

Correlation of Clinical and Ultrasound Finding with Histopathological Diagnosis in Cases of Hysterectomy – A Cross Sectional Study

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Abstract

Background: Hysterectomy is one of the most common gynaecological operations performed throughout the world and is an effective treatment for a various gynaecological disease. Histopathological analysis is mandatory to reach definitive diagnosis and it carries ethical, legal, diagnostic and therapeutic issue. Hence every specimen must be subjected to HPE. There must be periodic audit for appropriate hysterectomy indications and efficiency of diagnostic tools must be assessed for making diagnosis and for considering conservative management before surgery. This study aim to review the demographic profile, various patterns of pathological lesions (both definitive and incidental), to assess the correlation between the clinical diagnosis, radiological findings and histopathological report in hysterectomy specimens.

Methods: This prospective study was conducted on 300 hysterectomy patients who met inclusion criteria during one year of study period; June 2012 to October 2013 in the department of obstetrics and gynaecology at NSCB medical college and Hospital. Detail history, Clinical examination, Radiological findings and provisional diagnosis of the patients was recorded. Histopathological diagnosis was correlated with preoperative diagnosis.

Results: During the study period, Out of 374 cases, 300 hysterectomy done for benign reason; So making incidence of 80%. Of this 58% of cases were of age group 41-50 years, the most common age group i.e. perimenopause age group. Multiparous women has increased incidence being 97% as compared to 1% for Nulliparous. More than half of specimen 61% show leiomyoma and adenomyosis on Histopathological analysis. Most common preoperative diagnosis was leiomyoma (41.3%) followed by uterine prolapse (28%). Correlation between Clinical diagnosis and Histopathology was 90% for fibroid, 73% of prolapse, 100% for adenomyosis, 95% for ovarian mass.

Conclusion: In our study, overall correlation between preoperative diagnosis and postoperative histological diagnosis were strong and significant. However there is room for diagnostic improvement. Some lesions that were diagnosed by histology could have been diagnosed preoperatively, with consideration of conservative management. Many benign lesions do not require a total hysterectomy for definitive treatment. Hence hysterectomy

should not be considered the only options of treatment especially in young pre-menopausal women if adequate conservative treatments are available.

Keywords: Ultrasound finding, Histopathological diagnosis, Hysterectomy, Co-relation

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Introduction

Uterus is subjected to number of diseases ranges from acute and chronic conditions which include both benign and malignant types. In-spite of various treatment modality available, surgical intervention (Hysterectomy) being commonest gynaecological surgery performed in the India as well as in Abroad [1]. Hysterectomy being more satisfying surgery as it provide definitive cure to many conditions involving uterus and adnexa. There is high Correlation among women undergoing hysterectomy with low economic status and women with 2 or more children. Hysterectomy rate varies with geographic area, patient expectations, practice pattern and training skill of local gynae surgeon. As compared to higher frequency of hysterectomy (10-20%) in other countries. India reports a lower rate (4-6%) [2]. However number of women undergoing hysterectomy in India continues to rise. In America 6 out of 1000 women undergo hysterectomy while in India, it is 17 out of 1000 [3] ie. Two times higher. According to Mayon *et al* hysterectomy being a surgery which has been used and misused, underused and abused at different times in gynaecology, however it must never be done without proper indications [4]. Dicker also concluded that hysterectomy must only be performed when risk of retaining uterus is greater than the risk involving it's removal or when it affecting day to day life activity [5]. Histopathological examination (HPE) of the uterus and adnexa plays a crucial role in detecting diagnosis with associated underlying pathology especially in patient with genital malignancy which has a profound impact on the patients [6]. HPE is necessary as it carries ethical, legal, diagnostic and therapeutic aspects [7]. However for disease like adenomyosis the

definitive diagnosis is only established by HPE. Hysterectomy has mental, physical, social, economic and psychosexual impact on women, apart from intraoperative and postoperative complications. It is associated with life threatening risk of 20-30% [8] and therefore procedure must be weighed with possible risks with alternative treatment if available. In today's Era where there has been remarkable improvement in medical and conservative treatment modality for benign disorders, it's posing question mark on justification of hysterectomy, So an audit is required to assess the correlation between Preoperative diagnosis and Histopathological examination of specimen for justification of procedure. We therefore undertook this study with aim of evaluating demographic profile, Incidence of Histopathological lesions diagnosed in hysterectomy specimens and the degree of correlation between Clinical diagnoses, radiological features with final histopathological outcome.

Material and Methods

Place of study: Department of obstetrics and gynaecology NSCB medical college and Hospital, Jabalpur.

Study population: 300 women with benign gynaecological disorders underwent hysterectomy during 1 year of study period.

Inclusion criteria: Patients with clinically and radiologically diagnosed benign gynecological disorders requiring hysterectomy.

Exclusion criteria

1. Patients with emergency obstetrics hysterectomy for PPH.

2. Already diagnosed as having malignant condition

Parameter to be studied

1. Demographic profile of study participates – age, parity, locality and socioeconomic status.
2. To identify pattern of pathological lesions in the hysterectomy specimen and to compare our finding with those of other researchers.
3. HPE confirmation and correlation with Preoperative clinical diagnosis and USG findings.

