

## Original Research Article

# The chronicle of transposition hysterectomy specimens with clinical and histopathological correlation: a three year study

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## ABSTRACT

**Background:** Hysterectomy is the commonest gynaecological surgery which involves surgical removal of the uterus. Hysterectomy and microscopic evaluation of the samples are still the only ways of definite diagnosis. Early evaluation in the perimenopausal and postmenopausal women is essential to confirm the exact nature of the lesion and to rule out malignancy.

**Methods:** After obtaining institutional Ethical Committee approval and written informed consent, hysterectomy specimens of 200 patients with abnormal uterine bleeding were studied for histopathological examination during the period of June 2016 to June 2019 from tertiary care centre and hospital.

**Results:** Mean age of cases was 22-80 years. The common significant pathological lesions were adenomyosis in 55(27.2%) cases, leiomyoma in 49(23.2%) cases, leiomyoma with adenomyosis in 22(9.3%) cases, CIN1 in 6 cases (3.0%), serous cystadenoma of ovary in 5(2.4%) cases, endometrial polyp in 5(2.4%) cases, carcinoma of cervix in 4 (2.2%) cases, carcinoma of ovary in 3(2.4%) cases and carcinoma of endometrium in 1 (0.6%) cases. The correlation of HP findings of hysterectomy specimens with cervical biopsy findings was 79.4% and that with endometrial biopsy findings was 100%. The cervico-vaginal cytology (Pap smear) findings of 93.2% cases were in agreement with HP findings of cervix in hysterectomy specimens.

**Conclusions:** This study provides baseline data to follow the trend of the hysterectomy and put insight into the pattern of complaints. The final HP findings of the hysterectomy specimens correlates well with the preoperative clinical diagnosis, ultrasonography, cervical biopsy, endometrial biopsy, Pap smear and tumour marker level findings.

**Keywords:** Clinic histopathological correlates, Hysterectomy, Pap smear

## INTRODUCTION

The term 'Hysterectomy' has been derived from the Greek words hystera, meaning "womb", and ektomia meaning "a cutting out of".<sup>1</sup> Hysterectomy is the surgical removal of the uterus and is the most common major gynecological surgical procedure performed worldwide and sometimes most misused surgery especially in third world countries. In USA, hysterectomy is second only to

cesarean section as the most frequently performed major operation.<sup>2</sup> It has a broad spectrum of indications ranging from malignant gynecological diseases to obstetrical indications affecting the uterus or the adnexae. 90% of the time, it is done as an elective procedure.<sup>3</sup> Improved technique used in different parts of the world, in anesthesia, aseptic techniques, proper use of blood transfusions, better recognition and treatment of medical diseases have made this surgery very safe in the hands of

a competent gynecologist.<sup>4,7</sup> Many a time, HP examination of hysterectomy specimens doesn't reveal any pathology. HP examination was normal in 5.1% cases in abdominal hysterectomy group and 42.1% in vaginal hysterectomy group in a study by Aksu F et al.<sup>8</sup> The uterus was histologically normal in 20% of abdominal hysterectomies, the rate rising to 70% for vaginal hysterectomies in a study by MacKenzie IZ et al.<sup>9</sup> Removal of a 'normal' uterus may be indicated and permitted in the treatment of ovarian, fallopian tube and vaginal cancer, PID, endometriosis, DUB, pelvic organ prolapse, pelvic pain and pelvic tuberculosis.<sup>10-12</sup>

The diagnostic value of HP examination is well explained in patients with genital cancer where adjuvant treatment is dependent upon grade and extent of the invasion of disease. Similarly, diagnosis of adenomyosis is confirmed only by HP examination, while DUB is a diagnosis of exclusion. It has been found that benign condition like adenomyosis may cause irregularities of bleeding and had a routine HP examination not been done, would have been labeled as DUB.

