Histopathological Analysis of Hysterectomy Specimens in A Tertiary Care Centre: A Retrospective Study

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Abstract

The uterus is a reproductive organ that is susceptible to the development of several non-neoplastic and neoplastic diseases in women. Despite a variety of treatment options, such as medication and conservative surgical techniques, hysterectomy remains the most common gynecological procedure performed globally. Numerous conditions such as abnormal uterine bleeding, pelvic pain, pelvic inflammatory disease (PID), prolapse of the uterus, adenomyosis, endometriosis, fibroids, gynecological malignancies, and obstetric problems are the indications for hysterectomy. Hysterectomy samples must be examined histopathologically for the final diagnosis. This study is to identify the various clinical indications, and analyze the clinicopathological correlation in hysterectomy specimens. This study was conducted in the Department of Pathology at the Sree Mookambika Institute of Medical Science, Kanyakumari, from January 2024 to December 2024. All types of hysterectomy specimens received during this year were examined. Histopathological examination was performed, and various lesions in the hysterectomy specimens were examined. The study included all forms of hysterectomy. An analysis of 55 cases of hysterectomy revealed that abdominal hysterectomy was the type of hysterectomy in 39 (70.90%) cases. The proliferative phase endometrium was the most common endometrial pathology, accounting for 21 (38.18%) cases, followed by the atrophic endometrium in 17 (30.90%) cases. Leiomyoma was the most prevalent myometrial lesion, accounting for 26 (47.27%) cases, followed by adenomyosis, accounting for 11 (20%) cases. Chronic cervicitis was the most common incidental finding in the hysterectomy samples, accounting for 42 (76.36%) cases. Follicular cysts, representing 11 (20%) cases, were the most common ovarian lesions, followed by serous cystadenoma in 3 (5.45%) cases. Two cases of malignant tumors were noted: one case of endometrial carcinoma and one case of mucinous cystadenocarcinoma of the ovary. In most cases, ranging from 70% to 100%, the final histopathological diagnosis supports the preoperative clinical diagnosis. Hysterectomy is the most common major gynecological surgery. Although histological studies and clinical diagnoses are closely correlated, several lesions, including chronic cervicitis and adenomyosis, were discovered incidentally.

INTRODUCTION

Histopathological examination of the specimens obtained after hysterectomy is important for both diagnosis and treatment. The current work is aimed to identify the various clinical indications, and to analyze the clinicopathological correlation in hysterectomy specimens.

MATERIALS AND METHODS

Study Design: This is a hospital-based retrospective observational study.

Place and Duration of Study: This study was carried out in the Pathology Department at Sree Mookambika Institute of Medical Science, Kanyakumari, from January 2024 to December 2024.

Sample Size: A total of 55 women who presented to the obstetrics and gynecology department of the Sree Mookambika Institute of Medical Science, Kanyakumari, with a clinical diagnosis of female genital tract lesions, were enrolled in the study.

Inclusion Criteria: The study included all forms of hysterectomy, including abdominal, vaginal, laparoscopic, and total abdominal hysterectomy, with or without unilateral or bilateral salpingectomy or salpingo-oophorectomy.

Exclusion Criteria: Obstetric hysterectomy was the only exclusion criterion for this study.

Data Collection: The documentation included the patient's name, age, sex, clinical appearance, and differential diagnosis, along with a detailed clinical history and information from the gynecological request form.

Study Procedure: The samples were gathered and sent to the histopathology section of the pathology department. From the patient's case report, a succinct summary of the pertinent clinical history and results was taken. The samples received were fixed with 10% neutral buffered formalin. The samples were grossly examined and sectioned. In case if required, representative sections from anomalous regions were also taken. H&E staining was performed. The slides were all examined under a microscope. Statistics were conducted after taking note of the results.

Statistical Analysis: The tabulated results were subjected to statistical analyses. Statistical analysis was used to determine the type of lesion, the incidence rate, and the percentage in each age group. After entering the data into Microsoft Excel (Microsoft Corporation, Redmond, Washington, United States), statistical analysis was performed.

RESULTS AND DISCUSSIONS

This study included 55 patients. The age distribution of the hysterectomy specimens is presented in Table 1. Hysterectomies were performed in women aged between 25 and 75 years of age. The majority of cases, 23 (41.37%) of these 55 cases, occurred between the ages of 35 and 45 years, followed by 16 (29.09%) cases between the ages of 45 and 55 years. The least number of cases, 3 (5.45%), were between the ages of 65 and 75 years.

According to Table 2, vaginal hysterectomy was the second most prevalent type of hysterectomy, with 18cases (32.72%), while the most frequent type of hysterectomy performed was total abdominal hysterectomy with unilateral or bilateral salpingo-oophorectomy,whichrepresented37cases(67.27%). The indications for hysterectomies range from irregular menstruation to possible pelvic malignancies. Table 2 shows the number of hysterectomy indications. Most of the patients had a fibroid uterus, which accounted for 16(29.10%)cases, followed by uterovaginal prolapse, comprising 14 (25.45%) cases, and dysfunctional uterine bleeding, comprising 12 (21.81%) cases.

