



CLINICO-PATHOLOGICAL CORRELATION OF HYSTERECTOMY SPECIMENS

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ABSTRACT

Background: Hysterectomy is the most common gynaecological procedure performed worldwide. For centuries, the female reproductive system has been affected by various abnormalities and diseases and hence has been the subject of interest and the basis for the gynaecological practice. The uterus being a vital reproductive and hormone-responsive organ, is subjected to a variety of physiological changes and benign and malignant disorders.

Aims and Objectives: To study the indications of hysterectomy, to study gross and histopathological features of uterus and cervix in hysterectomy specimens, correlate with clinical findings and to identify the most common pathology in hysterectomy specimens.

Material and Methods: This was a descriptive study of the gross and histopathological findings of uterus and cervix in 200 hysterectomy specimens received in the department. The hysterectomy specimens received were fixed in 10% formalin for 24 hours, were examined grossly and necessary sections were obtained. The tissue pieces were then processed in automated tissue processor, well labelled paraffin blocks were made. Approximately 2-3 thickness sections were cut with the help of microtome and were stained routinely by Hematoxylin & Eosin stain and special stains like PAS or other were used wherever necessary. The histopathological findings of uterus and cervix were noted and these findings were then correlated with clinical diagnosis.

Results: Overall clinicopathological correlation was noted in all 200 cases. In cases of uterine fibroid it was 77.77% and 100% in case of endometrial carcinoma, cervical dysplasia and cervical carcinoma. Most common pathology found was uterine leiomyomas in 63 cases and next to it was adenomyosis in 39 cases.

Conclusion: This study confirmed that benign diseases were more common in hysterectomy specimens than in their malignant counterparts. It can be concluded that clinico-pathological correlation in case of endometrial cancer and uterine fibroid is excellent, but in case of DUB and prolapse uterus it varies. This signifies the importance of clinico-pathological correlation in all cases of hysterectomy to improve the clinical outcome and post-operative management.

KEYWORDS : Hysterectomy, Histopathology of Uterus and Cervix, Leiomyoma, Uterine prolapse, Adenomyosis, Dysfunctional uterine bleeding

INTRODUCTION

The female genital tract consists of uterus, cervix, the ovaries and fallopian tubes which under hormonal influence is prone to develop many benign and malignant lesions in all age groups leading to significant mortality and morbidity in females. The uterus consists of the endometrium and myometrium¹, which are continuously stimulated by hormones, denuded monthly of its endometrial mucosa and inhabited periodically by foetuses.

Together with the lesions that affect the cervix, the lesions of the corpus of the uterus and the endometrium account for most patient visits to gynaecologists¹. Many treatment options are available nowadays including medical and conservative surgical procedures but hysterectomy remains the most preferred method to manage gynaecological disorders².

Hysterectomy means removal of uterus. The abdominal removal of the uterus is called 'total abdominal hysterectomy' while the removal of the uterus by the vaginal route is termed as 'vaginal hysterectomy'. It was first performed in 1507 by Berengarius of Bologna through the vaginal route. But the credit for first vaginal hysterectomy was given to Langen, back in 1813. The first total abdominal hysterectomy with bilateral salpingo-oophorectomy was done by Clay in 1844.

Most common indications for which hysterectomy is being done are dysfunctional or abnormal uterine bleeding, uterine fibroids, uterine prolapse, endometriosis and adenomyosis³. Histopathological examination of hysterectomy specimens carries diagnostic and therapeutic significance. The study was proposed to analyse the patterns of lesions in hysterectomy specimens, to find out the different clinical indications and to analyse the clinicopathological correlation in hysterectomy specimen.

AIMS AND OBJECTIVES

- To assess the clinical findings in women who had undergone hysterectomy
- To study the pathological changes in abdominal hysterectomy specimens.
- To correlate the clinical indication with their histopathological findings.
- To identify the most common pathology in hysterectomy specimens.

MATERIAL AND METHODS

The present study is the descriptive study of the gross and histopathological findings of uterus and cervix in 200 hysterectomy specimens received in the department of pathology of a tertiary health care centre over a period of 3 years that is from January 2017 to December 2019. Hysterectomy specimens of female patients with age ranged from 31 to 73 years and with uterine and cervical indications for hysterectomy irrespective of route and type of surgery were included in the study. On the other side, any obstetrical specimens or specimens with tubal or ovarian pathology were excluded from the study.

The hysterectomy specimens received were immediately transferred into 10% fresh formalin in the ratio of 1:10. After 24 hours fixation, the specimen was examined grossly and necessary sections were obtained from uterus that includes endometrium, myometrium and serosa from fundus, body and lower uterine segment. Additional bits were taken depending on the pathology present, if any, which included a minimum of 3 sections from the lesion.