Conversely, many patients may be suspected of having a malignancy on pre-operative assessment e.g., those with postmenopausal bleeding and HP examination may aid to rule out this suspicion. Along these lines, HPE is mandatory for ensuring correct and accurate diagnosis, which has a profound impact on the management of the patient. Failing this, may result in sub-optimal care or treatment and over treatment of certain diseases, in particular the malignant conditions. The purpose of this study was, therefore, to correlate HP findings of the specimens with various clinical features and indications of hysterectomy and with other pre-operative investigations carried out. Authors also wanted to determine the frequency of unexpected lesions when a clinical diagnosis, for e.g. DUB, is made, thus highlighting the need for subjecting each specimen for HP examination. The factors attributing to the modality of hysterectomy are deficient health care services and even widespread belief that post reproductive uterus is dispensable in regard to the indications and side effects. Incidence of uterine and adnexal pathologies varies from nation to nation and from region to region within the same nation. Available data of HP analysis of hysterectomies in authors region is limited. Thus, this study also aims to find out the frequency of various uterine and adnexal pathologies in authors region and to compare it with findings discovered by other researchers.

Aims and objectives of the study was to study the incidence and distribution of various types of pathologies in the hysterectomy specimens in the population studied. To review the major indications of all types of hysterectomy. To correlate histopathological findings with clinical features, pre-operative clinical diagnosis, radiological findings and other investigational findings if any and to validate the indications for the same.

## METHODS

The present study is a prospective study performed over a period of 36 months from June 2016 to June 2019 irrespective of the clinical indications and type of hysterectomy. The study material was obtained from patients admitted at tertiary care hospital and government clinics who underwent hysterectomy and also specimens sent from nearby private or government hospitals in and around Mhow district, India.

### *Inclusion criteria*

- All hysterectomy specimens sent for histopathological examination from hospital as well as nearby government hospital to the Department of Surgical Pathology.

### *Study population*

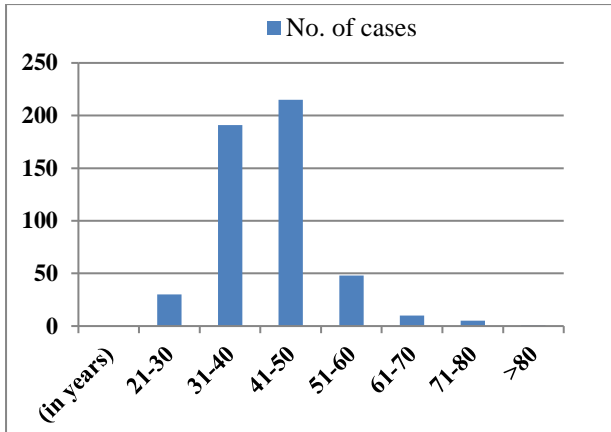
The study population consisted of floating population of 200 patients, who underwent hysterectomy in hospital. The Clinical and other pre-operative Ix details of the patients were obtained in consultation with the surgeon, patient records or laboratory records and entry was made. Information was obtained regarding age, parity, presenting complaints, preoperative diagnosis/indication of hysterectomy, radiological and other pre-operative investigation findings, surgical procedure performed, and the type of specimen sent. Following the receipt of a specimen in jar containing 10% formalin, it was subjected to a thorough gross examination according to annexure I and was bisected and then kept for fixation in 10% formalin for 24-48 hours in the ratio of 1:10. After adequate fixation of the specimen, additional cut section morphology was recorded and appropriate sections were taken. The sections were processed, and paraffin blocks were prepared. Sections were cut at 4-5-micron thickness and stained with hematoxylin and eosin as per annexure II. Detailed micro-anatomic features were then studied and recorded. The correlation between the histological findings and clinical and other investigational findings were estimated. Further, the obtained parameters were evaluated using descriptive statistical analysis.

### *Statistical analyses*

It was performed using the IBM SPSS (Statistical Package for the Social Sciences v16.0 and Microsoft Excel 2007 software.

## RESULTS

In these results, out of 200 patients majority of the patients were in the age group of 40-50 years as depicted in figure 1 and table 1, these patients were in age range from 20 years to as old as 80 years belonging to varied ethnicities as population of patient clientele consisted of floating population who regularly visited the clinics.



