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Research Article

Study of Histopathological Lesions in Hysterectomy Specimens at Tertiary Care Hospital

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ABSTRACT

Background: Hysterectomy is one of the most commonly performed gynaecological surgical procedures for the management of various benign and malignant uterine conditions. Histopathological examination of hysterectomy specimens plays a vital role in confirming clinical diagnosis and identifying unsuspected lesions.

Materials and Methods: This retrospective and prospective observational cross-sectional descriptive study was conducted in the Department of Histopathology at Pravara Rural Hospital for 2 years duration. A total of 512 hysterectomy specimens received during the study period were analysed. Specimens were processed using standard histopathological techniques, stained with haematoxylin and eosin, and examined microscopically. Lesions of endometrium, myometrium, and cervix were classified according to Robbins Basic Pathology.

Results: Out of 9340 specimens received, 512 (5.48%) were hysterectomy specimens. The majority of patients were in the age group of 41–50 years (40.6%). Proliferative endometrium (56.83%) was the most common endometrial finding. Leiomyoma (26.56%) and adenomyosis (23.04%) were the predominant myometrial lesions. Chronic nonspecific cervicitis (91.4%) was the most frequent cervical lesion. Malignant lesions were relatively rare.

Conclusion: Most hysterectomy specimens showed benign histopathological lesions, highlighting the importance of routine histopathological examination for accurate diagnosis, detection of incidental lesions, and appropriate patient management.

Keywords: Hysterectomy, Histopathology, Leiomyoma.

INTRODUCTION

Hysterectomy is one of the most commonly performed gynaecological surgical procedures worldwide for the management of various benign and malignant uterine and adnexal conditions. (1) It is indicated in a wide range of clinical conditions such as abnormal uterine bleeding, uterine fibroids, adenomyosis, endometriosis, pelvic inflammatory disease, uterine prolapse, and gynaecological malignancies. Despite advances in conservative and minimally invasive treatment modalities, hysterectomy remains a definitive therapeutic option in many cases where medical management fails or when malignancy is suspected. (2,3)

Histopathological examination of hysterectomy specimens plays a crucial role in confirming the preoperative clinical diagnosis, identifying incidental lesions, and detecting unsuspected pathological conditions. It provides valuable information regarding the spectrum and frequency of uterine, cervical, endometrial, and adnexal pathologies, thereby guiding postoperative management and prognosis. Moreover, correlation between clinical indications and histopathological findings helps in evaluating the appropriateness of hysterectomy and improving diagnostic accuracy. (4, 5, 6)

In tertiary care hospitals, where a large number of patients with diverse gynaecological disorders are managed, analysis of histopathological patterns in hysterectomy specimens provides important epidemiological and clinical insights. Such studies contribute to better understanding of disease prevalence, patient characteristics, and regional variations

in gynaecological pathology. (7) Therefore, the present study aims to evaluate the histopathological spectrum of lesions in hysterectomy specimens and correlate them with clinical indications in a tertiary care hospital setting

MATERIALS AND METHODS

Our study was conducted as a retrospective and prospective observational cross-sectional descriptive study in the Department of Histopathology at Pravara Rural Hospital over a period of two years. All hysterectomy specimens received in the histopathology department during the study period were included. The specimens were received in formalin, documented, numbered, and processed according to standard laboratory protocols. After gross examination and serial sectioning, the specimens were fixed in 10% formalin to prevent autolysis and ensure proper fixation. Following 24 hours of fixation, detailed gross examination was performed and representative sections were taken from the endometrium, myometrium with serosa from fundus and body, and cervix. Additional sections were obtained from any visible pathological lesions, with a minimum of three sections from each lesion. At least two sections were obtained from the cervix, including endocervix, ectocervix, and transformation zone from both lips of the cervix.

The tissue samples were processed using an automated tissue processor. The tissues were dehydrated in graded concentrations of ethyl alcohol, cleared in xylene, and embedded in paraffin wax. The processing schedule included fixation in 10% formal saline, followed by sequential dehydration in 70%, 80%, 90%, and absolute alcohol, clearing in three changes of xylene, and impregnation in molten paraffin wax. Proper labelling of paraffin blocks was ensured throughout the process. Paraffin sections of 3–4 µm thickness were cut using a microtome, stretched in a flotation bath containing 50% alcohol to prevent wrinkling, and further spread in a hot water bath maintained at 46–50°C. The sections were then mounted on clean glass slides coated with Mayer's egg albumin as an adhesive and dried in a hot air oven.

