



A CLINICO-PATHOLOGICAL ANALYSIS OF HYSTERECTOMY SPECIMENS IN A REGIONAL CENTER OF NORTHERN INDIA: AN OBSERVATIONAL STUDY

Pathology

Renu Sharma*	M.D. Obstetrics & Gynaecology, Department of Obstetrics & Gynaecology, AIIMS, Jammu, India*Corresponding Author
Mansi Sharma	M.D. Pathology, Consultant, Department of Pathology, Synergy Lab, Jalandhar, Punjab, India
Jaspreet Singh Bodal	M.D. Pathology, Consultant, Department of Pathology, Synergy Lab, Jalandhar, Punjab, India
Deeksha Sharma	M.D. Pathology, Director, Department of Pathology, Synergy Lab, Jalandhar, Punjab, India

ABSTRACT

Background- Hysterectomy is a very common gynaecological surgery performed in the women inspite of availability of conservative methods of treatment for many benign conditions. There are associated controversies regarding the indications for surgery. The present study was done with the objective to find out the spectrum of lesions in uterus, cervix, tubes and ovaries and to find out the clinic-pathological correlation in the hysterectomy specimens. **Material and Methods-** This retrospective study was conducted over a period of one year from January 2021 to December 2021 and included all the specimens obtained after hysterectomy done for benign indications irrespective of the route or type of hysterectomy and the status of the tubes and ovaries over a period of one year. Cesarean hysterectomy specimens were also included. Hysterectomy specimens without cervix were not included. The relevant clinical information was obtained from histopathology requisition forms. All the slides with requisition forms were retrieved and reviewed. The pathological findings in the uterus, cervix, tubes, and ovaries were recorded and correlation with preoperative indication was done. The data was analyzed using SPSS for windows. The results were described as numbers, proportions, and percentages. **Results-** Out of 308 specimens studied, 72% were total abdominal hysterectomies and bilateral salpingo-oophorectomy was done in 241 cases (74.22%). Average age for hysterectomy was 45.26 years. Leiomyoma was the most common myometrial lesion seen in 44.15% cases and the commonest preoperative indication in 39.93% cases. Half of the cases of adenomyosis were diagnosed on histopathological examination. In 81.19% cases of dysfunctional uterine bleeding (DUB), some form of pathological lesion was found. Cervicitis was the commonest benign incidental finding. Incidental malignant lesions were diagnosed in 4 specimens. **Conclusions-** Histopathological diagnosis of hysterectomy specimens does not correlate well with preoperative indication of DUB and about half of the cases of adenomyosis are missed preoperatively. Few malignant lesions are diagnosed as pure incidental findings on histopathology. So histopathological analysis of hysterectomy specimens is must in all cases to confirm the diagnosis and for further management if required.

KEYWORDS

Adenomyosis, histopathology, hysterectomy, indication, leiomyoma

INTRODUCTION

The uterus is one of the most important reproductive organs in the women. It has two parts - the upper part is called the uterine body and the lower part is called the cervix. Different benign and malignant conditions can arise in both the parts of the uterus, which are treated surgically by hysterectomy since ages. Hysterectomy is the removal of the uterus with or without cervix. Mostly hysterectomy is done for benign diseases like leiomyoma, dysfunctional uterine bleeding, genital prolapse, endometriosis, adenomyosis, chronic pelvic pain, pelvic inflammatory disease, endometrial hyperplasia. Less number of hysterectomies are done for cervical intraepithelial neoplasias, invasive uterine cancer and other cancers [1]. Obstetrical indications for hysterectomy are massive postpartum haemorrhage, uterine rupture, inversion uterus, placenta accreta. Although conservative treatment in the form of endometrial ablation, uterine artery embolization, pharmacological measures, uterine sparing surgeries is available for benign diseases and has led to a decrease in the number of hysterectomies performed yearly in USA [2]. But still hysterectomy is one of the most common surgeries performed on the women worldwide. According to national health survey, the rate of hysterectomy in India is 3.2% with variation from state to state and 67% of these hysterectomies are performed in private sector [3]. The reasons for high hysterectomy rates are that it provides definitive cure, improves quality of life and the procedure has low mortality and complication rates [4]. Some studies have indicated unwarranted use of hysterectomies leading to controversies [5-6]. Hence, every hysterectomy specimen must be subjected to histopathological examination for diagnostic as well as medicolegal purposes. The present study was done with the aim to find out the spectrum of histopathological lesions in the hysterectomy specimens and to correlate the preoperative indication with the histopathological lesion.

