

Histopathological spectrum of hysterectomy specimens and its correlation with clinical diagnosis at a tertiary care centre

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Abstract

Background: The uterus is the vital organ of female reproductive system which holds the fetus during pregnancy. Diseases of uterus has been broadly grouped into inflammatory, benign and malignant lesions. In our study hysterectomy specimens were studied and results were compared with their clinical diagnosis. Primary aim of our study was to correlate the histopathological features of the disease with its clinical diagnosis. **Material & Methods:** This was a retrospective study and included 277 hysterectomy specimens received over 2 year periods. Patient data was retrieved from the medical records and histopathology requisition form which included age, clinical findings, histopathological diagnosis, indication of hysterectomy and type of hysterectomy done. Histopathological findings from the cervix, endometrium, myometrium, ovaries and fallopian tubes of each and every hysterectomy specimen were noted. **Result:** A total of 277 cases were analyzed. Patient's age ranged from 16 to 85 years thus included reproductive age group, perimenopausal and post- menopausal women. In our study most common indication for hysterectomy was abnormal uterine bleeding in 33.9 % cases followed by fibroid in 22% cases. The commonest chief complaint was heavy menstrual bleeding in 35.0% cases followed by abdominal pain in 32.5% cases. Majority of the patients were in 36-45year age group. **Conclusion:** Majority of the hysterectomy cases post - operatively were consistent with the clinical diagnosis, histopathological examination is still the gold standard test to diagnose and rule out malignancy and compulsory for all the surgical specimens.

Key words: Hysterectomy, Histopathological correlation, perimenopausal

Introduction

The uterus is vital organ of female reproductive system which holds the fetus during pregnancy. Diseases of the uterus has been broadly grouped into inflammatory, benign and malignant lesions. These included endometritis, pelvic inflammatory disease, adenomyosis, polyps, uterine fibroids and various carcinomas. Clinical diagnosis is made on the basis of symptoms and signs but confirmation is done on histopathological examination of the representative tissue from the lesion. Hysterectomy is one of the most common gynaecological procedures performed all over the world [1]. In spite of the availability of medical and conservative management, hysterectomy remains the

second most frequently performed obstetric surgery after caesarean section in many parts of the world [2]. This is done for many non-neoplastic and neoplastic conditions of uterus. Hysterectomy can be performed by abdominal, vaginal or laparoscopic route and may or may not be accompanied by salpingo-oophorectomy of either one or both sides. Common medical indications of hysterectomy include gynaecological complaints such as fibroid, heavy menstrual bleeding, chronic pelvic pain, pelvic inflammatory disease, uterine prolapse and cancer of the reproductive organs.

In our study hysterectomy specimens were studied and results compared with their clinical diagnosis. Primary aim of our study was to correlate the histopathological features of the disease with its clinical diagnosis. This is

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especially useful when the patient is not improving on symptoms based treatment plan, reflecting the importance of histopathology in clinical practice.

Material and Methods

Approval was obtained from the ethical committee of the institution. The material consists of the hysterectomy specimens which were received in the Department of Pathology of T.S. Misra Medical College and Hospital, Lucknow. A total 277 specimens which were received during time duration of two years from October 2016 to September 2018 were included in the study.

Patient data was retrieved from the medical records and histopathology requisition form which included age, clinical findings, histopathological diagnosis, indication of hysterectomy and type of hysterectomy done. Small biopsies, myomectomy tissues, dilatation and curettage tissue and autolysed samples were excluded from the study.

Histopathological findings from the cervix, endometrium, myometrium, ovaries and fallopian tubes of each and every hysterectomy specimen were noted. Besides the physiological changes in the endometrium (proliferative, secretory and atrophic), chronic cervicitis, functional cysts of ovary (inclusion cysts, follicular cysts, luteal cysts and paratubal cysts) were

Result

During the two year study period 277 hysterectomies were included in our study.

Table-1: Indications for Hysterectomy.

