



## HISTOPATHOLOGICAL EVALUATION OF HYSTERECTOMY SPECIMENS IN A TERTIARY CARE HOSPITAL- A THREE YEARS RETROSPECTIVE STUDY

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### ABSTRACT

**Aim:** To evaluate histopathologically, the various patterns of lesions in hysterectomy specimens and also to correlate histopathological diagnosis with the clinical indications for hysterectomy.

**Materials & Methods:** A three year retrospective study of total of 514 hysterectomy specimens was conducted from October 2011 to September 2014 in the department of Pathology of a tertiary-care hospital. The various patterns of lesions in hysterectomy specimen were evaluated and histopathological diagnosis of the hysterectomy specimens were compared with their clinical indications.

**Result:** 514 hysterectomy specimens were analyzed. The patient's age ranged between 20 to 80 years with an average age of 48 years old. Most common indication was pelvic inflammatory disease (PID). The most common pathologies identified were simple hyperplasia in endometrium, leiomyoma in myometrium, squamous metaplasia in cervix, corpus luteal cyst in ovaries and hydrosalpinx in fallopian tubes. Overall most common pathology identified was leiomyoma. The pathologic examination confirmed the clinical diagnosis in 92.8% of the cases. Hence, histopathological analysis correlates well with the pre-operative indication for hysterectomy.

**Conclusion:** Pelvic inflammatory disease was the main indication for performing the hysterectomy and leiomyoma was the most common histological diagnosis encountered. Histopathology examination is mandatory for optimal management, especially in cases of neoplasm.

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### INTRODUCTION

Hysterectomy is the most common major gynecological procedure done worldwide with an expected lifetime prevalence of 10%.<sup>[1]</sup> Hysterectomies is considered as a lifesaving procedure in women with certain types of cancer and in acute uterine hemorrhage. It is usually performed to relieve symptoms such as abnormal vaginal bleeding and pelvic pain and is often also performed as a definite management for gynecological diseases such as fibroids, endometriosis, adenomyosis and uterovaginal prolapsed.<sup>[2]</sup>

Histopathological examination of hysterectomy specimens carries diagnostic as well as therapeutic significance.<sup>[3]</sup> The system of reviewing preoperative diagnosis and histopathological report provide an effective means of quality assurance and the appropriateness of surgery.<sup>[4]</sup> Hence, the present study is undertaken to evaluate the various patterns of lesions in hysterectomy specimens by histological examination and also

to correlate them with the clinical indications for hysterectomy. Such histopathological audit can help improve quality of health care services and provide safe conservative treatment option to patients.<sup>[4]</sup>

### MATERIALS AND METHODS

The retrospective study was conducted at the Department of Pathology, of Jawaharlal Nehru Medical College, Belgaum affiliated to KLES Dr. Prabhakar Kore Charitable Hospital during the period October 2011 to September 2014.

Data for the study was obtained from clinical records and request form received with specimens for histopathological examination. The histopathologic data included gross and microscopic findings of the surgical specimens. The surgical specimens were fixed in 10% formalin. 3 to 5 micron thick sections were prepared from paraffin embedded of the routine processed tissue bits from hysterectomy and stained with hematoxylin and eosin (H&E) stain.

All the hysterectomy specimen received in department of pathology during the period mentioned for study were

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included in the study and poorly preserved tissue were excluded from the study. Histopathological diagnoses of the hysterectomy specimens were compared with their clinical indications.

Statistical analysis was performed using SPSS version 16 and data was expressed using descriptive methods and chi square test. Probability (p) value <0.05 was considered significant. Informed consent was obtained. Approval from institutional ethic committee was taken.

**RESULTS**

A total of 514 cases were studied. The average age of the patient was 48years (range: 20 to 80years). The peak age of incidence of hysterectomy was noted in the 4th decade (Figure 1).

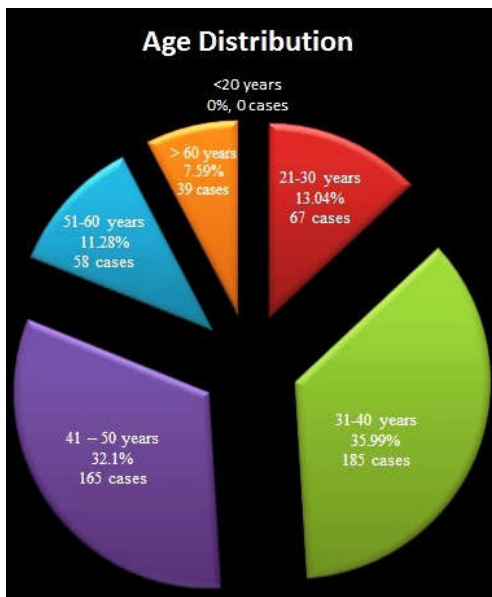


Figure 1 Age distribution

The most common type of hysterectomy was total abdominal hysterectomy without bilateralsalpingo-oophorectomy comprising of 261 cases (50.78%) followed by total abdominal hysterectomy with unilateral salpingo-oophorectomy comprising of 152 cases (29.57%). Least number of cases i.e. 15 (2.92 %) were of total abdominal hysterectomy with unilateral salpingorectomy. (Figure 2)