**Figure 1: Age of related groups of patients who attended opds and and were subjected to hysterectomy (maximum patients were in the age group of 41-50 years).**

**Table 1: Age group with percentage of patients (maximum patients were in 41-50) age group.**

Age group (in years)	No. of cases	Percentage (%)
21-30	30	6.0
31-40	191	38.2
41-50	215	43.0
51-60	48	9.6
61-70	10	2.0
71-80	5	1.0
>80	1	0.2
Total	500	100.0

**Table 2: Distribution of cases according to type of hysterectomy specimen (maximum patients underwent total hysterectomy with bilateral salpingo-oophorectomy).**

Type of specimen	No. of cases	Percentage (%)
Total hysterectomy without salpingo-oophorectomy	208	41.6
Total hysterectomy with unilatera salpingo-oophorectomy	68	13.6
Total hysterectomy with bilateral salpingo-oophorectomy	221	44.2
Subtotal hysterectomy without salpingo-oophorectomy	3	0.6
Total	500	100.0

The decision of surgeries was taken up by consultant gynecologists with reference to clinical and laboratory parameters depending on the indications for the same. Total hysterectomy with salpingectomy was done in 41.6% of cases preceded by total hysterectomy with bilateral salpingo-oophorectomy in 44.2% cases (Table 2).

Parity that is defined as total number of confirmed pregnancies reaching 20 weeks of gestation played an important role in the hysterectomy procedures, patient clientele corresponding to parity of (1-3) contributed significantly that is 75.8% of total patients followed by multipara patients of parity (4-5) as shown in table 3.

**Table 3: Distribution of cases (n) according to parity (no. of confirmed pregnancies after 20 weeks of gestation, and percentage of the patient (75.8% of 500,379 patients were in para 1-3, primi to multipara).**

Parity	No. of cases	Percentage %
0	7	1.4
1-3	379	75.8
4-6	112	22.4
>6	2	0.4
Total	500	100.0

Commonest Symptoms at the time of presentation were that of abnormal uterine bleeding constituting 73.6% of total 500 patients, followed in decreasing order by abdominal pain(23.0%), Discharge per vaginum(17%), and Prolapse like presentation(11.6%) (Table 4).

**Table 4: Distribution according to presenting symptoms and chief complaints of the patient (73.6% that is 368 out of total cases presented with abnormal uterine bleeding).**

Symptom	No. of cases	Percentage %
Abnormal uterine bleeding	368	73.6
Abdominal pain	115	23.0
Discharge per vaginum	85	17.0
Something coming out per vaginum	58	11.6
Urinary complaints	39	7.8
Backache	13	2.6
Lump in abdomen	11	2.2
Weight loss	3	0.6
Difficulty in walking	3	0.6
Pain during intercourse	2	0.4
Others*	2	0.4

The commonest approach for hysterectomy was abdominal in 351 (70.2%) cases. The commonest type of specimen received was total hysterectomy with bilateral salpingo-oophorectomy in 221 (44.2%) cases. The common presenting symptoms were abnormal uterine bleeding in 368 (73.6%) cases, abdominal pain in 115 (23.0%) cases, discharge per vaginum in 85 (17.0%) cases and something coming out per vaginum in 58 (11.6%) cases. Not many studies have been done comparing the radiological findings with the HP findings of the hysterectomy specimens. Out of 130 USG diagnosed cases of fibroid uterus, leiomyoma were found in 80.8% of cases. In 68 cases with “no signification

abnormality” on USG, histopathology confirmed the findings in 45.6% of cases where no pathology was found. USG diagnosis of adenomyosis was confirmed by histopathology in 74.2% of cases (Table 5, Table 6). The youngest patient to undergo hysterectomy was aged 22 years and the oldest patient was aged 85 years. The mean

age was 42.8 years. The peak age incidence of hysterectomy was noted in the 40-50 years age group with 215 (43%) cases. The mean parity of the patients was 2.8 with a peak parity of 1-3 in 379 (75.8%) cases. Seven patients were nulliparous.