Indication	Number	Percentage
Abnormal Uterine Bleeding	94	33.9%
Fibroid	61	22.0%
Utero vaginal prolapse	32	11.6%
Adenomyosis	30	10.8%
Ovarian cyst	12	4.4%
Endometrial hyperplasia	09	3.2%
Serous/Mucinous cystadenoma	07	2.5%
Cervical Cancer	07	2.5%
Malignant ovarian tumor	06	2.3%
Dermoid cyst	05	1.8%
Endometrial polyp	05	1.8%
Endometrial carcinoma	03	1.1%
Cervical polyp	02	0.7%
Molar Pregnancy	02	0.7%
Precancerous lesions of cervix	02	0.7%
Total	277	100%

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considered histologically 'unremarkable' but noted down and tabulated.

The specimens received in the Pathology Department were properly labelled, numbered and were allowed to fix in 10% buffered formalin for 24-48 hours.

After a detailed gross examination of the specimens, multiple sections were taken from the representative sites, processed and paraffin blocks were prepared. 4 micron thick sections were prepared by microtomy and the sections were stained routinely with Hematoxylin and Eosin stains. Special stains like Ziehl-Neelsen stain and Periodic Acid-Schiff stain were used wherever it was required.

A detailed microscopic examination of the stained slides was carried out and lesions were categorised as following-

Lesions of the uterine corpus which included lesions of the endometrium and the myometrium

- a) Lesions of the cervix.
- b) Lesions of the ovaries.
- c) Lesions of the fallopian tubes.

Subsequently histopathological findings were correlated with their clinical diagnosis.

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The common indications for hysterectomy were abnormal uterine bleeding in 33.9% cases, followed by fibroid in 22%, prolapse in 11.6%, adenomyosis in 10.8% and ovarian cyst in 4.4% cases respectively. Rest 10.7% cases were comprised of endometrial hyperplasia, endometrial polyp, endometrial carcinoma, cervical polyp, precancerous cervical lesions and cervical carcinoma (Table 1).

Table-2: Chief Clinical Presentation.

Chief complaint	No. of Cases	Percentage
Heavy menstrual bleeding	97	35.0%
Pain in abdomen	90	32.5%
Mass per vaginum	32	11.6%
Perimenopausal bleeding	15	5.4%
Postmenopausal bleeding	14	5.1%
Painful menstrual bleeding	27	9.7%
Mass per abdomen	02	0.7%
Total	277	100%

The commonest complaint was heavy menstrual bleeding in 35.0% cases followed by abdominal pain in 32.5% and feeling of mass per vaginum in 11.6% cases. Rest were the cases of disturbed menopausal bleeding (Table

Table-3: Age wise Distribution of Uterine Lesions

Age Group	Total	Percentage (%)	AUB	Fibroid	prolapse	Adenomyosis	Ovarian lesion	Endometrial Lesion	Cervical Lesion
16-25	29	10.5 %	15	05	01	04	03	01	00
26-35	54	19.5%	10	30	03	04	04	02	01
36-45	86	31.0%	38	20	08	06	04	06	04
46-55	56	20.2%	20	02	11	11	05	04	03
56-65	21	7.6%	04	02	05	02	04	02	02
66-75	21	7.6%	03	02	03	03	06	03	01
76-85	10	3.6%	04	00	01	00	04	01	00
Total	277	100%	94	61	32	30	30	19	11

Clinically most of the patients of abnormal uterine bleeding and leiomyomas presented with abdominal pain, disturbed menstrual cycles. Cases when categorized according to the age groups majority (31%) of the patients fell in 36-45 year age group (Table 3).

