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CLINICO-PATHOLOGICAL CORRELATION OF HYSTERECTOMY SPECIMENS AT A TERTIARY CARE HOSPITAL IN NORTHEAST INDIA - A 2-YEAR RETROSPECTIVE STUDY

Pathology

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ABSTRACT

Background: Rates of hysterectomy differ according to geographic distribution and practice patterns of the local gynaecologic surgeons This was a retrospective study in which the histopathological examination (HPE) of the specimens of all the hysterectomies done in Silchar Medical College & Hospital, Assam, India from January 2016 to December 2017, were analysed. The aim of the study was to assess the range of pathological lesions in the hysterectomy specimens and correlation of the preoperative diagnosis with the histopathological diagnosis.

Methods: This was a retrospective study which was conducted at the Department of Pathology, Silchar Medical College & Hospital, Silchar, Assam, India and incorporated all hysterectomy cases over a period of 24 months, from January 2016 to December 2017.

Results: A total of 446 hysterectomies were done during the study period. Among these, 278(62.3%) were abdominal and 168(37.7%) were vaginal hysterectomies. Mean age of the patients were 45.1 years. Uterovaginal prolapse (36.8%) was the most common preoperative indication overall, while uterine fibroid (22.6%) was the commonest indication for abdominal hysterectomies. Other common indications were ovarian mass (12.5%), dysfunctional uterine bleeding (DUB)(12.1%) and adenomyosis (9.2%). Fibroid uterus in the myometrium, chronic cervicitis in the cervix and functional cysts in the ovaries were the most common histopathology noted. Patients operated with a preoperative diagnosis of DUB had the least HPE correlation. Findings were unremarkable in 30.5% cases.

Conclusion: Justification of hysterectomy is demonstrated when the HPE report is compatible with the preoperative diagnosis; hence HPE of all hysterectomy specimens ought to be performed.

KEYWORDS

INTRODUCTION

The uterus is susceptible to develop several non-neoplastic and neoplastic conditions during the life time of a woman. The uterus comprises of endometrium and myometrium which is under the influence of different hormones periodically. Numerous studies have shown many different types of lesions in the ovaries and fallopian tubes. The cervix is inclined to many non-neoplastic and neoplastic conditions which are mostly seen in the reproductive age group. All these diseases are seen across all age groups and contribute significantly to increased morbidity and mortality amongst women.[1]

Hysterectomy is the removal of the uterus and it is the most common gynaecological operation done worldwide. It is considered as the definitive treatment for various benign pelvic pathologies like leiomyoma, dysfunctional uterine bleeding (DUB), chronic pelvic pain, endometriosis, adenomyosis, uterovaginal prolapse and in some cases of genital tract malignancies.[2] It came into widespread use in the early 20th century. Advances in anaesthesia, aseptic technique and antisepsis during the 19th and early 20th centuries allowed the development of safe surgical management for benign and malignant gynaecologic diseases.

Histopathological analysis of the hysterectomy specimens is mandatory for diagnostic purposes and to assess the pattern of lesions common in the uterus and adnexa in a particular population. The aim of the study was to assess and analyse the range of pathological lesions in the hysterectomy specimens and to correlate the preoperative diagnosis with the histopathological diagnosis in a tertiary care rural teaching hospital in northeast India.

MATERIAL AND METHODS

This was a retrospective study which was conducted at the Department of Pathology, Silchar Medical College & Hospital, Silchar, Assam, India and included 446 patients who underwent hysterectomy over a span of 24 months, from January 2016 to December 2017.

All types of hysterectomies were included in the study-abdominal hysterectomy including total abdominal hysterectomy (TAH), TAH with unilateral or bilateral salpingoophrectomy and vaginal hysterectomy done for prolapse and non-prolapse causes.

The data for the study was obtained from requisition with tissue specimens received with 10% formalin. After adequate fixation the specimens were subjected to gross examination. After tissue processing, 3-5 micron thick sections were taken and stained with haematoxylin and eosin and special stains whenever necessary.