The prepared sections were subjected to Haematoxylin and Eosin (H&E) staining. The sections were first dewaxed in xylene and rehydrated through descending grades of alcohol. They were then stained with Harris haematoxylin, washed in running tap water, differentiated using 1% acid alcohol, and subsequently counterstained with water-soluble eosin. The stained sections were dehydrated through ascending grades of alcohol, cleared in xylene, and mounted using DPX. Proper staining quality was ensured, with nuclei appearing blue and cytoplasm appearing pink.

Finally, the stained slides were examined under a light microscope for histopathological evaluation. The findings were documented and analysed to identify various pathological lesions of the uterus and cervix. The histopathological diagnoses were correlated with clinical indications wherever available, and the data obtained were compiled and subjected to descriptive analysis.

RESULTS

A total of 9340 specimens were received for histopathological examination during the study period, of which 512 (5.48%) were hysterectomy specimens. The lesions were classified according to Robbins Basic Pathology (9th edition). The most common age group was 41–50 years, and the most frequent lesions involved endometrium, myometrium, and cervix.

Table 1: Age Distribution of Cases (n = 512)

Age Group (Years)	Number of Cases	Percentage (%)
21–30	29	5.7
31–40	161	31.4
41–50	208	40.6
51–60	63	12.6
61–70	45	8.8
71–80	6	1.2
Total	512	100

Table 2: Histopathological Lesions of Endometrium (n = 512)

Endometrial Changes	Number of Cases	Percentage (%)
Proliferative phase	291	56.83

Secretory phase	68	13.28
Atrophic endometrium	100	19.53
Decidualization	9	1.75
Endometritis	3	0.58
Endometrial hyperplasia	16	3.12
Endometrial polyp	18	3.51
Carcinoma endometrium	7	1.36
Total	512	100

Table 3: Histopathological Lesions of Myometrium (n = 512)

Myometrial Changes	**Number of Cases**	**Percentage (%)**
No specific pathology	191	37.29
Hypertrophy with hyperplasia	9	1.75
Leiomyoma	136	26.56
Adenomyosis	118	23.04
Leiomyoma with adenomyosis	47	9.17
Leiomyosarcoma	1	0.19
Carcinoma infiltration	10	1.95
Total	512	100

Table 4: Histopathological Lesions of Cervix (n = 512)

Cervical Changes	**Number of Cases**	**Percentage (%)**
Unremarkable	26	5.07
Chronic nonspecific cervicitis	468	91.40
Cervical polyp	9	1.75
Cervical dysplasia	5	0.97
Carcinoma cervix	4	0.70
Total	512	100

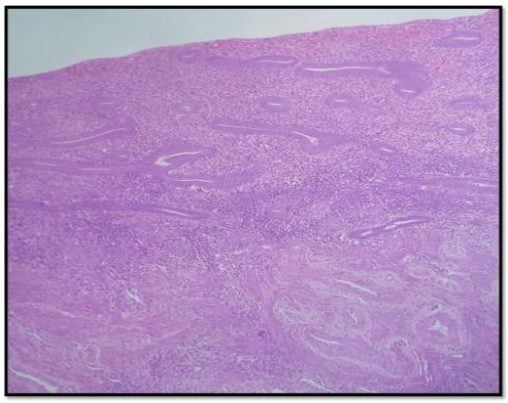

Figure 1) Proliferative Phase Endometrium 100x Tubular Glands Lined By Regular Tall Pseudostratified Columnar Epithelium