Table-4: Types of Hysterectomy Procedures

Hysterectomy procedures.	No. of Cases	Percentage
Vaginal hysterectomy (VH)	97	35.0%
TAH with preservation of both tubes and ovaries	84	30.3%
TAH with bilateral salpingo- oophorectomy (BSO)	63	22.8%
TAH with unilateral salpingo- oophorectomy (USO)	33	11.9%
Total	277	100%

Abdominal hysterectomy was the most frequent procedure done. 84 cases (30.3%) were of total abdominal hysterectomy with preservation of both fallopian tubes and ovaries, and 63 cases (22.8%) underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. Cases underwent abdominal hysterectomy with unilateral salpingo-oophorectomy were 33 (11.9%). Vaginal hysterectomy was performed in only 97 cases (35%) (Table 4).

Table-5: Spectrum of Histopathological Findings.

Cervix	Chronic Cervicitis	102
	Nabothian Cyst	82
	Metaplastic Changes	40
	Cervical polyp	04
	Leiomyoma	04
	CIN I	12
	CIN II	06
	CIN III	08
	Cervical Cancer	05
Endometrium	Endometritis	01
	Simple hyperplasia	05
	Complex Hyperplasia	07
	Cystic Glandular Hyperplasia	04
	Atrophic	06
	Pill Endometrium	02
	Disordered proliferative endometrium	01
	Polyp	04
	Molar pregnancy	02
	Carcinoma	04
Myometrium	Adenomyosis	34
	Leiomyoma	67
Ovaries	Cyst	42
	Serous cystadenoma	04
	Mucinous cystadenoma	03
	Benign mature teratoma	06
	Borderline serous	01
	Borderline mucinous	01
	Serous cystadenocarcinoma	02
	Mucinous cystadenocarcinoma	01
Fallopian Tubes	Cyst	12

All the hysterectomy specimens were preserved and histopathological diagnosis was compared with the clinical suspicion.

Most common histopathological finding was chronic cervicitis in 102 cases, followed by Nabothian cyst in 82 cases. Leiomyoma was reported in 71 cases which included 4 cases of cervical leiomyoma. All the cervical leiomyomas were incidental findings. Two cases of pill endometrium were reported.

Least common cases were of endometritis and disordered proliferative endometrium having one case of each (Table 5).

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Table-6: Percentage of Confirmed Preoperative Diagnosis by Histopathological Examination.

Preoperative diagnosis	No. of cases confirmed by histopathology	Percentage
Cervical polyp (n=2)	02	100%
Precancerous cervical lesion(n=2)	01	50%
Cervical cancer (n=7)	05	71.4%
Adenomyosis (n=30)	29	96.7%
Endometrial hyperplasia (n=9)	07	77.8%
Endometrial polyp (n=5)	04	80.0%
Endometrial carcinoma (n=3)	03	100%
Fibroid (n=61)	58	95.1%
Uterovaginal prolapse (n=32)	32	100%
Ovarian cyst (n=12)	10	83.3%
Serous/Mucinous cystadenoma(n=7)	07	100%
Malignant ovarian tumor(n=6)	03	50.0%
Dermoid cyst(n=5)	05	100%
Molar pregnancy (n=2)	02	100%

Prolapse, cervical polyp, molar pregnancy and endometrial carcinoma were confirmed in all the cases. Ovarian cyst was confirmed in 83.3% cases. Leiomyoma and adenomyosis were confirmed in 95.1% and 96.7% cases respectively, while endometrial polyp and endometrial hyperplasia in 80.0% and 77.8% cases. Benign and Malignant ovarian tumors were confirmed histopathologically in 100% and 50.0% of the clinically suspected cases (Table 6).

Table-7: Incidental Histopathological Findings.

Incidental histopathological Findings	No. of Cases
Chronic cervicitis	102
Benign ovarian cyst	30
Dermoid cyst	01
Borderline serous	01
Borderline mucinous	01
Paratubal cyst	12
Endometrial hyperplasia	07
Leiomyoma	06
Cervical polyp	02
Adenomyosis	04
Leiomyoma cervix	04
Disordered proliferative Endometrium	01
Endometrial carcinoma	01

Chronic cervicitis was suspected in none of the cases clinically but it turned out to be present as an incidental finding in 102 cases (Table 7).