MATERIAL AND METHODS

This was a retrospective study conducted over a period of 1 year from January 2021 to December 2021 in the Department of pathology, Synergy Lab in Jalandhar, Punjab which receives specimens for

histopathological examination from hospitals in adjoining areas. All the specimens obtained from hysterectomies done for benign preoperative indications irrespective of the route or type of hysterectomy, were included in the study. Hysterectomies done for obstetrical causes were also included. The specimens without cervix were excluded from the study. The relevant clinical information was obtained from the histopathological requisition forms. All the slides along with histopathology requisition forms containing clinical details and preoperative indication were retrieved and reviewed. The pathological findings in uterus, cervix, tubes, and ovaries were recorded and these findings were correlated to the preoperative indication or diagnosis. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 20 for windows. The results were described as numbers, proportions, and percentages.

RESULTS

During the study period, a total of 310 hysterectomy specimens were received. There were 2 specimens without cervix and were excluded from the study. The age of the patients ranged from 20 to 79 years with average age of 45.26 years. The youngest patient was 25 years and the oldest was 71 years. (Table 1)

Table 1 Age wise distribution of hysterectomy cases

Age in years	Number of cases (n=308)	%
20-29	05	1.62
30-39	51	16.55
40-49	174	56.49
50-59	61	19.8
60-69	12	3.89
70-79	05	1.62

In our study, 224 cases (72%) were total abdominal hysterectomies and 63 cases (6.81%) were vaginal hysterectomies. In 20.45% cases, laparoscopic procedure was done. Salpingo-oophorectomy was done

in 274 cases (84.38%). It was bilateral in 241cases (74.22%) and unilateral in 33cases (10.16%).

More than one type of lesion was present in 157 cases (50.96%). Most common myometrial lesion was leiomyoma, seen in 136 cases (44.15 %). Adenomyosis was present in 58 cases (18.83%) and 4 of these were adenomyomas. In 38 cases (12.33%), both leiomyomas and adenomyosis were noticed (Table 2).

Table 2-Distribution of lesions in myometrium

Type of myometrial lesion	Number of cases (n=308)	%
Fibroid uterus	136	44.15
Adenomyosis	58	18.83
Both adenomyosis and fibroids	38	12.33
Leiomyosarcoma	0	0
Unremarkable	76	24.67

Endometrium was normal in 177 cases (57.46%). The endometrium was of atrophic type in 19.48%. Benign endometrial polyps and endometrial hyperplasia without atypia were seen in 4.94% and 2.92% cases respectively. One case (0.32%) each of endometrial carcinoma and endometrial stromal sarcoma were detected. Placenta accreta was present in 4 cases (1.29%). In other 4 cases preoperative indication for hysterectomy was dysfunctional uterine bleeding, but on histopathological examination showed products of conception with gestational changes in the endometrium (Table 3).

Table 3-Distribution of endometrial lesions

Type of endometrial lesion	Number of cases (n=308)	%
Atrophic endometrium	60	19.48
Disordered proliferative	30	9.74
Hormonal effect (pseudodecidualisation)	8	2.63
Endometrial hyperplasia without atypia	9	2.92
RPOCS with gestational endometrium	4	1.29
Benign endometrial polyp	14	4.54
Endometrial carcinoma	1	0.32
Endometrial stromal sarcoma	1	0.32
Placenta accreta	4	1.29
Unremarkable	177	57.46

Cervicitis was the most common incidental lesion present in 255(78.24%) specimens. Squamous cell carcinoma was seen in 1 (0.32%) case, High grade squamous intra-epithelial lesions (HSIL) in 7(2.27%) cases and Low grade squamous intraepithelial lesion (LSIL) in 12 (3.89%) cases. Out of 21 specimens of vaginal hysterectomy done for uterovaginal prolapse, findings consistent with prolapse-acanthosis and hyperkeratosis were present in cervix. In one of these 21 cases, low-grade vaginal intraepithelial neoplasm (LVAIN) was present in vaginal flap along with LSIL in cervix (Table 4).

Table 4-Distribution of cervical lesions

Type of lesion	Number of cases (n=308)	%
Chronic cervicitis	193	62.66
Acute on chronic cervicitis	48	15.58
Benign cervical polyp	14	4.54
LSIL	12	3.89
HSIL	7	2.27
Cervical changes consistent with prolapse	21	6.81
Carcinoma cervix	1	0.32
Unremarkable cervix	12	3.89

Out of 274 cases of hysterectomy with salpingo-oophorectomy, 87.95% cases showed no ovarian lesion, 13cases (4.74%) had endometriosis, 10cases (2.74%) had functional ovarian cysts, 3cases (1.09%) had dermoid cysts. One specimen [0.36%] showed malignancy in the form of papillary serous cyst adenocarcinoma (Table 5).

