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PROSPECTIVE EVALUATION OF HISTOPATHOLOGICAL OUTCOMES FOLLOWING HYSTERECTOMY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Hysterectomy is one of the most commonly performed gynecological surgical procedures worldwide and is frequently undertaken for various benign uterine conditions. Histopathological examination of hysterectomy specimens is essential for confirming the clinical diagnosis, identifying associated lesions, and evaluating the appropriateness of surgical intervention. This study was conducted to evaluate the histopathological outcomes of hysterectomy specimens and correlate them with the preoperative clinical diagnosis.

Methodology: A prospective observational study was conducted in the Department of Pathology in collaboration with the Department of Obstetrics and Gynaecology at Sree Mookambika Institute of Medical Sciences, Kulasekharam, from May 2025 to December 2026. A total of 150 patients who underwent elective abdominal or vaginal hysterectomy for benign gynecological conditions were included. Detailed clinical history, examination findings, imaging studies, and preoperative diagnoses were recorded. All hysterectomy specimens were subjected to detailed histopathological examination, and the findings were correlated with the clinical indications. Statistical analysis was performed using SPSS version 26.0.

Results: The majority of patients belonged to the 41–50 years age group (42%). Menorrhagia was the most common presenting complaint (70.6%). Leiomyoma of the uterus was the most frequent clinical indication for hysterectomy (52%), followed by dysfunctional uterine bleeding (30%). Histopathological examination confirmed leiomyoma as the most common lesion, either alone or in association with adenomyosis, chronic cervicitis, cervical intraepithelial neoplasia, and endometrial hyperplasia. Adenomyosis was the predominant histopathological finding among cases clinically diagnosed as dysfunctional uterine bleeding.

Conclusion: Leiomyoma and adenomyosis were the most common histopathological lesions in hysterectomy specimens. Histopathological examination remains the gold standard for confirming clinical diagnoses and detecting associated or incidental lesions. Routine evaluation of all hysterectomy specimens is essential for accurate diagnosis and optimal patient management.

Keywords: Hysterectomy, Histopathology, Leiomyoma, Adenomyosis, Dysfunctional Uterine Bleeding, Clinicopathological Correlation.

INTRODUCTION

Hysterectomy, defined as the surgical removal of the uterus, is one of the most frequently performed major gynecological procedures worldwide. It is undertaken for a variety of benign and malignant gynecological conditions and remains an important treatment modality when conservative management fails or is contraindicated.

that can affect a woman's quality of life. In addition, the procedure carries risks of intraoperative and postoperative complications, making appropriate patient selection and accurate preoperative diagnosis essential. [1]

Hysterectomy is the second most common gynecological surgical procedure after cesarean section. The prevalence of hysterectomy varies considerably across different countries and healthcare settings. In India, the reported prevalence ranges from 4% to 6%, whereas higher rates of 10% to 20% have been documented in developed nations.[2] According to estimates from the United States, more than 600,000 hysterectomies were performed annually, with approximately 90% undertaken for benign gynecological disorders.[3] Despite advances in minimally invasive techniques and conservative treatment options, hysterectomy



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Although hysterectomy is often curative, it is associated with significant physical, psychological, social, economic, and psychosexual consequences

continues to play a central role in the management of several uterine and adnexal pathologies.

At present, hysterectomy can be performed through abdominal, vaginal, or laparoscopic approaches. The choice of surgical technique depends on factors such as the underlying pathology, uterine size, patient comorbidities, surgeon expertise, and available resources. Among these approaches, abdominal hysterectomy remains the most commonly performed procedure in many tertiary care centers, particularly in developing countries.[4]

The common indications for hysterectomy include uterine leiomyoma (fibroid uterus), abnormal uterine bleeding, dysfunctional uterine bleeding, adenomyosis, endometriosis, pelvic inflammatory disease, genital prolapse, endometrial hyperplasia, chronic pelvic pain, dysmenorrhea, menorrhagia, and gynecological malignancies.[5] Hysterectomy may also be performed as a life-saving procedure in cases of severe postpartum hemorrhage and other obstetric emergencies. The decision to perform hysterectomy is generally based on clinical evaluation, imaging findings, and response to medical management. However, discrepancies may exist between preoperative clinical diagnoses and postoperative histopathological findings.[6]

Histopathological examination of hysterectomy specimens is considered the gold standard for confirming the underlying pathology and evaluating the appropriateness of surgical intervention. It provides valuable information regarding the nature, extent, and coexistence of lesions involving the uterus, cervix, endometrium, myometrium, fallopian tubes, and ovaries. Histopathological assessment not only confirms the preoperative diagnosis but may also reveal incidental or unsuspected lesions that can influence postoperative management and prognosis.[7]

A thorough evaluation of histopathological findings in hysterectomy specimens helps in understanding disease patterns, assessing the correlation between clinical indications and pathological diagnoses, and improving decision-making regarding surgical management. Therefore, the present study was undertaken to prospectively evaluate the histopathological outcomes of hysterectomy specimens in patients undergoing hysterectomy at a tertiary care hospital and to analyze the spectrum of pathological lesions encountered in these specimens.