Many more lesions and incidental findings, statistically significant were also reported. 42 cases were reported as ovarian cyst. 34 cases were reported as adenomyosis. 18 cases were ovarian tumor of which 6 were reported as benign mature teratoma followed by 4 cases of serous cystadenoma & 2 cases of serous cystadenocarcinoma, 3 cases of mucinous cystadenoma & single case of mucinous cystadenocarcinoma (Fig 1&2). About 2 cases clinically suspected as malignant ovarian tumor were later on reported as borderline ovarian tumors. 26 cases were reported as premalignant lesion of cervix and 5 cases were histopathologically diagnosed as cervical carcinoma (Fig 3 & 4). Four cases were reported as endometrial carcinoma, one of them was subtyped as serous endometrial carcinoma & rest of the 3 cases as endometrioid carcinoma (Fig 6).

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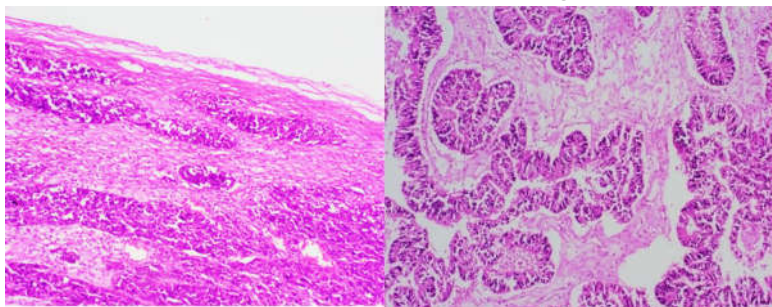


Fig-1 & 2: Mucinous cystadenocarcinoma with invasive small glands and tumor deposits in the parametrium

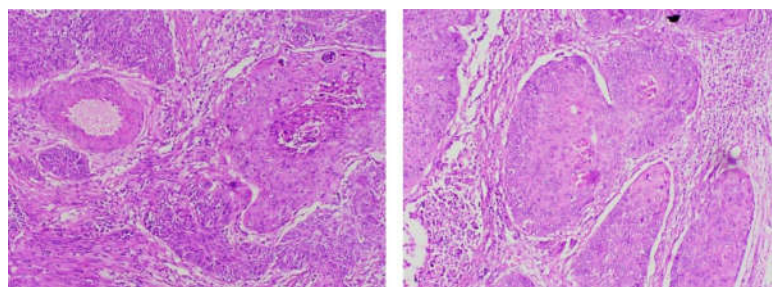


Figure-3 & 4: Cervical adenosquamous carcinoma with both malignant squamous and malignant glandular components

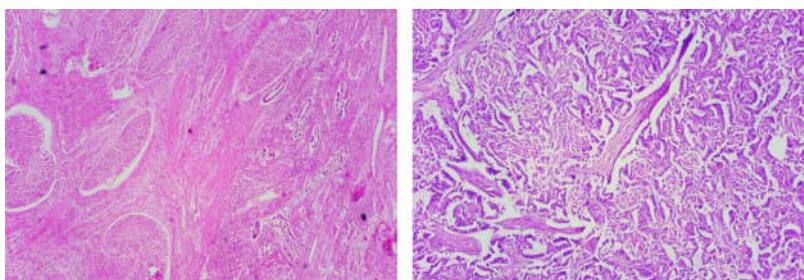


Figure-5: Cervical squamous cell carcinoma spread into myometrium

Figure-6: Endometrioid carcinoma with back to back arrangement of glands

Discussion

Hysterectomy is a surgical procedure to remove the woman's uterus. The surgery is done to treat a number of chronic painful conditions, infections as well as certain types of cancer.

The type and mode of hysterectomy varies depending on the indication for the surgery. Hysterectomy is the most frequently performed major gynaecological surgery throughout the world. It is a successful operation in terms of symptomatic relief and patient satisfaction and provides definitive cure to many diseases affecting uterus as well as adnexae [3]. This study was conducted to analyse the pattern of lesions in hysterectomy specimens in our institution, to correlate the histopathological findings with the clinical indications and to compare our findings with those of other workers.