Table 3 shows the distribution of histological findings of the endometrium. The most common finding was the endometrium of the proliferative phase in 21 (38.49%) cases (Figure 1). The atrophic endometrium was then more frequently associated with uterovaginal prolapse, seen in 17 (30.90%) cases. Secretory phase endometrium was observed in 10 cases (18.49 %). In 2 (3.94%) cases, the endometrium showed a polyp. In 3 (5.45%) cases, simple endometrial hyperplasia was observed, and in 1 (1.81%), atypia-related endometrial hyperplasia was noted. Out of 55 cases, a 1 (1.81%) was diagnosed as endometrial endometrioid carcinoma, which on microscopic examination, showed a back-to-back arrangement of endometrial glands with cytological dysplasia along with stromal invasion.

Table 4 illustrates the distribution of myometrial lesions, among which leiomyoma was the most common histopathological finding in 25 cases (45.45 %). Microscopy revealed well-defined tumors composed of oval to spindle-shaped cells with elongated blunt-ended nuclei and a modest amount of eosinophilic cytoplasm. The cells were arranged in the form of interlacing fascicles and bundles (Figure 2). Some leiomyomas exhibited secondary modifications such as hyaline degeneration and myxoid degeneration. The next most common finding was adenomyosis, which was observed in 11 (20%) cases. Few cases had both leiomyoma and adenomyosis, seen in 9 (16.36%).

As shown in Table 5, chronic cervicitis was the most common cervical lesion, comprising 42 (76.36%) cases (Figure 3). Chronic cervicitis with squamous

Table 1: Age distribution of hysterectomy specimens (N=55)

Age group (years)	Number of cases(N)	Percentage(%)
25–35	7	12.72
35–45	23	41.37
45–55	16	29.09
55–65	6	11.37
65–75	3	5.45
Total	55	100

Table 2: Hysterectomy type and indication (N= 55)

Hysterectomy type	Indication	Number of) cases(N	Percentage (%)
	Fibroid	16	29.10
Total abdominal hysterectomy(TAH) with	Dysfunctional uterine bleeding		
unilateralorbilateral salpingo-oophorectomy	(DUB)	12	21.81
	Ovarian mass	9	16.36
	Cervical fibroid	4	7.28
Vaginal hysterectomy	Uterovaginalprolapse	14	25.45
	Total	55	100

Table 3:Distribution of histological findings of endometrium(N=55)

Histopathological diagnosis	Number of cases(N)	Percentage (%)
Proliferative phase	21	38.49
Secretor phase	10	18.49
Endometrial hyperplasia without a typical	3	5.45
Endometrial hyperplasia with a typical	1	1.81
Endometrial polyp	2	3.94
Atrophic endometrial	17	30.90
Endometrial carcinoma	1	0.95
Total	55	100

Table 4: Distribution of Myometrial Lesions Diagnosed on Histopathology (n=55)

Histopathological diagnosis	Number of cases (N)	Percentage(%)
Leiomyoma	25	45.45
Adenomyosis	11	20
Leiomyoma + adenomyosis	09	16.36
Normal histology	10	18.18
Total	55	100

Table 5: Distribution of cervical lesions diagnosed on histopathology (N = 55)

Histopathological diagnosis	Number of cases (N)	Percentage (%)
Chronic cervicitis	42	76.36
Chronic cervicitis with squamous metaplasia	6	10.90
Papillary endocervicitis	3	5.45
Cervical fibroid	2	3.63
Normal histology	2	3.63
Total	55	100

Histopathological diagnosis	Number of cases (N)	Percentage (%)
Follicular cyst	11	20
Luteal cyst	3	5.45
Serouscystadenoma	3	5.45
Mucinouscystadenoma	1	1.82
Mucinouscystadenocarcinoma	1	1.82
Mature teratoma	1	1.82
Normal histology	35	63.64
Total	55	100

metaplasia was observed in 6 patients (10.90 %). 3 (5.45%) cases were papillary endocervicitis and 2 (3.63%) cases were cervical fibroids.

Table 6 shows that in the present study, most of the cases (36 of 55) showed normal ovarian histology. There were 14 (25.45%) cases of non-neoplastic lesions and 5 (9.09%) cases of neoplastic lesions in the ovaries. Non-neoplastic lesions included follicular cysts, the most common finding observed in 11 (20%) cases (Figure 4), followed by luteal cysts in 3 (5.45%).

Neoplastic lesions included serous cystadenoma as the most common finding in 3 (5.45%) cases, followed by 1 (1.82%) case each of mature teratoma, mucinous cystadenoma, and mucinous cystadenocarcinoma.

The correlation between the preoperative clinical diagnosis and the histopathological diagnosis is shown in (Table 7). In 55 patients, a preoperative clinical diagnosis was available. In most cases, ranging from 70% to 100%, the final histopathological diagnosis supports the preoperative clinical diagnosis. In the current study, a total of two cases of malignant tumors were observed, one case of endometrial carcinoma and one case of mucinous cystadenocarcinoma.

