the type of hysterectomy procedure undertaken to remove the uterus is made based on the health care settings, the type of disease, the individual patient characteristics, and the preference and performance of the surgeon [7].

A number of pelvic pathologies, including uterine leiomyoma, dysfunctional uterine bleeding (DUB), adenomyosis, pelvic prolapse, chronic pelvic pain, endometriosis, pelvic inflammatory disease (PID), and malignancies of the female reproductive organs, have been managed by hysterectomy as a curative treatment method since the early twentieth century [3]. Currently, despite the development of medical approaches and less invasive surgical approaches, hysterectomy continues to be the most frequently chosen modality to manage the above mentioned diseases [8]. Overall, the patients are satisfied with the quality of life, and the symptom relief they get after hysterectomy [3].

The heterogeneity of pathologies for which hysterectomy is indicated [7] results in a variety of histopathological lesions that are seen in hysterectomy specimens [9]. The histopathological evaluation of all the hysterectomy specimens is indispensable for an appropriate postoperative management [9]. Macroscopically unremarkable specimens may show pathological lesions on histology, and benign lesions may show foci of malignant disease upon microscopic examination [8].

Symptomatic uterine fibroids were found to be the most frequent indication of hysterectomy in most of series reported from different parts of the world [10]. They make up approximately 40% of all hysterectomy indications [10]. Myomectomy, a conservative modality for management of uterine fibroids has a higher risk of postoperative morbidity, a longer hospital stay, a 4-47 % recurrence risk, and a 98% rate of developing adhesion [3]. Another reason why gynecologists chose to perform hysterectomy in multiparous women with symptomatic uterine fibroids is avoiding the morbidity related to massive vascular leiomyoma [3]. Adenomyosis, endometrial hyperplasia, and uterine prolapse, are other frequently seen indications of hysterectomy[2].On histopathological examination of hysterectomy specimens, benign lesions are more frequent than malignant lesions, according to the reports from different parts of the world [11,12].

Methods

This study was approved by the Institutional Review Board. It was a retrospective descriptive study from January 1, 2015 to December 31, 2016, that reviewed the diagnoses in hysterectomy specimens (glass slides and pathology reports), as well as collected clinical information of the corresponding patients from medical records. Neither clinical intervention nor direct patient contact was needed in this study. The study was conducted at the University Teaching Hospital of Kigali (CHUK), and at the University Teaching Hospital of Butare (CHUB). The study population included all female patients who had a hysterectomy at CHUK or CHUB during the indicated study period and whose specimens were analysed at the pathology department. Female patients who underwent emergent obstetric hysterectomies for ruptured uterus or severe post-partum hemorrhage were not part of this study. Female patients who underwent hysterectomies for trauma or post-operative infections were also not included in this study. The main outcomes measured were patient age, parity, clinical presentation, indication for hysterectomy, type of hysterectomy and histopathological diagnosis.A database was created in SPSS 22.0, and analysis was done. Descriptive statistics measures were determined, and the Pearson correlation between clinical diagnosis and histopathological diagnosis was done.

Results

A total number of 299 hysterectomy specimens were identified over the study period. The patient ages range from 22 to 85 years. The mean was 49 years, and the largest age group was 40-49 years. The parity ranged from 1 to 10, and the majority of women were multiparous. The most common complaint among the patients who underwent hysterectomy was menorrhagia, accompanied, or not accompanied, by pelvic pain or pelvic pressure.

Abdominal hysterectomies accounted for 91.6% of all the hysterectomies. Overall, interadnexal hysterectomy was the most frequently-performed procedure. The benign conditions accounted for 78% of the indications of hysterectomy, malignancy accounted for 20% of cases, suspected malignant disease accounted for 1.3% of cases, and prophylaxis in case of breast cancer accounted for 0.7% of cases (Table 1).

Table 1: Frequency of hysterectomy indications

Indications	Frequency	Percentage
Symptomatic uterine fibroid	99	33.1
Malignant lesions	61	20.4
Gestational Trophoblastic Disease	32	10.7
Pelvic organ prolapse	25	8.4
Cervical dysplasia	23	7.7
Ovarian cysts or benign tumors	20	6.7
Endometrial hyperplasia	16	5.3
DUB	6	2
Adenomyosis	5	1.7
Suspicion of leiomyosarcoma	4	1.3
Endometrial polyp	4	1.3
PID	2	0.7
Prophylaxis	2	0.7

On histopathology, a number of cases harboured more than one type of lesion, and each type of lesion was counted. Specimens designed as having normal histology did not reveal any other findings except cervicitis. On histopathology, leiomyoma was the commonest pathology, followed by malignant lesions (Table 2).Cases of pelvic organ prolapse showed mainly cervical ulceration and endometrial atrophy on histology, five of them showed incidental cervical dysplasia, three of them showed incidental endometrial hyperplasia, three others showed incidental small leiomyomata, and two of them incidental foci of adenomyosis.

Table 2: Histopathological diagnoses frequency

Histopathological lesion	Frequency	Percentage
Leiomyoma	123	35
Malignant lesions	59	16.8
Cervical dysplasia	34	9.7
GTD	28	8
Ovarian cysts or benign tumors	28	8
Endometrial hyperplasia	23	6.5
Adenomyosis	21	6
Cervical ulceration + endometrial atrophy	15	4.3
Retained products of conception	6	1.7
Endometrial polyp	5	1.5
Age related degenerative changes	4	1.2
Normal histology	3	0.8
Endometrial atrophy	2	0.5

The clinical diagnosis was confirmed by the final pathologic diagnosis in 83% of all cases of hysterectomy. Table 3 shows the confirmation percentage of different types of lesions. Of the six cases with the clinical diagnosis of DUB, two showed adenomyosis and leiomyomas at histology, two others showed adenomyosis alone, one showed adenomyosis and cervical dysplasia, and the

last one showed intramural leiomyomas.