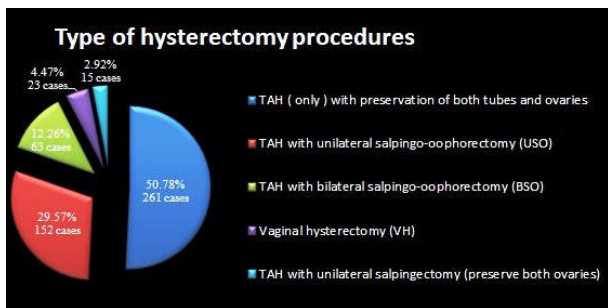


Figure 2 Type of hysterectomy procedures

Preoperative clinical diagnosis was available in 512cases (99.61%). The most common indication for which hysterectomy was done was pelvic inflammatory disease (206, 40.08%). Other indication included were prolapse (133, 25.88%), fibroid (90, 17.51%), DUB (57, 11.09%), ovariain cyst/carcinoma (15, 2.92%), Endometrium carcinoma (7,1.36%), Cervical carcinoma (3, 0.58%), Periparutum

bleeding (1,0.19%). 102cases (20%) had more than one symptoms or pre operative clinical diagnosis. (Figure 3)

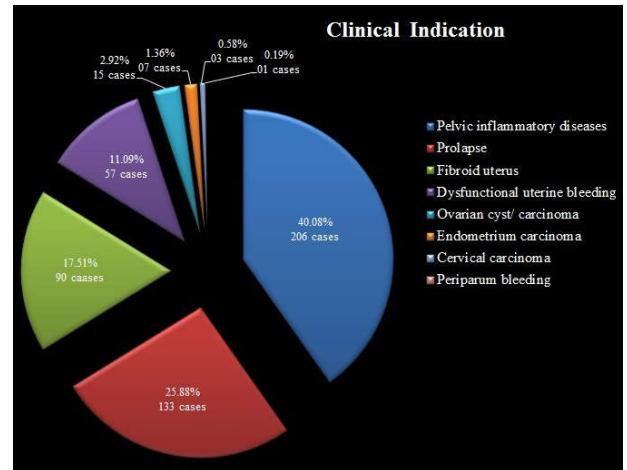


Figure 3 Clinical diagnosis provided with the hysterectomy specimen

Most common endometrial change in the hysterectomy specimens is proliferative phase of endometrium in 235cases (45.72%), followed by secretory changes in 137 cases (26.65%), which is followed by atrophic change in 92 cases (17.90%). The endometrium was histologically unremarkable in most of the cases i.e.464 cases (90.2%). Simple hyperplasia (26 cases, 5.06%) was the most common pathology seen in endometrium, followed by endometrial polyp (19 cases, 3.70%). 8 cases, 1.56% had endometrial carcinoma. (Table 1)

Table 1 Endometrial changes in the hysterectomy specimens

S no	Endometrial changes	No of Cases	Percentage (%)
1.	Proliferative changes	235	45.72
2.	Secretory changes	137	26.65
3.	Atrophic changes	92	17.90
4.	Simple hyperplasia	26	05.06
5.	Endometrial polyp	19	03.70
6.	Endometrial carcinoma	08	1.56
7.	Complex hyperplasia	08	1.56
8.	Complex glandular hyperplasia	05	0.97
9.	Endometritis	04	0.78
10.	Pill endometrium	02	0.38
11.	Decidual reaction	01	0.19
12.	Cervical carcinoma extension	01	0.19

The myometrium was histologically unremarkable in most of the cases i.e. 306 cases (59.53%). The most common pathology encountered in myometrium was leiomyoma 118 cases (22.96%), followed by adenomyosis (58 cases, 11.28%). 35cases (6.8%) had both leiomyoma and adenomyosis. 08 cases (1.56%) had mixed mullerian carcinoma and 08 cases (1.56%) had endometrium carcinoma extension into myometrium. (Table 2)

Table 2 Myometrial changes in the hysterectomy specimens

S no	Myometrial changes	No of Cases	Percentage (%)
1.	Normal	306	59.53
2.	Leiomyoma	118	22.96
3.	Adenomyosis	58	11.28
4.	Atrophic	50	09.73
5.	Endometrial carcinoma extension	08	1.56
6.	Mixed mullerian carcinoma	08	1.56
7.	Ruptured uterus	01	0.19

Majority of the patients' hysterectomy sample showed chronic cervicitis 498 (96.89%). 01 case of extension of endometrial carcinoma into cervix was reported. Other cervical pathology encountered in shown in table 3.