The histopathological (HPE) reports of the hysterectomy specimens were obtained along with the corresponding patient information, pre-operative diagnosis, type of surgery and follow up of the patients. The histopathological findings of the endometrium, myometrium, cervix, ovaries and fallopian tubes were recorded.

Preoperative indications were compared with the HPE reports. Justification of the hysterectomy was demonstrated if the histopathology confirmed the indication for surgical procedure or uncovered noteworthy pathology in the specimen. Lesions found in the hysterectomy specimens were classified as lesions of the endometrium, lesions of the myometrium, lesions of the cervix and lesions of the ovary. The data was analysed utilizing SPSS for windows.

RESULTS

During the study period, a total 446 hysterectomy specimens were sent to the Department of Pathology, SMCH for histopathological examination. Out of these, 278(62.3%) were total abdominal hysterectomies (TAH) and 168(37.7%) were vaginal hysterectomies (VH). 164 TAH were accompanied by bilateral salpingo-oophorectomies (TAHBSO), 49 were accompanied by unilateral salpingo-oophorectomies (TAHUSO) and in 65 TAHs both ovaries were preserved.

Table 1: Distribution of cases according Types of hysterectomy

Type of hysterectomy	Number of patients	Percentage
Total abdominal hysterectomy (TAH)	65	14.6%
TAH with unilateral salpingo-oophorectomy	49	10.9%
TAH with bilateral salpingo-oophorectomy	164	36.8%
Vaginal hysterectomy	168	37.7%

The age of the patients ranged from 24 to 78 years, with a mean of 45.1 years. Most of the cases were in the 40-49 years age group i.e, 181(56.3%) followed by 30-39 years (127 cases)

Figure2. Age distribution of cases

AGE	Number of patients	Percentage
20-29	12	2.7%
30-39	127	28.5%
40-49	181	40.6%
50-59	81	18.1%
60-69	41	9.2%
70-79	04	0.9%

Overall the most common clinical indication for hysterectomy was uterine prolapse (164 cases), accounting 97.6% of vaginal hysterectomies and 36.8% of all hysterectomies. Other common pre-operative diagnoses were fibroid (22.6%), ovarian mass (12.5%), dysfunctional uterine bleeding (DUB)(12.1%) and adenomyosis (9.2%) .

Table 3: Distribution of cases according to preoperative diagnosis

Preoperative diagnosis	Number of patients	Percentage
UV prolapse	164	36.8%
Fibroid	101	22.6%
Ovarian mass/cyst	56	12.5%
DUB	54	12.1%
Adenomyosis	41	9.2%
PID	12	2.7%
Cervical carcinoma	8	1.8%
Endometrial carcinoma	4	0.9%
Uterine polyp	4	0.9%
CIN	2	0.5%

Proliferative endometrium was the commonest microscopic finding noted in the endometrium of all the hysterectomy specimens (57.85%). Histopathologically, 98 cases (21.97%) showed atrophied endometrium, 14(3.1%) showed endometrial polyp, 13 (2.9%) showed hyperplasia (10 simple, 3 complex) and 9 (2%) cases showed endometritis. Malignancy was present in 4 (0.9%) specimens which were endometrial carcinomas.

Table 4: Histopathological findings in Endometrium among hysterectomy specimens

Histopathological Finding	Total cases	Percentage
Proliferative endometrium	258	57.85%
Atrophic endometrium	98	21.97%
Secretory endometrium	44	9.87%
Endometrial polyp	14	3.14%
Endometrial hyperplasia	13	2.91%
Endometritis	09	2.01%
Disordered proliferative endometrium	06	1.35%
Endometrioid carcinoma	04	0.9%
Total	446	100%

144 specimens had myometrial pathology. Most common histopathological abnormality in the myometrium was leiomyoma followed by adenomyosis. Isolated leiomyoma was seen in the myometrium of 80 (17.9%) hysterectomies and adenomyosis in 52 (11.7%), whereas, in 8 myometria both were present together. 4(0.9%) cases showed invasion into myometrium by malignant endometrial carcinoma

Table 4: Histopathological findings in Myometrium.