Similarly, minimum 2 bits were obtained from cervix that includes endocervix and ectocervix from both lips of cervix.

Minimum 3 sections from the lesion, if any, were also obtained. The tissue pieces were then processed in automated tissue processor and then paraffin blocks were made and care was taken to ensure proper labelling of the paraffin blocks. Hematoxylin & Eosin stain and special stains like PAS or other were used wherever necessary.

An elaborate and detailed examination of the lesion was done to arrive at a definite and accurate diagnosis and these findings were then correlated with clinical diagnosis. Patient's age, clinical presentation and pre-operative clinical indication and the type of hysterectomy were reviewed. A correlation between age, clinical findings, USG findings, type of surgical resections and histopathological examination was done.

RESULTS

Total of 200 cases were studied in the study period. Age of patients ranged from 31 to 73 years. Vaginal bleeding was the commonest presenting symptom (Table 1).

Table 1. Age distribution of all hysterectomies.

Age	Number of cases	Percentage
31-40	66	33.00
41-50	97	48.50
51-60	17	08.50
61-70	13	06.50
71-80	07	03.50

The peak age incidence of hysterectomy was noted in the 5th decade in 97 cases (48.5%).

Table 2. Distribution of cases as per type of hysterectomy.

Type of hysterectomy	Number of patients	Percentages
Total abdominal Hysterectomy with USO	33	16.50
Total abdominal Hysterectomy with BSO	79	39.50
Vaginal Hysterectomy	45	22.50
Total abdominal Hysterectomy	26	13.00
Laprosopic Assist. Vaginal Hysterectomy	09	04.50
Laprosopic Assist. Vaginal Hysterectomy USO	03	01.50
Laprosopic Assist. Vaginal Hysterectomy BSO	05	02.50

The most common type of hysterectomy was total abdominal hysterectomy with bilateral salpingo-oophorectomy with 79 cases (39.50%). Least number of cases were of laparoscopy assisted vaginal hysterectomy with unilateral salpingo oophorectomy in 3 cases (1.5%) (Table 2).

Table 3. Clinical indications provided for hysterectomy.

Sr. No.	Clinical Indication or diagnosis	No. of cases	Percentage (%)
1.	Fibroid Uterus	81	40.50
2.	Prolapse Uterus	49	24.50
3.	Dysfunctional Uterine Bleeding	35	17.50
4.	Carcinoma Cervix	02	01.00
5.	Carcinoma Endometrium	02	01.00
6.	Cervical dysplasia	09	04.50
7.	Pyometra	03	01.50
8.	No diagnosis offered	19	09.50

The most common clinical indication included is fibroid uterus in 81 cases (40.5%) (Table 3).

Table 4. Endometrial change in all 200 specimens.

Sr No.	Endometrial Changes	No. of cases	Percentage (%)
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1.	Proliferative Phase (PP)	100	50.00
2.	Secretory Phase (SP)	24	12.00
3.	Simple hyperplasia	23	11.50
4.	Complex hyperplasia	06	03.00
5.	Atrophy/Cystic atrophy	40	20.00
6.	Progestational activity	04	02.00
7.	Carcinoma Endometrium	03	01.50

In case of endometrial findings, proliferative phase of endometrium was the commonest finding in 100 cases (50.0%), followed by atrophy or cystic atrophy in 40 cases (20.0%). Iatrogenic change (Progestational activity) in endometrium was also noted in 4 cases. Three cases (1.5%) of endometrial carcinoma were also noted. Endometrial polyp was seen in 6 cases (Table 4).

Table 5. Myometrial change in specimens.

Sr No.	Myometrial change	No. of cases	Percentage (%)
1.	Leiomyoma(LM)	51	25.50
2.	Adenomyosis	25	12.50
3.	LM / LM Polyp + Adenomyosis	12	06.00
4.	Adenomyosis + Calcific Sclerosis	02	01.00
5.	Monckebergs' Calcific sclerosis	07	03.50
6.	Adenomyoma	03	01.50
7.	LMS(Leiomyosarcoma)	02	01.00
8.	Involvement by endometrioid adenocarcinoma	02	01.00
9.	Unremarkable	96	48.00

In case of myometrium, 63 leiomyomas were noted, out of which, 5 cases were of leiomyomatous polyp arising from endometrial canal. Next to it was adenomyosis in 39 cases. In case of leiomyomas, 9 were benign cellular leiomyomas and twelve cases showed degenerative changes. Three cases of adenomyomas were also studied. Two interesting case of low grade leiomyosarcoma in a 39 year old patient was also studied, as it is unusual to find leiomyosarcoma in a reproductive age group. In two case, myometrium was invaded by endometrioid adenocarcinoma.

Table 6. Histopathological findings in cervix.