**Table 3** Cervical changes in the hysterectomy specimens.

S no	Myometrial changes	No of Cases	Percentage (%)
1.	Chronic cervicitis	498	96.89
2.	Squamous metaplasia	40	7.78
3.	Nabothian Cyst	18	3.50
4.	Carcinoma Cervix	06	1.17
5.	Cervical Polyp	05	0.97
6.	Moderate dysplasia	04	0.78
7.	Mild dysplasia	04	0.78
8.	Cervical fibroid	02	0.39
9.	Endometrial carcinoma extension	01	0.19
10.	Severe dysplasia	00	0.00

The ovaries and fallopian tubes were histologically unremarkable in most of the cases. The most common ovarian lesion seen was simple cyst [one ovary; 19 (12.50%) and in other ovary 03(04.76%)] as shown in table 4. Most common fallopian tube lesion observed was hydrosalpinx [one fallopian tube; 19 (11.73%) and in other fallopian tube; 04 (05.88%)]. (Table 5)

The final pathological diagnosis confirmed the clinical diagnosis in majority of the cases, ranging from leiomyoma to carcinoma. Correlation of clinical finding with histopathological finding was 92.8% but it was 100% in cases of carcinoma.

**DISCUSSION**

Hysterectomy in our study was performed for varied indication from benign to malignant. Its prevalence in our study was 15%. A study done in Pakistan concluded that hysterectomy rate was 6.6/1000.<sup>[7]</sup> A study done in Zaria stated that the incidence of hysterectomies ranges from 14.3% to 22.7%.<sup>[5]</sup>

Hysterectomy is a most common and successful operation done for patient satisfaction and to relief symptoms. It also provides definitive cure to many diseases involving uterus as well as adnexae like fibroids, dysfunctional uterine bleeding, adenomyosis, endometriosis, pelvic inflammatory disease, pelvic organ prolapse and malignancy. Histopathological examination of hysterectomy specimens has been carried out for legal, ethical, diagnostic and therapeutic significance. Removal of a normal uterus usually indicated and permitted in the treatment of ovarian, fallopian tube and vaginal cancer,

**Table 4** Histopathological changes in the ovaries

S no	Histopathological changes in the one sided ovary	No of Cases	Percentage (%)	Histopathological changes in the other sided ovary	No of Cases	Percentage (%)
1.	Normal ovary	85	55.93	Normal ovary	58	92.06
2.	Simple cyst	19	12.50	Simple cyst	03	04.76
3.	Corpus luteal cyst	12	07.89	Corpus luteal cyst	00	00
4.	Follicular cyst	09	05.92	Follicular cyst	00	00
5.	Haemorrhagic cyst	07	04.60	Haemorrhagic cyst	00	00
6.	Serous cystadenoma	05	03.28	Serous cystadenoma	01	1.59
7.	Mucinous cystadenoma	04	02.63	Mucinous cystadenoma	00	00
8.	Teratoma	03	01.97	Teratoma	00	00
9.	Serous cystadenocarcinoma	02	01.32	Serous cystadenocarcinoma	00	00
10.	Granular cell tumour	01	0.66	Granular cell tumour	00	00
11.	Endometriosis	01	0.66	Endometriosis	00	00
12.	Serous borderline cystadenoma	01	0.66	Serous borderline cystadenoma	00	00
13.	Fibroma	01	0.66	Fibroma	00	00
14.	Dysgerminoma	01	0.66	Dysgerminoma	00	00
15.	Mucinous cystadenocarcinoma	01	0.66	Mucinous cystadenocarcinoma	00	00
16.	Mixed germ cell tumour	00	00	Mixed germ cell tumour	01	1.59
	Total	152	100		63	100

**Table 5** Histopathological changes in the fallopian tube

S no	Histopathological changes in the one sided fallopian tube	No of Cases	Percentage (%)	Histopathological changes in the other sided fallopian tube	No of Cases	Percentage (%)
1.	Normal	129	79.63	Normal	62	91.18
2.	Hydrosalpinx	19	11.73	Hydrosalpinx	04	05.88
3.	Haematosalpinx	07	04.32	Haematosalpinx	02	02.94
4.	Salpingitis	03	01.86	Salpingitis	00	00
5.	Pyosalpinx	02	01.23	Pyosalpinx	00	00
6.	Fimbrial cyst	02	01.23	Fimbrial cyst	00	00
	Total	162	100		68	100