**Table 5: Distribution of cases according to clinical indication and approach for hysterectomy (80% of the patients with DUB underwent abdominal hysterectomy).**

Clinical indication	Total No. (% out of 500)	AH No. (% of same indication)	VH	LH
Dub	142 (28.4)	114 (80.3)	11 (7.7)	17 (12.0)
Fibroid uterus	136 (27.2)	109 (80.2)	1 (0.7)	26 (19.1)
Uterine prolapse	76 (15.2)	11 (14.5)	60 (78.9)	5 (6.6)
Adenomyosis	72 (14.4)	47 (65.2)	3 (4.2)	22 (30.6)
Ovarian cyst/tumour/mass	46 (9.2)	41 (89.1)	0 (0.0)	5 (10.9)
Chronic cervicitis	27 (5.4)	21 (77.8)	2 (7.4)	4 (14.8)
Pelvic inflammatory disease	13 (2.6)	11 (84.6)	0 (0.0)	2 (15.4)
Ascus/sil/cin	12 (2.4)	6 (50.0)	2 (16.7)	4 (33.3)
Ca. Cervix	10 (2.0)	10 (100.0)	0 (0.0)	0 (0.0)
Cervix fibroid/polyp	10 (2.0)	10 (100.0)	0 (0.0)	0 (0.0)
Cervical erosion	8 (1.6)	7 (87.5)	0 (0.0)	1 (12.5)
Obstetric indications <sup>#</sup>	8 (1.6)	8 (100.0)	0 (0.0)	0 (0.0)
Ca. Endometrium	7 (1.4)	7 (100.0)	0 (0.0)	0 (0.0)
Other*	11 (2.2)	10 (90.9)	0 (0.0)	1 (9.1)

**Table 6: Distribution of histopathological findings depending on the series of pattern of endometrial state ranging from proliferative stage to hyperplasias in the endometrium.**

Finding	No. of cases	Percentage %
Proliferative endometrium	209	41.8%
Secretory endometrium	108	21.6%
Basal endometrium	61	12.2%
Autolysed / disintegrated / not seen	41	8.2%
Atrophic endometrium	34	6.8%
Disordered proliferative endometrium	20	4.0%
Endometrial polyp	12	2.4%
Exogenous hormone changes	11	2.2%
Pregnancy changes	6	1.2%
Endometrial carcinoma	3	0.6%
Simple endometrial hyperplasia (without atypia)	2	0.4%
Infected decidua	2	0.4%
Hydatidiform mole	1	0.2%

Maximum number of cases with primarily myometrial affection were unremarkable/idiopathic (35.2%) followed by adenomyosis constituting 27.2% of total 500 cases. Adenomatous tumorous growth was noted in 0.2% of the cases (Table 7).

The etiologies affecting the crvix ranged from nonspecific chronic cervicitis to tumor state, maximum cases were of

chronic cervicitis with n=344 approximately constituting 69.1% of total cases (Table 8).

The ovarian tissue pathology ranged from benign conditions like cystic follicles (55.4%), followed by corpus luteal cysts constituting 30.8%, Benign surface epithelial tumors constituted (1.0%) whereas malignancies constituted around 2.4% of the total ovarian lesions (Table 9). The common clinical indications were

dub in 142 (28.4%) cases, fibroid uterus in 136 (27.2%) cases, uterine prolapse in 76 (15.2%) cases and adenomyosis in 72 (14.4%) cases.

**Table 7: Distribution of HP findings in the myometrial conditions ranging from normal to tumor state.**

Finding	No. of cases	%
Unremarkable	176	35.2
Adenomyosis	136	27.2
Leiomyoma	116	23.2
Leiomyoma + adenomyosis	67	13.4
Placenta accreta	3	0.6
Invasive hydatidiform mole	1	0.2
Adenomatoid tumor	1	0.2
Total	500	100