Aim

To evaluate the histopathological findings in hysterectomy specimens and correlate them with the clinical indications for hysterectomy in patients undergoing the procedure at a tertiary care hospital.

Objectives

1. To study the demographic and clinical profile of patients undergoing hysterectomy.
2. To determine the various clinical indications for hysterectomy.

3. To evaluate the histopathological spectrum of lesions in hysterectomy specimens involving the uterus, cervix, endometrium, myometrium, fallopian tubes, and ovaries.
4. To correlate the preoperative clinical diagnosis with postoperative histopathological findings.

MATERIALS AND METHODS

This prospective observational study was conducted in the Department of Pathology in collaboration with the Department of Obstetrics and Gynaecology at Sree Mookambika Institute of Medical Sciences, Kulasekharam, Tamil Nadu, from May 2025 to December 2026. The study included a total of 150 patients who underwent hysterectomy during the study period. Prior approval was obtained from the Institutional Ethics Committee, and informed written consent was obtained from all participants before enrollment in the study.

All patients who underwent elective abdominal hysterectomy or vaginal hysterectomy for benign gynecological conditions during the study period were included in the study. Patients undergoing hysterectomy for malignant gynecological conditions, emergency hysterectomy, and hysterectomy performed by minimally invasive approaches such as laparoscopic or robotic-assisted techniques were excluded from the study.

A detailed clinical history was obtained from each patient, including demographic data, presenting symptoms, menstrual history, obstetric history, and relevant medical and surgical history. A thorough general physical examination and gynecological examination were performed. Preoperative investigations, including routine hematological and biochemical tests, ultrasonography, and other relevant imaging studies, were reviewed to establish the clinical diagnosis and indication for hysterectomy.

Following surgery, all hysterectomy specimens, with or without adnexal structures, were received in the Department of Pathology and subjected to detailed gross examination. Representative tissue sections were processed routinely and stained with hematoxylin and eosin. Histopathological examination was performed to identify and characterize lesions involving the cervix, endometrium, myometrium, fallopian tubes, and ovaries. The histopathological findings were correlated with the preoperative clinical diagnosis and indications for surgery.

Data were entered into Microsoft Excel and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics were used to summarize demographic characteristics, clinical indications, and histopathological findings. Continuous variables were expressed as mean \pm standard deviation, whereas categorical variables were presented as

frequencies and percentages. The association between clinical diagnosis and histopathological findings was assessed using the Chi-square test or Fisher's exact test wherever applicable. A p-value of

less than 0.05 was considered statistically significant.

RESULT

Table 1: Age Distribution

Age group (years)	No. of patients, (n=150)	Percentage (%)
30-40	28	18.66%
41-50	63	42%
51-60	32	21.33%
61-70	15	10%
More than 70	12	8%

Table 2: Distribution of Cases According To Presenting Complaints.

Presenting complaints	No. of patients	Percentage (%)
Menorrhagia	106	71
Dysmenorrhoea	60	40
Excessive prevagina discharge	22	15
Lump in lower abdomen	18	12
Dyspareunia	13	9
Pelvic pain	42	28

Table 3: Preoperative Clinical Diagnosis

Clinical diagnosis	No. of patients	Percentage (%)
Leiomyoma of the uterus	78	52
Dysfunctional uterine bleeding	45	30
Adenomyosis	10	7
Endometriosis	9	6
Pelvic inflammatory disease	4	3
Endometrial polyp	1	1

Out of 78 cases clinically diagnosed as leiomyoma of the uterus, histopathology revealed leiomyoma in 76 cases, adenomyosis in 3 cases and chronic cervicitis in 2 case. Leiomyoma was associated

with chronic. Cervicitis in 18 cases (25%), with adenomyosis in 7 cases (9.62%), with CIN-I in 6 cases (7.69%) and associated with endometrial hyperplasia is 3 cases (3.77%).

Table 4: Histopathological Diagnosis in Clinically Diagnosed Cases of Leiomyoma

Clinical diagnosis	Histopathological diagnosis	No. of patients	Percentage (%)
Liomyoma of uterus (78)	Leiomyoma alone	39	50
	Leiomyoma of the uterus with chronic cervicitis	19	25
	Leiomyoma with adenomyosis	7	9.62
	Leiomyoma with CIN-I	6	7.69
	Adenomyosis with chronic cervicitis	3	3.77
	Leiomyoma with endometrial hyperphasia	3	3.77
	Chronic cervicitis	2	1.87

Table 5: Histopathological Diagnosis in Clinically Diagnosed Cases of Dysfunctional Uterine Bleeding.

Clinical diagnosis	Histopathological diagnosis	No. of patients	Percentage (%)
functional uterine bleeding (45)	Leiomyoma	4	10
	Adenomyosis	13	30

	Leiomyoma with adenomyosis	7	16.67
	Adenomyosis with chronic cervicitis	3	6.67
	Endometrial polyp	3	6.67
	Disordered proliferative and atrophic endometrium	3	6.67
	Chronic cervicitis	2	3.33
	Cystic hyperplasia	2	3.33

Table 6: Uterine Pathologies Identified In 150 Cases of Hysterectomy.