**Table 6** Comparison between present study and references

Ref no	No of patients	Age group	Patient In age group	Mean age	Type of surgery	Most common indication	Most common pathology	Endometriu m	Myometrium	Cervix	Ovary	Fallopian Tube	Correlation
1	100					Menorrhagia	Fibroid						77%
2	179	23-90		49	Abdominal	Fibroid	Fibroid						
3	698	20-70	41-50		TAH BSO	Menorrhagia	Fibroid	Atrophic	Fibroid	Chronic cervicitis	Follicular cyst	Normal	66-100%
4	373	22-85		45+9.2	TAH	Fibroid	Fibroid						
5		31-80				Fibroid	Fibroid						95.6
6						Menorrhagia	Fibroid						90.4
7			35-45	47.5		DUB	Fibroid						
8	288	35-70		45	NDVH	Menorrhagia	Fibroid						93
9	112		40-52			Menorrhagia	Fibroid						
10	391	17-80	41-50	46		Menorrhagia	Fibroid	Fibroid			Corpus luteal cyst		
11			41-50	53.1		Menorrhagia	Fibroid	Fibroid			Normal	Normal	100% carcinoma
Our study	514	20-80	31-40	48	TAH	PID	Leiomyoma	Proliferative phase	Normal	Chronic cervicitis	Normal	Normal	92.8%

pelvic inflammatory disease, endometriosis, DUB, pelvic organ prolapse, pelvic pain and pelvic tuberculosis.<sup>[6]</sup>

In present study, commonest age group involved was 31-50 years. It was similar to studies done by Bhatti K *et al.*<sup>[7]</sup> The mean age of patients was 48years. It was similar to other studies.<sup>[2,4,7,8,10]</sup> The comment type of hysterectomy performed was total abdominal hysterectomy, which was consistent with the study done by Kaur KT *et al.*<sup>[4]</sup> In our study commonest indication was pelvic inflammatory disease followed by prolapse which is in disagreement with other studies. In the present study, leiomyoma (22.96%) was the most common pathologies noted in hysterectomy specimens on histopathological examination. It was similar to studies done by Khan R *et al*, Layla S *et al*, Jaleel R *et al*, Perveen S *et al*, Vaidya S *et al* as shown in table 6.<sup>[1,2,6,11,12]</sup>

Endometrium in our study was in proliferative phase (45.72%), which was similar to study done by Vaidya S *et al.*<sup>[12]</sup> Leiomyoma in our study was most common myometrial pathology consist of 118 cases i.e. 22.96%. This finding is similar to various studies done by Layla S A *et al* (24.5%), Neena Y *et al* (24.65%), Vaidya S *et al* (18.9%).<sup>[2,8,12]</sup> Adenomyosis (11.28%) is the 2<sup>nd</sup> most common myometrial pathology in present study. It was comparable to the study done by Pity IS *et al.* i.e. in 20.5%.<sup>[10]</sup> We reported 8 cases of both endometrial carcinoma (1.56%) and mixed mullerian carcinoma (1.56%). In spite of the fact that endometrial carcinoma is the most common female genital tract malignancy, its prevalence in low in our study and study done by Pity IS *et al.*<sup>[10]</sup>

Majority of the patient had chronic cervicitis (99.89%). 4 cases (0.78%) of mild and moderate dysplasia respectively and 6 cases of carcinoma of cervix were reported in our study. However, we didn't report any case of severe dysplasia. This finding was similar to study done by Rather GR *et al*, they reported 4 cases of malignant tumor of cervix but these finding was different from study done by Pity IS *et al*, they reported higher incidence of severe dysplasia.<sup>[3,10]</sup> Dysplasia, a pre-neoplastic disease which on early detection can reduces the incidence of the cervical cancer.<sup>[10]</sup> In our study both ovary and fallopian tube were histologically unremarkable. It was similar to study done by Rather GR *et al* (69.64% in right ovary, 73.54% in left ovary) and Perveen S *et al* (50%). [3,11]

Lastly 92.8% cases correlate with clinical diagnosis with histopathological diagnosis. A study done by Neena Y *et al* had 93% correlation and Jaleel R *et al* had 90.4% correlation.<sup>[6,8]</sup> In our study 7.2% clinical diagnosis didn't correlate with histopathological diagnosis. This, finding highlights the importance of histopathological examination of all surgical examination.<sup>[6]</sup>

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