**Table 8: Distribution of HP findings in the cervix enumerating various chronic cervical etiologies.**

Findings	No. of cases	Percentage %
Chronic cervicitis	344	69.1
Nabothian cyst/s	225	45.2
Chronic active cervicitis	111	22.3
Squamous metaplasia	66	13.3
Papillary endocervicitis	40	8.0
Koilocytic changes	27	5.4
Cin1 or lsil	15	3.0
Carcinoma of cervix	11	2.2
Squamous hyperplasia	10	2.0
Endocervical polyp	9	1.8
Cervical leiomyoma	6	1.2
Tunnel clusters	5	1.0
Glandular hyperplasia	3	0.6
Cin2 or cin3 or hsil	2	0.4
Haemangioma	2	0.4

The benign lesions accounted for 95.7% of lesions while malignant lesions accounted for 4.3% of lesions. In many cases more than one pathology was found. No significant pathology was found in 132 (26.4%) specimens. The

common significant pathological lesions were adenomyosis in 136 (27.2%) cases, leiomyoma in 116 (23.2%) cases, leiomyoma with adenomyosis in 67 (9.3%) cases, CIN1 in 15 cases (3.0%), serous cystadenoma of ovary in 12 (2.4%) cases, endometrial polyp in 12 (2.4 %) cases, carcinoma of cervix in 11 (2.2%) cases, carcinoma of ovary in 7 (2.4%) cases and carcinoma of endometrium in 3 (0.6%) cases (Table 10-11). The clinical diagnoses were confirmed in 63% of cases by histopathology.

80.8% cases diagnosed as fibroid uterus, 74.2% cases diagnosed as adenomyosis and 98.0% cases diagnosed as ovarian cyst/tumor on USG were confirmed on HP examination. The correlation of HP findings of hysterectomy specimens with cervical biopsy findings was 79.4% and that with endometrial biopsy findings was 100%. The cervico-vaginal cytology (Pap smear) findings of 93.2% cases were in agreement with HP findings of cervix in hysterectomy specimens (Table 11-12).

**Table 9: Distribution of HP findings of varied ovarian diagnostic conditions ranging from simple cysts to tumorous condition in a patient, topped by maximum cases of cystic follicles constituting 55.4% of total cases.**

Ovarian lesion (in a patient as whole)	No. of cases (out of 289 patients)	Percentage (out of 289 patients)
Cystic follicle/s	160	55.4
Unremarkable	44	15.2
Haemorrhagic corpus luteal cyst/s	89	30.8
Follicular cyst/s	23	8.0
Serous cystadenoma	12	4.2
Corpus luteal cyst/s	12	4.2
Mature cystic teratoma	8	2.8
Serous cystadenocarcinoma	7	2.4
Mucinous cystadenoma	3	1.0
Adult granulosa cell tumor	2	0.7
Endometriosis	2	0.7

**Table 10: HP findings in the adnexa ranging from cysts to endometriosis (excluding ovaries).**

Finding	Right side	% (out of 261 right adnexae received)	Left side	% (out of 251 left adnexae received)
Unremarkable	235	90.0	210	83.7
Paratubal/parovarian Cysts	13	5.0	16	6.4
Hydrosalpinx	12	4.6	19	7.6
Hematosalpinx	3	1.1	2	0.8
Broad ligament Leiomyoma	2	0.8	0	0.0
Decidual reaction ft	1	0.4	2	0.8
Acute salpingitis	0	0.0	1	0.4
Endometriosis ft	0	0.0	1	

**Table 11: Common HP lesions along with patient’s age group correlation using SPSS 16Version from 20 years -90 years.**

Age group	AM	LM	AM+LM	CIN1	SCA	Endo polyp	Ca ex	Cx polyp	Mat. Teratoma	Ca. Ovary	CL	Ca. Endo
≤ 20	0	0	0	0	0	0	0	0	0	0	0	0
21-30	3	4	0	0	1	0	0	0	1	0	0	0
31-40	55	41	23	4	1	3	7	3	1	1	1	0
41-50	67	57	38	8	6	7	3	3	4	2	5	0
51-60	07	10	6	1	2	1	1	3	2	3	0	2
61-70	2	2	0	1	1	1	0	0	0	0	0	0
71-80	1	2	0	1	1	0	0	0	0	1	0	1
81-90	1	0	0	0	0	0	0	0	0	0	0	0
Total	136	116	67	15	12	12	11	9	8	7	6	3