Hysterectomy is the most prevalent gynecological operation worldwide. It is an effective procedure to alleviate symptoms and provide patient contentment and offers a permanent solution for many disorders affecting the uterus and adnexa[6]. In this study, the age range of the patients was 25 to 75 years, with a mean age of 50.86 +/- 6.9 years. According to Verma et al.[7] the mean age was 50.1 years, while Adelusolaetal[8]. study had a mean age of 49.1 years. In the current study, women between the ages of 35 and 45 years were the most frequently subjected to hysterectomies, which is similar to other studies[9-12]. In the present study, abdominal hysterectomy represented 79 (71.82%) cases and was the surgical procedure performed most frequently, while vaginal hysterectomy accounted for 31 cases (28.19%). In a study by Mackenzieal[13]., abdominal hysterectomy was preferred in 79% of the cases and vaginal hysterectomy in 17% of the cases. Studies by Sachin et al.[14], Pandey et al.[15], Sujatha et al.[16], and Gupta et al.[17] revealed that the most common hysterectomy procedure was total abdominal hysterectomy. Data from the United Kingdom reveal that abdominal hysterectomy procedures are five to six times more common than vaginal hysterectomy procedures. In a study by Pandyaetal[18]., vaginal hysterectomy was the surgical procedure most commonly used in comparison to abdominal hysterectomy.

In our study, fibroids were the most frequent indication of hysterectomy, followed by uterovaginal prolapse, abnormal menstrual cycles, and abdominal masses. According to a study conducted in the United States by Broder et al.[19], fibroids (60%) and prolapse (11%) were the two most common indications. Similar results were found in studies conducted by Jandial[20] and Ullah et al.[21]. Even according to studies by Butt et al.[22], Tiwana et al.[23], Abe et al.[24], and Leung et al. [25], uterine fibroid was the most common indication of hysterectomy. In a study conducted by Verma et al.[7] in Uttar Pradesh, India, uterovaginal prolapse (37.5%) and fibroid uterus (25.6%) were shown to be the most common indications. However, a study by Canadian researchers Toma et al.[26] found that dysfunctional

Pre-operative diagnosis	Number of cases (N)	Histopathological diagnosis	
		Number of cases(N)	Percentage (%)
Fibroid	16	14	84.85
Adenomyosis	2	2	100
Serouscystadenoma	5	7	70
Dermoidcyst	1	1	100
Utero vaginal prolapsed	15	15	100
Cervical fibroid	2	2	100

uterine bleeding was the most common indication, followed by uterine fibroid.

The proliferative endometrium (39.7%), which is frequently associated with pathological lesions such as fibroids and adenomyosis, was the most frequent endometrial lesion identified in the present study, followed by the atrophic endometrium (32%), which was frequently observed in postmenopausal women with uterovaginal prolapse. This finding is similar to that of Patil et al.[27], in which the proliferative phase endometrium was the most common endometrial lesion, followed by the atrophic endometrium. Atrophic endometrium was the most prevalent endometrial pathology identified in the study by Kleebkaow et al.[28], who estimated its frequency to be 3.8%. However, Awale et al.[29] observed a greater frequency of atrophic endometrium in their investigation, which was 26.53%.

In our study, leiomyoma was shown to be more frequent than adenomyosis, which has also been observed in studies by Neelgund et al.[30] and Khurshid et al.[31]. In our study, the most frequent incidental finding, chronic cervicitis, was observed in 77.28% of the patients. According to the studies done by Patil et al.[27], Talukder et al.[32], and Khunte et al.[33], the most frequent finding among cervical lesions is chronic cervicitis. The most frequent ovarian lesion observed was a simple follicular cyst, which is consistent with other previous studies by Nausheen et al.[3], Pandey et al.[15], and Perveen et al.[34]. The most frequent benign tumor was a simple serous cystadenoma. The mature cystic teratoma and the mucinous cystadenoma had one case each. There was a case of malignant mucinous cystadenocarcinoma. In the current study, a histopathological evaluation of the fallopian tubes revealed no abnormal lesions. Other studies revealed that the most frequent ovarian abnormalities in their studies were cysts with varied morphologies [30,34,35].

Most of the preoperative clinical diagnoses in our study were supported by histopathological reports, with aproportion ranging from 70% to 100%. Jaleel et al.[36] reported findings that are almost identical to ours. The preoperative clinical diagnosis of adenomyosis, dermoidcyst, uterovaginal prolapse, and cervical fibroid shows 100% correlation with histopathological reports. The only limitation of the current study was the lack of follow-up.

CONCLUSIONS

The present study offers a good understanding of the histopathological patterns of lesions in hysterectomy specimens from our institution. The most prevalent uterine pathology is leiomyoma; the most prevalent ovarian lesionisafollicular cyst; and chroniccervicitisisthemostfrequentlyfoundincidentalf indinginthecervix in hysterectomy specimens. A total of two cases of malignant tumors are noted: one case of endometrial carcinoma and one case of mucinous cyst adenocarcinoma of the ovary. Few lesions, including chronic cervicitis and adenomyosis, are discovered purely as incidental findings, although histo pathological analysis and clinical diagnoses generally correlate well. To ensure better postoperative management, it is imperative that every hysterectomy specimen, even if it superficially appears to be normal, be subjected to a thorough histo pathological examination.

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