Histopathological Finding	No. of cases	Percentage
Normal	302	67.71%
Leiomyoma	80	17.94%
Adenomyosis	52	11.66%
Leiomyoma & Adenomyosis	8	1.79%
Invasion by malignant endometrial carcinoma	4	0.90%
Total	446	100%

Cervix from 345 (77.35%) specimens showed chronic cervicitis. 22 (4.9) patients had cervical dysplasia and 8 patients turned out to have invasive squamous cell carcinoma. Cervical adenocarcinoma was encountered in 4 cases (0.9%).

Table 5: Histopathological findings in Cervix

Histopathological Finding	No. of cases	Percentage
Normal	35	7.85%
Chronic cervicitis	345	77.35%
Squamous metaplasia of endocervical glands	25	5.61%
Cervical dysplasia	22	4.93%
Squamous cell carcinoma	8	1.79%
Adenocarcinoma	4	0.90%
Condyloma	4	0.90%
Cervical leiomyoma	3	0.67%
Total	446	100%

On examination of the ovaries, benign cystic lesions included follicular cyst (36 cases), luteal cyst (15cases), benign cystic teratoma (10 cases), haemorrhagic cyst (where the lining could not be delineated) in 4 cases). There were 21 patients with serous cystadenoma, 4 borderline serous tumour and 7 cases of papillary serous cystadenocarcinoma. We observed 5 cases of mucinous cystadenoma, 5 cases of mucinous cystadenocarcinoma, 4 cases of squamous cell carcinoma arising in dermoid cyst, 2 cases each of Brenner tumour and immature teratoma and a single case of undifferentiated carcinoma.

Table 6: Histopathological findings in Ovaries

Histopathological Finding	No. of cases	Percentage
Normal	260	68.24%
Follicular cyst	36	9.45%
Luteal cyst	15	3.94%
Benign serous cystadenoma	21	5.51%
Borderline cystadenoma	4	1.05%
Benign mucinous cystadenoma	5	1.31%
Benign cystic teratoma (Dermoid cyst)	10	2.62%
Serous cystadenocarcinoma	7	1.85%
Mucinous cystadenocarcinoma	5	1.31%
SCC in dermoid cyst	4	1.05%
Haemorrhagic cyst	4	1.05%
Brenner tumour	2	0.52%
Immature teratoma	2	0.52%
Oophoritis	3	0.8%
Endometriosis	2	0.52%
Undifferentiated carcinoma	1	0.26%
Total	381	100%

Fallopian tube pathology included chronic salpingitis (10 cases), hydrosalpinx (5 cases), endometriosis (3 cases), ectopic pregnancy (2 cases) and tubercular granuloma (1 case).

Ratio of benign to malignant lesions in total hysterectomy specimen were 12:1.

Table 7: Histopathological findings in Fallopian tubes

Histopathological Finding	No. of cases	Percentage
Chronic salpingitis	10	2.62%
Hydrosalpinx	05	1.31%
Endometriosis	03	0.79%
Ectopic pregnancy	02	0.52
Tubercular granuloma	01	0.26

DISCUSSION

Hysterectomy is the most common gynaecological surgery performed in females worldwide as it provides definitive cure to an extensive variety of gynaecological diseases, both benign and malignant.[3] The indications to perform this major surgery should always be justified and the pathology ought to be demonstrated histopathologically. This is so because the hysterectomy is a major surgery which has its own physical, economic, emotional, sexual and medical significance to the women[4]. Histopathological analysis and review are mandatory to assess the appropriateness of the surgical procedure.