Table 5-Distribution of ovarian lesions

Type of ovarian lesion	Number of cases (n=274)	%
Functional cysts	10	2.74

Serous cystadenoma	1	0.36
Papillary serous cystadenofibroma	2	0.72
Dermoid cysts	3	1.09
Endometriosis	13	4.74
Fibroma	2	0.72
Xanthomatous ovary	1	0.36
Papillary serous cystadenocarcinoma	1	0.36
Unremarkable	241	87.95

No tubal abnormality was found in 254 specimens (92.70%). In 12 cases, salpingitis was present (Table-6)

Table 6-Distribution of tubal lesions

Type of tubal lesion	Number of cases (n=274)	%
Chronic salpingitis	12	4.37
Endometriosis	2	0.72
Salpingitis isthmica nodosa	1	0.36
Hydrosalpinx	1	0.36
Hematosalpinx	4	1.45
Unremarkable	254	92.70

The most common preoperative indication for hysterectomy was leiomyoma in 123 cases (39.39%) and histopathological results were consistent in 97.57% cases. DUB was the second common indication for hysterectomy, but on histopathological examination 81.18% specimens of DUB showed some pathological lesion. Most common lesion in these inconsistent cases was combined adenomyosis and leiomyoma in 38 cases followed by leiomyoma alone in 12 cases. Out of 58 cases of adenomyosis diagnosed on HPE, 29 cases (50%) cases of adenomyosis were detected preoperatively by clinical and radiological methods. One case each of carcinoma endometrium, carcinoma cervix, carcinoma ovary, endometrial stromal sarcoma was also diagnosed incidentally on histopathological examination. Histopathological confirmation of Uterovaginal prolapse was 100% but 3 cases had leiomyomas and 2 cases had adenomyosis in addition (Table 7)

Table 7-Correlation of preoperative indication with Histopathological diagnosis

Preoperative indication	HPE consistent with indication (number & %)	HPE inconsistent with indication (number & %)	Histopathological diagnosis in inconsistent cases
Leiomyoma(n =123,39.93%)	120(97.56%)	3 (2.43%)	Adenomyosis n=3(100%)
DUB(n=101,32.27%)	19(18.81%)	82(81.18%)	Leiomyoma n=12(14.63%)
			Adenomyosis + Leiomyoma, n=38(46.34%)
			Adenomyosis, n=26(35.36%)
			Endometrial Polyp, n=1(1.21%)
			RPOCs with gestational endometrium, n=4(4.87%)
Adenomyosis (n=29,9.41%)	26(89.65%)	3(10.34%)	Ca cervix, n=1(1.21%)
			Leiomyoma, n=2(66.66%)
Uterovaginal prolapse (n=21,6.81%)	21(100%)		Endometrial stromal sarcoma, n=1(33.33%)
Endometrial hyperplasia(n =11,3.57%)	8(72.72%)	3(27.27%)	Endometrial Polyp, n=2(66.66%)
			Ca endometrium, n=1(27.27%)

Endometrial polyp(n=7,2.27%)	7(100%)		
Ovarian cysts (n=5,1.62%)	4(80%)	1(20%)	Ca ovary, n=1(100%)
Dermoid Cyst(n=2,0.64%)	2(100%)		
Placenta accreta(n=4,1.29%)	4(100%)		
PID(n=3,0.97%)	2(66.66%)	1(33.33%)	Endometriosis, n=1(100%)
Endometriosis (n=2,0.64%)	2(100%)		

DISCUSSION

Hysterectomy is the removal of the uterus with or without cervix done for various benign and malignant conditions and sometimes for obstetrical reasons also. Despite the availability of the conservative methods of treatment for many diseases, hysterectomy is the second most common surgery after caesarean section done in women as it provides definitive cure. Hysterectomy rates vary greatly from region to region^[4]. All the hysterectomy specimens should undergo histopathological examination for diagnostic, therapeutic and medicolegal purposes.

In our retrospective study of 308 cases, the median age for hysterectomy was 45.26 years with maximum cases (56.49%) in 40 to 49 years age group followed by 19.80% in 50 to 59 years age group. Raza AKMM and Patel AS et al also found that 40 to 49 years was the most common age group for hysterectomies^[7,8].

We found that most of the hysterectomies were done by abdominal route (72.72%) followed by laparoscopic route in 20.45% and Vaginal route in 6.81%. Other studies also show that abdominal hysterectomy is the commonest route of surgery^[7-11].