Sr. No.	Cervical Changes	No. of cases	Percentage (%)
1.	Chronic nonspecific Cervicitis	151	75.50
2.	Chronic Papillary Endocervicitis	34	17.00
3.	Cervical dysplasia	09	04.50
4.	Condyloma acuminata	02	01.00
5.	Squamous Cell Carcinoma	02	01.00
6.	Metastasis of adenocarcinoma	02	01.00

On histomorphological study of cervical lesions, chronic nonspecific cervicitis was commonest finding in 151(75.5%) cases. Two case of condyloma acuminatum was also studied. Mild cervical dysplasia (CIN - I) was noted in 9 (4.5%) cases. In two cases invasive non keratinizing squamous cell carcinoma of cervix was noted whereas metastasis of endometrioid adenocarcinoma was seen in two cases.

Table-7: Correlation of Clinical Diagnosis with Histopathological Diagnosis.

Preoperative Diagnosis	No of cases	Histopathological diagnosis	
		No of cases	%
Fibroid Uterus	81	63	77.77

Prolapse Uterus	49	49	100
Dysfunctional Uterine Bleeding	35	17	48.57
Carcinoma Cervix	02	02	100
Carcinoma Endometrium	02	02	100
Cervical dysplasia	09	09	100
Pyometra	03	03	100

DISCUSSION

This study was conducted to analyse the patterns of lesions in hysterectomy specimens in our institution and to correlate the histological findings with the clinical indications and to compare our finding with the other researchers. Hysterectomy is a major and common surgery performed in the obstetrics and gynaecology (OBG) department. The procedure is done for various causes, it can be lifesaving in some cases as in ruptured uterus and can provide permanent relief in many non-neoplastic lesions. The indication of this should be proved histopathologically.

Histopathological examination of the specimen has both diagnostic and therapeutic value. In OBG practice, variety of condition warrant the removal of uterus which do not show any gross and microscopic pathology on examination by the pathologist. Normal uterus may be removed in the treatment of malignancies involving ovaries, fallopian tube, vagina and cervix. Other non-malignant conditions like dysfunctional uterine bleeding, pelvic inflammatory disease, endometriosis, pelvic organ prolapse, chronic pelvic pain and pelvic tuberculosis may require removal of normal uterus.

In this study of 200 hysterectomies, the most common route of hysterectomy was the abdominal route. The most common procedure was TAH with unilateral/bilateral salpingo oophorectomy (56%) followed by vaginal hysterectomy (22.50%). TAH with bilateral salpingoophorectomy (39.50%) was found to be the commonest type of hysterectomy, and commonest age group involved was 41–50 years in our study which is similar to results noted in studies conducted by Ajmera et al⁴ and Abdullah et al⁵, MacKenzie IZ et al, Sachin AK et al and by Deeksha Pandey et al.^{6-8]}

The age of the patient studied in this particular study ranged from 31 to 73 years, the mean age being 51.76±4.9 years. A study conducted by Adelusola K et al⁹ had mean age of 49.1 years and study done by Deepti Varma et al¹⁰ had mean age of 50.1 years [11-13]. The most common indication for the hysterectomy in this study was fibroids (40.50%), followed by mass per vagina (24.50%), and irregular menstrual cycles (17.50%). It was similar to studies done by Ajmera et al.⁴, Gupta et al.¹¹, Khan R et al.¹²

The commonest presenting complaints in our study were menorrhagia followed by polymenorrhagia. It is well established that perimenopausal age group and high parity are associated with these symptoms. This was also seen by Shergill SK et al,¹³ who found that abnormal menstrual flow was the commonest complaint in 66% cases and main indication for hysterectomy was leiomyoma 36(44.4%) cases. Similar is found in studies by Sujata et al and leung PL followed by endometrial hyperplasia (16%), DUB 8 (10%) cases.^{14,15} Commonest indication was fibroid and DUB (26%), in study by Shergill SK.¹³ Jha R¹⁶ found that leiomyoma was the indication in 24.9% cases¹⁵. In contrast a study by G Gupta shows uterovaginal prolapse the most common indication followed by leiomyoma.¹¹

Only few studies have compared pre-operative clinical diagnosis with histopathology of hysterectomy specimens. We have found that 72.5% of our preoperative diagnosis were confirmed on histopathology and like uterovaginal prolapse, carcinoma cervix, carcinoma endometrium, cervical dysplasia and pyometra have 100% diagnosis confirmed on histopathology and same was reported by G Gupta et al.¹¹ Lee

NC found that out of 1283 women studied, 80% of the pre-operative diagnosis was confirmed in the potentially confirmable group.¹⁷ Millar studied 246 hysterectomy specimens and found that clinical diagnosis was confirmed in 50% cases. Chronic cervicitis is an extremely common condition in adult female, at least at the microscopic level, chronic cervicitis was commonest finding in our study 151(75.5%) which was an incidental finding.