In spite of the significant fall in abdominal hysterectomy rate for benign diseases in the last two decades, it still remains a widely used treatment modality[5,6]. Usually northeast Indian women seek medical help late as compared to women from developed countries, so conservative treatment cannot be offered in most cases. In the current study, abdominal hysterectomy was the optional approach in 62.3% of cases, while the vaginal route was for the most part reserved for the instances of genital organ prolapse. The most common procedure was vaginal hysterectomy (168 cases) followed by TAH with bilateral salpingoophrectomy (164 cases). TAH with bilateral salpingoophrectomy was observed to be the commonest type of hysterectomy in various previous studies.[7-9]

The incidence of vaginal hysterectomies done for uterovaginal prolapse was significantly higher in our study compared to previous studies. This is due to the population under investigation. In most of the studies undertaken earlier, the urban population was studied while in this study, rural northeast Indian population was under consideration. There is increased incidence of uterovaginal prolapse in the rural population due to high occurrence of unsupervised home deliveries, inadequate rest and nutrition in puerperal period. These factors lead to the damage of the pelvic floor muscles and the supporting ligaments of the uterus, consequently leading to increased incidence of pelvic organ prolapse in rural population.

The age of the patients ranged from 24 to 78 years, the mean age being 45.1 years. Most common age group was 40-49 years (56.3%). These findings were in accordance with similar previously conducted studies.[7,10]

The most common indication for the hysterectomy was uterovaginal prolapse (164 cases, 36.4%). Fibroid uterus was the second most common indication (101 cases, 22.6%). However, it was observed to be the most common indication for the abdominal hysterectomy. This was in contrast with the previous studies in which the fibroid was the most frequent indication of hysterectomy in the patients considered.[2,7,11,12]

This variation is likely due to the increased incidence of uterovaginal prolapse in the population studied, due to the causative factors mentioned earlier. Another significant clarification for this difference is due to the lower prevalence of fibroids in the study group. Early age at first pregnancy, increased parity and prolonged breastfeeding are common in the north-eastern population of India. These lead to lower incidence of fibroids as there is reduced exposure to the cyclical hormonal changes of the menstrual cycle.[4,12]

Diagnosis of dysfunctional uterine bleeding (DUB) was made in 54(12.1%) cases preoperatively. On histopathological examination, 25 patients had no significant abnormality. The rest of the patients operated with the pre-operative diagnosis of DUB were found to have adenomyosis (12 cases), endometrial hyperplasia (10 cases), leiomyoma (5 cases), endometrial polyp (1 case) and products of conception (1 case). These findings were missed preoperatively.

DUB is a blanket diagnosis, and inadequate work-up, either due to financial constraints or the pressure of the patient to get the surgical procedure done earlier, prompts such a situation. Various previous studies found that the actual diagnosis confirmed by histopathological examination was missed pre-operatively in the majority of cases operated with the preoperative indication of DUB.[2,7,13] This result underlines the fact that a pre-operative diagnosis of DUB should be made only after comprehensive and necessary investigations are done. Similar to other previous studies, we found that adenomyosis was the most missed out pathology preoperatively.[7,13] This indicates that the histopathology of the hysterectomy specimens is obligatory to affirm the pre-operative diagnosis and to justify hysterectomy. MRI is highly specific for accurate diagnosis of adenomyosis, however it is expensive and not accessible in many facilities but rather transvaginal ultrasound is a good option and features like poor definition of endometrial myometrial junction and sub endometrial linear striations, heterogeneous myometrial texture, globular uterus have the most astounding accuracy[14-17].Therefore in women with menstrual problems and features of adenomyosis on transvaginal ultrasound, hysterectomy should be offered earlier to curtail their sufferings.[14]

The commonest endometrial finding noted in the present study was proliferative endometrium (57.85%). Incidence of atrophic endometrium was 22%, and this was due to the increased incidence of uterovaginal prolapse, which is commonly the pathology of the postmenopausal females. Endometrial hyperplasia was present in 2.9% cases, similar to the studies done earlier.[8,18-20]In spite of the fact that endometrial carcinoma forms the most common female genital tract malignancy [21], its prevalence in hysterectomy specimens is usually low as seen in the present study (4cases) as well as in other comparable studies[22].

Leiomyoma was the commonest lesion of the myometrium (17.9%) in our study followed by adenomyosis (11.7%). This was similar to findings of the study by Jamal S and Baqai S,[23] who concluded leiomyomas to be the commonest lesion of uterine corpus (35.7%) followed by adenomyosis (30%). Additionally, in their study chronic cervicitis in cervix (41.53%) and functional cysts in ovaries (66.12%) were most common histological findings. Similarly, in our study chronic cervicitis in cervix (77.35%) and follicular cysts in ovaries (9.45%) were the most common pathology. By and large, some inflammatory cells are constantly found in the cervix. This could be the reason of high rate of chronic cervicitis in our study.