**Table 12: Correlation of common clinical diagnosis with histopathological correlation, SPSS 16Version.**

Clinical diagnosis (n = no. Of cases)	Histopathological findings	No. of cases
DUB (N = 142)	Adenomyosis	53
	Leiomyoma	17
	Leiomyoma + adenomyosis	13
	Endometrial polyp	2
	CIN1	2
	Endometrial polyp + endocervical polyp	1
	Endometrial polyp with leiomyoma with adenomyosis	1
	Endometrial hyperplasia with leiomyoma	1
	Serous cystadenoma of ovary	1
	CIN2	1
	Mature cystic teratoma	1
	No significant pathology	51
Fibroid uterus (N = 136)	Leiomyoma	79
	Leiomyoma + adenomyosis	33
	Adenomyosis	14
	Adenomatoid tumour	1
	Endometrial polyp	1
	No significant pathology	8
Uterine prolapse (n = 76)	Adenomyosis	25
	Leiomyoma	8
	Leiomyoma + adenomyosis	4
	Endocervical polyp	3
	CIN1	3
	Endometrial polyp	1
Adenomyosis (n = 72)	Adenomyosis	28
	Adenomyosis + leiomyoma	13
	Leiomyoma	8
	No significant pathology	23
Ovarian cyst/tumour/mass (n = 46)	Functional cysts	19
	Serous cystadenoma	11
	Mature cystic teratoma	6
	Carcinoma of ovary	5
	Mucinous cystadenoma	2
	Granulosa cell tumour	2
	Teratoma + mucinous cystadenoma	1
Ca. Cervix (n = 10)	Carcinoma of cervix	8
	Cervical leiomyoma	1
	CIN1	1
Endometrial Carcinoma (n = 7)	Carcinoma of endometrium	3
	Proliferative endometrium	1
	Basal endometrium	1
	Autolysed endometrium	1
	Hydatidiform mole	0

**Table 13: Correlation of preoperative endometrial biopsy findings with HP findings of endometrium in hysterectomy specimens.**

Endometrial biopsy findings (number of cases)	HP findings of endometrium in hysterectomy		
	Non-neoplastic / unremarkable	Hydatidiform mole	Endometrial carcinoma
Non-neoplastic (41)	41	0	0
Hydatidiform mole (1)	0	1	0
Incomplete abortion (1)	1	0	0
Endometrial carcinoma (3)	0	0	3

**Table 14: Correlation of preoperative cervico-vaginal cytology (Pap smear) findings before surgery with HPE findings of cervix in post hysterectomy specimens where 3 cases of endometrial carcinoma paved way.**

Pap smear findings (number of cases)	Histopathological findings of cervix in hysterectomy			
	Non-neoplastic / unremarkable	CIN1	CIN2 / CIN3	Carcinoma of cervix
NILM with/without inflammation (38)	38	0	0	0
ASCUS (2)	1	1	0	0
SIL (3)	2	1	0	0
Carcinoma (1)	0	0	0	1

The serum CA-125 tumor marker level done in seven cases of ovarian cyst/tumor were consistent with HP findings of all the seven cases in predicting the chances of malignancy (Table 13).

Pap smear findings correlated with the histopathological findings after surgery, 38 cases given as negative for intraepithelial lesion or malignancies with or without inflammation, reported according to Bethesda 2019 system of reporting PAP Smears turned out to be unremarkable in histopathology. One case of ASCUS 01/02 (50%) (Atypical squamous cells of unknown significance) turned out to be Cervical Intraepithelial Neoplasia -I. 33.3% of Squamous intraepithelial lesions turned out to be CIN I.

Carcinoma given on PAP smears were proved to be carcinoma on histopathology in 100 % of the cases (Table 14).

CA -125 levels did signify the type of lesions by the quantification of the same, levels of >1500 IU/ml pointed towards cystadenocarcinoma, whereas levels <10 IU/ml signified Benign lesions except serous cystadenomas who potentially showed increased levels of the biomarker (Table 15).