Chronic cervicitis is an extremely common condition in adult female, at least at the microscopic level, chronic cervicitis was commonest finding in our study 151(75.5%) which was an incidental finding. followed by leiomyoma (31.5%). Leiomyoma was the second most common histopathological diagnosis and in our study clinical correlation for pre-operative diagnosis of 81 cases of fibroid was 77.77%. Similar to our study, study conducted by Talukder et al had chronic cervicitis (87.8%) as histological finding followed by leiomyoma.¹⁸ No clinical diagnosis was offered in 19 (9.5%) cases of hysterectomy. Adenomyosis was the third common finding in 39(19.5%) cases. Adenomyosis is rarely diagnosed preoperatively and is still largely under diagnosed as it has no specific symptoms of its own¹⁹. It is usually diagnosed after hysterectomy by histopathological examination. Transvaginal ultrasonography can be helpful in good hands in diagnosing adenomyosis. In the present study, only two case out of thirty nine had a preoperative clinical diagnosis of adenomyosis; other cases either presented with menorrhagia or were an incidental finding. Some of the specimens showed more than one lesions in the uterus and in this study 12 cases revealed the presence of both leiomyoma and adenomyosis. Other cases have presented either with menorrhagia or were incidental findings. Same was reported by Riffat Jaleel et al and Gousia et al.

The commonest endometrial lesion noted in the present study was proliferative endometrium (50.0%) which is most commonly associated with pathological lesions like fibroids and adenomyosis. Atrophic endometrium (20%) was commonly seen in uterovaginal prolapse in postmenopausal women. We observed only two cases of malignant tumour of endometrium which comprised of endometrioid carcinoma.

Pre-operative diagnosis of dysfunctional uterine bleeding (DUB) was made in 17.5% cases. On histopathological examination only one case had cystic glandular hyperplasia which is consistent with the diagnosis of DUB while rest of the patients undergoing hysterectomy with this diagnosis showed adenomyosis, endometrial polyp, secretory endometrium and disordered proliferative endometrium. Endometrial hyperplasia was seen in 14.5% cases in present study. This finding is similar to study by Ranabhat et al.¹⁹ In the present study, endometrial cancer was noted in three cases.

Leiomyosarcoma is the most common pure sarcoma of the uterus. Two cases of leiomyosarcoma was seen in our study. The distribution was similar to study done by Watts et al. in 0.4%.² Nine cases of cervical dysplasia (CIN – 1) were studied in the present study. It is similar to the study done by Ramachandran et al²⁰. Three cases of cervical leiomyoma were also studied. Similar studies were also done by Tian J et al²¹. Two cases of condyloma acuminatum was also studied. Two cases (1.0%) of squamous cell carcinoma of cervix was also seen. This distribution was similar to studies by Watts et al and Ranabhat et al^{19,2}.

Hysterectomy like any other surgery is associated with complications and also is it the organ of self-being for women, both of which is the cause of dissatisfaction. Hence, the reason for hysterectomy should always be justified. Broder et al evaluated the appropriateness of recommendations for hysterectomies done for benign disease and revealed that

70% (n=367) of hysterectomies didn't meet the level of care of recommendation by the expert panel²². This finding raised an eyebrow on the need of hysterectomy, and that actually there may be misuse or overused of hysterectomy. We found that in 181 (90.5%) patients, there was histopathological evidence for need of hysterectomy, this was similar to the study where hysterectomy was justified in 91.37-98.9% patients.³ There are different organ preserving options including myomectomy, embolization (fibroid or uterine artery), endometrial ablation, polypectomy and so on. Depending on the disease pattern, facility and expertise availability these organ-preserving options should be explored rigorously before opting for hysterectomy. We believe that, in our study 19 (9.5%) hysterectomies could have been avoided because some of these patients didn't have significant pathology on histopathological examination and in other, the disease might have been amendable to the organ preserving surgery. However, it is necessary to emphasize that three (1.5%) patients whom we had operated for benign disease turnout to have malignancy on histopathological examination, so wherever there is high index of suspicion, hysterectomy may be justified.

CONCLUSION

The present study provides a limelight on various histopathological changes in hysterectomy specimens. Various types of lesions are encountered when hysterectomy specimens are subjected to histopathological examination. In this descriptive study done in our institution the most common lesion seen after histopathological analysis of hysterectomy specimen was leiomyoma. Benign lesions were more common than their malignant counterparts. Though the histopathological analysis correlates well with the clinical diagnoses, i.e. 77.77% in the cases of leiomyoma and 100% in malignancy, quite a few lesions like chronic cervicitis and adenomyosis were encountered as pure incidental findings. Thus, it is mandatory to study each hysterectomy specimen to ensure better postoperative management

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