In our study coexistence of adenomyosis with leiomyoma together was seen in 1.8% (8 cases). However, other studies have shown a larger percentage of patients presenting with dual pathology.[14,19] Invasive Squamous cell carcinoma of the cervix was seen in only 1.8% of the cases. This maybe because squamous cell carcinoma diagnosed in the cervical biopsy are referred to centres with oncology services.

In all the ovarian specimens, cysts of variable morphology were the most common pathology noted. Majority were simple follicular cysts which were functional cysts. Incidence of the functional ovarian cysts was similarly high in other studies.[2,7,8,23,24] The incidence of ovarian tumours in the present study was 16%, which was close to the incidence cited by Jha et al in their study.[25] Most common were serous cystadenomas followed by benign cystic teratoma and serous cystadenocarcinoma. Mucinous tumours were less common in our study. In the study by Siwatch et al.[13] serous and mucinous cystadenomas were seen in equal frequency. Benign ovarian tumours in our study were more common (38 cases) than malignant tumours (19 cases) with 4 cases in borderline category. However, removal of ovaries without the suspicion of any pathology is by all accounts superfluous. The removal of ovaries leads to oestrogen hormone deficiency, hastens up menopause and influences the patient's psychosexual health.

Fallopian tube pathology in our study included chronic salpingitis, hydrosalpinx, dysplasia, tubercular granuloma, tubal endometriosis and ectopic pregnancy

In many cases, histopathological examination of hysterectomy specimens may not uncover any significant pathology. Pathological examination of the hysterectomy specimens were normal in 5.1% in TAH group and 42.1 in TVH group in the study by Aksu F et al.[26] The uterus was histologically normal in 20% of abdominal hysterectomies, the rate ascending to 70% for vaginal hysterectomies in the study by MacKenzie IZ et al.[27] In the systematic review of the literature Meikel et al stated that 36% of hysterectomy specimens had no pathological findings.[28] Histopathological examination of 30.5% (136/446) hysterectomies was unremarkable in our study. A large portion of these unremarkable specimens were vaginal hysterectomies (95) for uterovaginal prolapse. 41 specimens retrieved after abdominal hysterectomy were found to have unremarkable pathology, with preoperative diagnoses of DUB (25 cases), adenomyosis (8 cases), PID (6 cases) and leiomyoma (2 cases).

HA salmon et al after review of 854 hysterectomy specimens over two-year period found that microscopic assessment of macroscopically normal hysterectomy specimens was unnecessary.[29] However some authors firmly empower the microscopic evaluation of all ordinarily looking hysterectomy specimens, as the occasional presence of malignant tumours can only be accurately diagnosed by microscopic examination.[30,31]

Complications of hysterectomy were not examined in our study. However, literatures show that hysterectomy is a relatively “safe” procedure. Mortality rate associated with hysterectomy has drastically

reduced.[32] Postoperative rates of complications are considerably lower with vaginal than with abdominal hysterectomy. Postoperative fever and infections represent the majority of complications.[26]

CONCLUSION

Hysterectomy is a profoundly satisfactory and fruitful treatment modality in developed and more so in developing countries. This study signifies the fact that the histopathological analysis of the hysterectomy specimens ought to be a mandatory practice, regardless of whether the gross appearance is normal, as few lesions are observed to be purely coincidental findings. It additionally provides a correlation with the clinical and preoperative diagnosis and leads to appropriate management in the postoperative period. Justification of the hysterectomy is also demonstrated when the histopathological diagnosis corresponds with the pre-operative diagnosis. This study underlines the fact that even the hospitals in the corporate and private non-teaching institutes should send all the hysterectomy specimens for the histopathology so that an appropriate review of this major surgical procedure should be possible at all medical centres.

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