USG findings correlated with histopathological diagnosis in maximum cases. Diagnosis of Fibroid uterus given on USG (ultrasonography) correlated in 75/130 cases of histopathological diagnosis. Radiological diagnosis of no significant anomaly, proved to be adenomyosis in 24/68 cases, and USG diagnosis of bulky uterus turned out to be Adenomyosis in 12/38 cases (Table 16).

**Table 15: Correlation of preoperative (CA-125 tumor marker which is a protein that is a biomarker), study with HPE findings on hysterectomy.**

Case no.	CA-125 (IN U/ML)	HP finding of ovary
84	27.64	Mucinous cystadenoma + teratoma
121	9.3	Mucinous cystadenoma
159	21.26	Serous cystadenoma
286	41.41	Teratoma
433	64.53	Serous cystadenoma
493	2608	Cystadenocarcinoma
494	1528	Cystadenocarcinoma

**DISCUSSION**

In this study, mean age of cases was 41.2±7.8 years. Majority of the cases of peri menopausal uterine bleeding was in age group of 45-55 years (61%). In a similar study by Yogesh Neena et al, maximum cases (54.16%) were in 45-55 years.<sup>8</sup> In study by Talukdar B et al, 67.97% of patients were in in age group of 45-55 years.<sup>9</sup> Thus age group of 45-55 seems to be most vulnerable age group for uterine bleeding in peri menopausal women. In this study, the youngest patient to undergo hysterectomy was aged 22 years and the oldest patient was aged 85 years. The mean age was 42.8 years. The peak age incidence of hysterectomy was noted in the 41-55 years age group with 215 (61%). In this study, Disuterine bleeding, Fibroid, DUB with PID was commonest indications for which hysterectomy was indicated. In a study by Yogesh Neena et al, Disuterine bleeding, Fibroid and Adenomyosis constituted commonest indication for

hysterectomy. In this study, Non-Descent Vaginal Hysterectomy was commonest hysterectomy procedure performed (64%).

**Table 16: Correlation of common USG findings with HP findings of the uterus and ovary in which maximum cases were of fibroid uterus, followed by adenomyosis and functional cysts.**

USG diagnosis (n = number of cases)	Histopathological findings	No. of cases
Fibroid uterus (N=130)	Leiomyoma	75
	Leiomyoma + adenomyosis	29
	Adenomyosis	15
	Endometrial polyp + adenomyosis	1
	Endometrial polyp + adenomyosis + leiomyoma	1
	Unremarkable myometrium	9
No significant abnormality detected (N=68)	Adenomyosis	24
	Leiomyoma + adenomyosis	3
	Leiomyoma	3
	Endometrial polyp + adenomyosis	2
	Endocervical polyp	2
	Endometrial polyp + leiomyoma + adenomyosis	1
	Carcinoma of cervix	1
	Cervical leiomyoma	1
No significant pathology	31	
Ovarian cyst/tumour (N=51)	Functional cysts	27
	Serous cystadenoma	10
	Cystadenocarcinoma	4
	Teratoma	4
	Mucinous cystadenoma	2
	Granulosa cell tumour	2
	Endometriosis	1
	Unremarkable ovary	1
Bulky uterus (n=38)	Adenomyosis	12
	Leiomyoma + adenomyosis	8
	Leiomyoma	5
	Infected decidua	1
	Unremarkable uterus	12
Adenomyosis (n=31)	Adenomyosis	15
	Leiomyoma + adenomyosis	7
	Leiomyoma	3
	Endometrial polyp + adenomyosis	1
	Unremarkable myometrium	5