In our study, cervicitis was the most common incidental finding seen in 78.9% cases similar to the findings of other studies^[7,10,12,13]. Leiomyoma was the commonest myometrial lesion seen in 136 cases (44.15%) followed by adenomyosis in 58 cases (18.83%). Baral R et al and Kolar A et al also found leiomyoma as the commonest myometrial lesion in 48.6% and 47.4% cases respectively^[10,12]. However, Raza AKMM found a lower incidence of leiomyoma (29.70%) in his study^[7]. In our study, 38 specimens (12.33%) had both fibroid and adenomyosis which is comparable to the study by Kolar A et al who found combined fibroid and leiomyoma in 17.94% cases^[12].

In our study, atrophic endometrium was the commonest endometrial lesion in 60 cases (19.48%). Raza AKMM and Patel S et al found atrophic endometrium in 12.8% and 29% respectively. Endometrial hyperplasia was found in 2.92% cases. Raza AKMM showed a very low incidence of endometrial hyperplasia 0.9% while in the study by Patel AS, incidence of endometrial hyperplasia was 5.3%^[7,8]. In our study benign endometrial polyp was seen in 4.54% cases similar to the findings of Baral R et al (4.9%)^[1].

In 241 cases (74.22%), bilateral salpingo-oophorectomy with hysterectomy was done while unilateral salpingo-oophorectomy with hysterectomy was done in 33 cases (10.16%). Out of these 274 cases where ovaries were removed, 87.95% showed no pathological lesions in the ovaries and only one case of carcinoma ovary was diagnosed incidentally. The rate of bilateral salpingo-oophorectomy was higher than other studies^[14,15]. The high rate of bilateral salpingo-oophorectomy in our study may be due to the reason that it is taken as the most definitive safety measure for carcinoma ovary and other ovarian cysts and clinicians perceive that there is little advantage of ovarian preservation near or beyond menopause^[6]. The prophylactic oophorectomy with hysterectomy for benign diseases in low risk perimenopausal women has the potential adverse effects on sexual and cognitive function, heart health, diabetes and overall mortality^[15]. Endometriosis was present in 13 cases (4.74%) similar to the findings of Baral R who found endometriosis in 3.8% cases^[10]. The most common tubal lesion was salpingitis seen in 12 cases (4.34%) like the results of Rather GR et al and Bhagwan IR et al^[16,17].

The most common preoperative indication for surgery was leiomyoma in 39.93% cases and DUB was 32.27% cases. Pradhan SB et al and Jaleel R et al also found leiomyoma as the commonest indication for surgery in 48% and 40.4% cases respectively^[13,18]. However, other

studies showed DUB as the commonest indication^{7,9}. In the study conducted by Verma D, uterovaginal prolapse was the commonest preoperative indication seen in 37.5% followed by fibroid uterus seen in 25.65% cases^[19].

Histopathological analysis of the specimens confirmed preoperative diagnosis in 66.66% to 100% cases done all indications other than DUB. Preoperative diagnosis of DUB was confirmed histopathologically in only 18.81% cases and rest of the cases showed pathological lesions. This was similar to the findings of Jaleel R who found that histopathological confirmation for DUB in 14% cases^[18]. Half of the cases of adenomyosis were not diagnosed preoperatively due to non-specific symptoms and difficulty in radiological diagnosis. In our study, 4 cases of DUB showed retained products of conception with gestational endometrium on histopathological examination. Similar findings were observed by Verma D et al^[19].

4 cases of malignancy were confirmed incidentally on HPE which indicates the importance of HPE of all hysterectomy specimens.

CONCLUSION

Our study shows that leiomyoma is the most common myometrial lesion and the commonest indication for hysterectomy. Most of the preoperative indications were confirmed on HPE except in DUB cases. Almost in 81.19% hysterectomies done for DUB as preoperative indication, definitive pathological lesion was found. Hence, proper work-up of DUB cases should be done before decision of hysterectomy is undertaken. In half of the cases, adenomyosis was not diagnosed preoperatively. Four cases of malignancy, one each of carcinoma endometrium, endometrial stromal sarcoma, carcinoma cervix, carcinoma ovary and VAIN in the vaginal flap of vaginal hysterectomy specimen for prolapse uterus were found incidentally indicating the diagnostic significance of HPE of hysterectomy specimens done for benign causes. Higher incidence of oophorectomy indicates that awareness should be created among the women and the clinicians about the health risks associated with removal of ovaries in low-risk women.

Hence it is very important to do histopathological analysis of all hysterectomy specimens to find out the spectrum of pathological lesions and to establish the definitive diagnosis. It is also important to find out any underlying malignancy for which patient may require further treatment.

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