In our study AUB was the most common indication for hysterectomy constituting about 33.9% in concordance with the studies by Sucheta KL et al [4], Copen hover et al [5], and Dickers et al [6]. Comparison of clinical features showed highest number of patients presented with heavy menstrual bleeding (35.0%), which is comparable with the studies of Allahbadia, Chhabra Zimmermann [7-9]. Most of the cases of heavy menstrual bleeding corresponded with the histopathological diagnosis of leiomyoma. Least number of cases complained of abdominal mass (0.7%) which were later reported as benign ovarian tumor.

Vaginal discharge was a common overlapping clinical complaint in most of the patients and it usually gets untreated because patients don't seek clinical advice [10]. As reported by Singh AJ [10] in their study

vaginal discharge was considered as one of the commonest health problem of women in their reproductive age group. In our area, females don't seek medical advise for white discharge per vaginum until it gets complicated with other lesions of the uterus and come very late when superadded symptoms develops.

The patients were divided into seven groups and most of the patients fell into 36-45 year age group. This age group is a decade earlier for hysterectomy indications as done by most of the other studies [11-13]. The youngest patient aged 16 years and was operated for a large ovarian cyst which was reported as benign cystadenoma on histopathology. The oldest patient was of 83 years was operated for prolapse and histopathology report was consistent with the clinical diagnosis.

The commonest surgical approach in the present study was abdominal hysterectomy (65%) In a study done by Ajmera et al [14] abdominal approach was preferred in 54.4% cases and vaginal route in 38.9% cases followed by laparoscopic removal.

Chronic cervicitis was the most common uterine lesion in our study. It was not an indication for hysterectomy, but was an incidental finding in large number of cases. Chronic cervicitis was also a commonest histopathological finding in the study done by Gousia Rahim Rather et al [15] Leiomyoma was the most common myometrial lesion in our study. Most of the studies done on the histopathological study of hysterectomy specimen till date reveals uterine leiomyoma as the most common tumor noted in the uterus. Studies done by Watts WF et al [16] Abdullah LS [17], and Ranabhat SK et al [18] had shown distribution of leiomyoma being 41.5%, 34.6%, and 30.3% respectively. The present study showed leiomyoma in 71 cases (25.6%) out of which 4 cases were of cervical leiomyoma. Most of the cases of leiomyoma affected the child bearing age group. Leiomyoma has a 70-80% cumulative incidence in childbearing years [19].

Five cases of cervical carcinoma and four cases of endometrial carcinoma were presented among the females of 36-55 year age group. This is in concordance with the study done by Aswathy et al [20], in which the most common age group involved in carcinoma cervix ranged from 35-50 years. Females of cervical carcinoma presented with blood tinged discharge per vaginum and females affected with endometrial carcinoma presented with pelvic pain and heavy/intermittent menstrual bleeding. Total abdominal hysterectomy was done in all these cases to minimise the chances of metastasis.

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In our study, 173 incidental findings were also reported on histopathology. Chronic cervicitis and ovarian cysts were the most common among incidental findings which were missed pre-operatively and was reported after systematic histopathological examination. These cases could have been detected preoperatively and treatment could have been given at an earlier setting. In our study 91.8% of preoperative diagnosis was confirmed by histopathology.

Conclusion

Most of the cases which underwent hysterectomy were for symptomatic untreatable benign conditions and few for malignancies. Majority of the cases were histopathologically consistent with clinical diagnosis, but since many cases were inconsistent and large number of incidental findings especially precancerous lesion, histopathological examination and its correlative study with preoperative clinical diagnosis is very important. Thus, histopathological examination is still the gold standard test to diagnose and rule out malignancy and must be compulsory for all the surgical specimens.

Findings: Nil; **Conflict of Interest:** None initiated

Permission from IRB: Yes

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