In a study by Yogesh Neena et al, NDVH constituted 65.97% cases. The most common histopathological finding was leiomyoma found in 36.5% of cases, followed by adenomyosis which was found in 13.5 % cases.<sup>10</sup> In this study, the leiomyoma ranged in number from one to seven. A single leiomyoma was seen in 62% cases and Multiple leiomyomas were seen in 38% cases. In a study by Yogesh Neena et al, the most common histopathological finding was leiomyoma found in 71 cases, followed by adenomyosis which was found in 35 cases. The leiomyoma ranged in number from one to six. A single leiomyoma was seen in 35 cases. Multiple leiomyomas were seen in 36 cases. Not many studies

have been done comparing the radiological findings with the HP findings of the hysterectomy specimens. Out of 130 USG diagnosed cases of fibroid uterus, leiomyoma was found in 80.8% of cases. In 68 cases with “no signification abnormality” on USG, histopathology confirmed the findings in 45.6% of cases where no pathology was found. USG diagnosis of adenomyosis was confirmed by histopathology in 74.2% of cases, radiological and HP correlation. Similarly, histopathology diagnosed 98.0% cases reported as ovarian tumour/cyst was on USG. Thus, good HP correlation was observed in cases of fibroid uterus and ovarian tumour/cyst diagnosed on USG. In a study by



Bhosle et al, diagnosis of adenomyosis was made in 16% cases by USG, while it was 29.4% histopathologically.<sup>10</sup> In a study by Thamilselvi et al, HP confirmation of the pre-operative diagnosis from clinical and USG findings were 100% for malignancy, 26.4% for prolapse, 23% for fibroid and 13% for adenomyosis.<sup>11</sup> In a study by Ravindra et al, in 120 perimenopausal women with abnormal uterine bleeding, Fibroid uterus, DUB, and adenomyosis and were the common causes of abnormal uterine bleeding.<sup>12</sup> In a similar study, Khreisat et al, reported that adenomyosis is a common finding in hysterectomy specimen.<sup>13</sup> They found nearly 37% of all the specimens proved to be adenomyosis whereas the second most common finding was fibroid uterus. In their study, Sajjad et al, observed 39% cases of leiomyomas, followed by adenomyosis in 19% cases. 5% cases showed dual pathology consisting of both leiomyomas and adenomyosis.<sup>14</sup> Gupta et al, in their study observed that menorrhagia was the most common complaint and fibroid uterus was responsible for AUB in 53% of women.<sup>14</sup> For cervico-vaginal cytology smears and HP findings correlation, the absolute concordance rate was 89% in a study by Joste et al, 91% in a study by Izadi-Mood et al, 88.5 % in a study by Tzeng et al, while it was 88.1% in a study by Adad et al.<sup>15-19</sup> Silva, Sarfaraz and Shergill, reviewed 54 elective abdominal hysterectomies and revealed that menstrual disturbance/ DUB is a leading indication (27.7%) of hysterectomy and leiomyoma is the commonest (59.2%) pathological lesion.<sup>20-22</sup> CA-125 levels were raised above 35 U/ml in 78% of women with malignant masses, but also in 22% of those with benign masses in a study by Pandey et al.<sup>23</sup> According to NACB guidelines, the cut-off value for serum CA-125 level for "normal" is 35 U/ml.<sup>24</sup> According to cross national studies by Baird et al, Adelusoka et al, Nausheen et al, Tinma et al, also showed leiomyomas as the most common pathological lesion with a variable frequency.<sup>25-27</sup> Its incidence is 25.8% in Abbah City of Saudi Arabia, 78% in the USA, 48% in Nigeria, and 8% in Sweden. Genetical and racial influences are thus apparent on the prevalence of uterine leiomyoma.<sup>28-33</sup>

## CONCLUSION

HP examination is thus mandatory for confirming diagnosis and thus ensuring optimal management to the patient, so every hysterectomy specimen should be subjected for histopathological examination. This study signifies the fact that the histopathological analysis of the hysterectomy specimens should be a mandatory procedure, even if the gross appearance is normal, as few lesions are found to be the pure incidental finding. It also provides a correlation with the clinical and preoperative diagnosis and leads to appropriate management in the postoperative period. Justification of the hysterectomy is also proved when the histopathological diagnosis corresponds with the preoperative diagnosis. Vaginal and Laproscopic route were preferred mode of hysterectomy. This study emphasizes the fact that even the hospitals in

the corporate and private nonteaching institutes should send all the hysterectomy specimens for the histopathology so that a proper audit of this major surgical procedure can be done at all medical centre.

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