Of the four cases with suspicion of leiomyosarcoma, none was confirmed as leiomyosarcoma on histopathology. They were all leiomyomas on histology, and one of them showed additional foci of adenomyosis. For the two cases of clinical diagnosis of PID, one of them was leiomyoma and the other was endometrial hyperplasia on histopathology.

The correlation between clinical diagnosis and histopathology was strong and significant, with a correlation coefficient of 0.724, and the significance level<0.05, using Pearson correlation. Among all 299 hysterectomy specimens, 42 specimens showed incidental lesions. No malignant lesion seen among the incidental lesions (Table4).

Table 3: Confirmation percentages of different diagnoses

Lesion	Confirmation percentage
Ovarian cysts or benign cysts	100
Uterine fibroid (leiomyoma)	99
Ovarian cancer	93.7
GTD	87.5
Cervical dysplasia	87
Endometrial cancer	71.4
Endometrial hyperplasia	62.5
Endometrial polyp	50
Adenomyosis	40

Table 4: Incidental lesions frequency

Type of lesion	Frequency	Percentage
Adenomyosis	11	26.2
Endometrial hyperplasia	10	23.8
Benign ovarian cysts	7	16.6
Cervical dysplasia	6	14.3
Leiomyoma	6	14.3
Endometrial atrophy	2	4.8

Discussion

A high proportion of patients who underwent hysterectomy, in our study, were 40-49 years, this correlates with the demographic findings of similar studies done in Nigeria [13], in India [14], and in Pakistan [15]. The majority of women in our study were multiparous, at an age where they had most likely completed their family size, a finding similar to results of the studies in Nigeria [6], and in Pakistan[15]. Women with such a profile are more readily considered as candidates for hysterectomy [13]. Only one woman among our cases was under 30 years of age. This woman was multiparous and underwent hysterectomy for adenomyosis. One woman was nulliparous, she was 40 years old, was presenting menorrhagia, infertility and severe pelvic pain. In this case, the hysterectomy was done due to adenomyosis as indication, and it was confirmed at histopathology.

The most common presenting symptom was menorrhagia, which was similar to the observation by Domblae V et al. in India [8], and Jaleel R et al. in Pakistan [15]. In our study, there were more benign indications compared to malignant indications, a finding similar to the observation of studies in Nigeria [13] and in Pakistan [3]. Symptomatic uterine fibroids were the most common indication, a finding similar to results of the studies in Nigeria [13], India [16], Pakistan [15], and Nepal [17]. Uterine fibroid has been found to be the number one indication for hysterectomy in many studies [3].

In our study, the second most common indication was the malignant lesions of the female reproductive organs. This is close to the observation from Nigeria [6], as malignant lesions were number three after uterine fibroid and uterovaginal prolapse. On the contrary, Jaleel R et al., observed, in Pakistan, that malignant conditions were among the least common indications of hysterectomy [15]; this may be due to a variation in the pattern and distribution of the types of gynecologic diseases between the study populations.

Pelvic prolapse was among the most common indications, a finding that goes along with the observation of other studies, in Nigeria [6], in India [9], and in Bangladesh [18]. Cervical dysplasia accounted for 7.7% of all the indications, a close finding was observed in Nigeria [6]. Cervical dysplasia should not be an indication of hysterectomy [2].

On histopathology, leiomyoma was the most common lesion, a finding which was observed from several other studies [3]. Malignant lesions and cervical dysplasia were the following common histopathological findings, an observation similar to the finding of a study in Nigeria [6]. GTD was among the five commonest histological lesions, a finding similar to the observation by a study in Yemen [4]. Lesions found incidentally on histopathology included adenomyosis which was the most common incidental lesion, endometrial hyperplasia, benign ovarian cysts, cervical dysplasia, and small fibroids, findings which go along with the observation by Siwatch S et al., in India [16].

Overall, 83% of the indications were confirmed by histology. Jaleel R et al. had a confirmation of 85% [15]. A high confirmation rate was observed for ovarian cysts and benign tumors, leiomyoma, ovarian cancer, cervical dysplasia, and GTD, a finding compatible with the observation by Jaleel et al. [15]. A low confirmation rate was seen for adenomyosis, DUB, and PID. Jaleel R et al. found a low confirmation for DUB, but for adenomyosis, the confirmation was high [15]. This may be explained by the availability of MRI; the gold standard diagnostic tool for adenomyosis, in the institution where their study was conducted.

Conclusions

A great proportion of the histopathological lesions diagnosed in hysterectomy specimens consist of benign lesions. Uterine leiomyomata account for more than one-third of all the lesions. Other benign lesions include ovarian cysts and benign tumors, cervical dysplasia, partial and complete hydatidiform mole, endometrial hyperplasia, adenomyosis, and endometrial polyp.The correlation between the clinical diagnoses and the histopathological diagnoses in hysterectomy specimens is strong and significant. Adenomyosis is the most common incidental lesion detected in hysterectomy specimens. Cases diagnosed as DUB preoperatively were found to have concurrent lesions, such as uterine leiomyomata and cervical dysplasia that could have been diagnosed preoperatively.

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