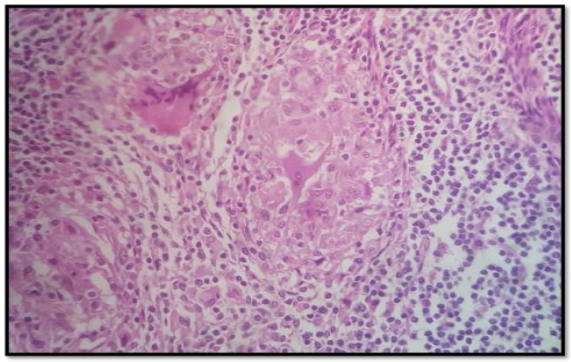

Figure 2) 400x Tubercular Endometritis with Giant Cell and Granuloma Formation

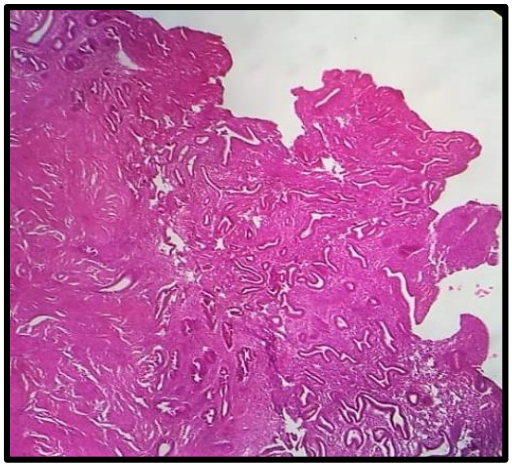

Figure 26. 100x Papillary Hyperplasia of Endometrium

DISCUSSION

Hysterectomy remains one of the most frequently performed gynecological surgical procedures for the management of both benign and malignant conditions of the uterus and adnexa. The present study evaluated the histopathological spectrum of lesions in hysterectomy specimens over a two-year period and analyzed the distribution of endometrial, myometrial, and cervical lesions along with age-related patterns. The findings of this study provide valuable insight into the prevalence and pattern of gynecological pathologies in patients undergoing hysterectomy at a tertiary care center. (8, 9)

In the present study, the majority of hysterectomy cases were observed in the age group of 41–50 years (40.6%), followed by 31–40 years (31.4%), with a mean age of 45 years. These findings are consistent with several previous studies, which have reported that hysterectomy is most commonly performed in the perimenopausal age group due to increased incidence of abnormal uterine bleeding, fibroids, and adenomyosis. The low frequency of hysterectomy in younger age groups may be attributed to preference for conservative management, while fewer cases in older age groups may reflect postmenopausal hormonal changes leading to reduced gynecological morbidity.

Endometrial lesions in the present study were predominantly non-neoplastic, accounting for the majority of cases. Proliferative endometrium was the most common finding (56.83%), followed by atrophic endometrium (19.53%) and secretory phase endometrium (13.28%). These findings reflect the normal cyclical hormonal changes and functional status of the endometrium in perimenopausal women. Atrophic endometrium was more frequently observed in postmenopausal women and may present clinically with abnormal uterine bleeding. Endometrial hyperplasia was observed in 3.12% of cases, which is considered a precursor lesion for endometrial carcinoma and warrants careful evaluation. Endometrial carcinoma was detected in 1.36% of cases, indicating a relatively low incidence of malignancy compared to benign conditions. The presence of decidualization in obstetric hysterectomy specimens highlights the role of hysterectomy in emergency obstetric management. (10, 11, 12)

Myometrial lesions showed that leiomyoma was the most common pathology (26.56%), followed by adenomyosis (23.04%) and coexistence of leiomyoma with adenomyosis (9.17%). These findings are comparable with other histopathological studies, where leiomyoma is consistently reported as the most frequent indication for hysterectomy. Leiomyomas are estrogen-dependent benign tumors commonly seen in reproductive age women and often present with menorrhagia, pelvic pain, and mass effect. Adenomyosis, another common finding, results from ectopic endometrial glands within the myometrium and is associated with dysmenorrhea and abnormal uterine bleeding. A significant proportion of cases (37.29%) showed no specific myometrial pathology, which may indicate functional uterine disorders or early disease not evident histologically. Malignant lesions such as leiomyosarcoma and carcinoma infiltration were rare, highlighting the predominance of benign conditions. (13, 14)

Cervical lesions in this study were mainly non-neoplastic, with chronic nonspecific cervicitis being the most common finding (91.4%). Chronic inflammation of the cervix is frequently encountered in multiparous women and may be

related to recurrent infections, poor genital hygiene, or trauma. Benign lesions such as cervical polyps and dysplasia were observed in a small proportion of cases. The incidence of carcinoma cervix was low (0.7%), which may reflect effective screening practices or early detection and management.

CONCLUSION

In conclusion, our present study demonstrates that most hysterectomy specimens showed benign lesions, with proliferative endometrium, leiomyoma, adenomyosis, and chronic cervicitis being the most common findings. Histopathological examination remains the gold standard for confirming clinical diagnosis, detecting unsuspected lesions, and guiding postoperative management. The study emphasizes the importance of routine histopathological evaluation of all hysterectomy specimens for accurate diagnosis and improved patient care.

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