Pathology identified	No of patients (N=150)	Percentage (%)
Leiomyoma of uterus	43	29
Adenomyosis	16	11
Chronic cervicitis	3	2
Endometrial hyperplasia	4	3
Endometrial polyp	1	2
Combined pathology	79	53

DISCUSSION

The present study evaluated the histopathological outcomes of hysterectomy specimens and correlated them with the preoperative clinical diagnosis. Hysterectomy remains one of the most commonly performed gynecological surgeries for the management of various benign uterine conditions. Histopathological examination of hysterectomy specimens plays a crucial role in confirming the clinical diagnosis and identifying coexisting or incidental pathologies.[8]

In the present study, the majority of patients belonged to the 41–50 years age group (42%), followed by 51–60 years (21.33%). Similar age distribution has been reported in previous studies, where the peak incidence of hysterectomy was observed during the perimenopausal period. This may be attributed to the higher prevalence of symptomatic uterine lesions such as leiomyoma, adenomyosis, and abnormal uterine bleeding during this age group.[9,10] A slight predominance of patients from rural areas was observed, which may reflect the healthcare-seeking pattern and referral practices in the study region.

Menorrhagia was the most common presenting complaint, affecting 70.6% of patients, followed by dysmenorrhea and excessive vaginal discharge. Similar observations have been documented by Gupta et al. and Rather et al., who reported abnormal uterine bleeding as the leading symptom prompting hysterectomy.[11,12] Chronic blood loss and associated symptoms often significantly impair the quality of life, leading patients to opt for definitive surgical treatment.

Leiomyoma of the uterus was the most common preoperative clinical diagnosis, accounting for 52% of cases, followed by dysfunctional uterine bleeding and adenomyosis. Leiomyomas are the most

frequent benign tumors of the female genital tract and represent a major indication for hysterectomy worldwide.[13] Histopathological examination confirmed leiomyoma in the majority of clinically diagnosed cases, demonstrating good clinicopathological correlation.

Among patients clinically diagnosed with leiomyoma, histopathology revealed isolated leiomyoma in 50% of cases, while several specimens demonstrated associated lesions such as chronic cervicitis, adenomyosis, cervical intraepithelial neoplasia (CIN-I), and endometrial hyperplasia. Similar coexistence of multiple pathological conditions has been reported in previous studies, highlighting the importance of routine histopathological evaluation of all hysterectomy specimens.[14] The presence of concomitant lesions may contribute to symptom severity and influence patient outcomes.

In patients clinically diagnosed with dysfunctional uterine bleeding, adenomyosis emerged as the most frequent histopathological finding, either alone or in combination with leiomyoma. These findings are consistent with previous reports demonstrating that adenomyosis is often underdiagnosed clinically and is frequently detected only after histopathological examination.[15] The discrepancy between clinical and pathological diagnoses emphasizes the limitations of preoperative assessment and the necessity for histological confirmation.

Chronic cervicitis was one of the most common associated cervical lesions identified in the present study. Similar findings have been reported by several authors, who observed chronic inflammatory changes in the cervix as incidental findings in hysterectomy specimens.[16] Histopathological examination also identified premalignant lesions

such as CIN-I, underscoring its role in detecting clinically unsuspected pathology.

Overall, the study demonstrated a strong correlation between clinical indications and histopathological findings. Leiomyoma and adenomyosis were the predominant pathological lesions, while chronic cervicitis represented the most common associated cervical pathology. Histopathological examination remains the gold standard for confirming the diagnosis, evaluating associated lesions, and ensuring appropriate postoperative management. Therefore, all hysterectomy specimens should undergo meticulous histopathological evaluation to establish definitive diagnosis and identify incidental pathological findings that may have clinical significance.[17].

CONCLUSION

The present study demonstrated that hysterectomy remains an important therapeutic procedure for the management of various benign gynecological disorders, particularly in women of the perimenopausal age group. The most common clinical indication for hysterectomy was leiomyoma of the uterus, followed by dysfunctional uterine bleeding and adenomyosis. Menorrhagia was the predominant presenting symptom among the study participants.

Histopathological examination confirmed leiomyoma as the most frequent pathological lesion and revealed a significant number of associated conditions, including adenomyosis, chronic cervicitis, cervical intraepithelial neoplasia, and endometrial hyperplasia. Adenomyosis was frequently identified in patients clinically diagnosed with dysfunctional uterine bleeding, highlighting the limitations of clinical diagnosis alone.

A strong clinicopathological correlation was observed in most cases; however, histopathological evaluation also detected several incidental and coexisting lesions that were not suspected preoperatively. These findings emphasize the indispensable role of histopathological examination in establishing the definitive diagnosis, validating the indication for surgery, and identifying additional pathological abnormalities that may influence patient management.

Therefore, routine histopathological examination of all hysterectomy specimens is strongly recommended, as it provides valuable diagnostic information, ensures quality assurance of clinical practice, and contributes to optimal postoperative care and patient outcomes.

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