Methodology

A prospective study was carried out in the department of obstetrics and gynaecology for duration of 1 year at NSCB medical college Jabalpur at tertiary care hospital of MP. Those patients who were attended the gynaecology OPD, detailed history was taken based on presenting symptoms and examined clinically (P/A, P/S, P/V) and then followed by ultrasonography. Symptomatic fibroid, adenomyosis, prolapse, cases of AUB not responding to medical therapy were selected for hysterectomy. All cases were evaluated by

routine blood investigation and endometrial biopsy was generally done in all cases of AUB. Informed consent was taken and study proforma was filled for each subject. Finally after operation, every specimen were sent for histopathological examination and reports were analyse with both clinical diagnosis and USG finding. Further Preoperative diagnosis based on findings (clinical + USG) were correlated with histopathological finding in tabulated form. Kappa concordance correlation coefficient was used for analytical analysis. Statistical significance was accepted if $P < 0.05$.

Observation and Results

The prospective study was carried out in dept. of obstetrics and gynaecology NSCB medical college Jabalpur for duration of 1 year. During this study period, Total gynaecological admission in our setup was 1470. Out of 374 hysterectomy patients only 300 cases were included in the study as they were confirm of having benign conditions. Therefore, Incidence being 25.4% and 80 % hysterectomy in our setup were done for benign conditions.

Table 1: Demographic profile of study participates

Age in year	N (%)
<20	2(0.66)
21-30	5(1.6)
31-40	81(27.2)
41-50	174(58)
51-60	33(10)
>60	7(2)
Parity.	N(%)
Nullipara	3 (1%)
Primipara	4(1.3%)
Multipara	293(97.6%)
Locality.	N(%)
Rural	225(74%)
Urban	75(25%)
Socioeconomic status	N(%)
Low SES	279(93%)
High SES	21(6.9%)

Age: Age of patient in study ranged from 14 to 70years. The largest group (n=174) was of premenopausal age (41-50 yrs) contributing to 58% of total cases. 31-40 year was the next common age group with (n- 81)27% cases and only 2 very rare case of teenager girl. Mean age group were 44.25+₋74 years.

Parity: Majority of women's underwent hysterectomy were multiparous 293(97.6 %) with mean parity of 3. Primiparous were found in 4 cases (1.3%). Only 3(1%) was nulliparous patient.

Locality and socioeconomic status

225 (74.9%) cases belonged to rural area. 279 (93.5%) cases were from low socioeconomic status.

Table 2: Histopathology

Pathologies	No. of cases	Percentage (%)
Leiomyoma	139	37.9%
Adenomyosis	53	14.4%
Leiomyoma +adenomyosis	38	10.3%
Ovarian cyst	26	7.1%
Endometrial polyp	8	2.1%
Endometrial hyperplasia	3	0.81%
Chronic cervicitis	217	72.3%
No identified pathology	19	5.1%

Out of 300 specimen of hysterectomy, leiomyoma was the most common pathology identify in 139 cases (37.9%) followed by Adenomyosis in 14% .Other pathology were Ovarian cyst (7.1%), Endometrial polyp (2.1%), and endometrial hyperplasia (0.81%). Coexistence of leiomyoma and adenomyosis was seen in 38 specimens (10.3%).

Chronic cervicitis (72%) was found as most common incidental finding associated with definitive pathology (leiomyoma, adenomyosis...). It's being observe that among 300 cases only 5 % (19 cases) show no identifiable pathology, they were mostly uterine prolapse and AUB.

Table 3: Correlation between Clinical and Histopathological findings

Clinical Diagnosis	Histopathological findings	No. (%)
Leiomyoma (131 cases)	Leiomyoma	119 (90.7%)
	Adenomyosis	12 (9.16%)
Uterine prolapse (108 cases)	Atrophied and Normal Histopathology	83 (76.8%)
AUB (47 cases)	Leiomyoma	8 (17%)
	Adenomyosis	24 (52%)
	No identified pathology	15 (32%)
Adenomyosis (12 cases)	Adenomyosis	12 (100%)
Adnexal mass (20 cases)	Benign ovarian pathology	19 (95%)
	Broad ligament fibroid	1 (5%)

In our study, out of 131 cases clinically diagnosed as fibroid, 90% (119) were confirmed on HPE, other 9.1% (12 case) diagnosed as adenomyosis on HPE. Out of 47 cases of AUB ,8 cases (17%) were confirmed as leiomyoma and remaining 24 cases (52%) and 15 cases (32%) cases were diagnosed as adenomyosis and No identified pathology respectively. Hysterectomy which was done for prolapse showed atrophied endometrium and No identified

pathology in 76.8%. Adenomyosis has 100% correlation with histopathology. Out of 20 clinically diagnosed cases, 19(95%) were confirmed Histopathologically.

Table 4: Correlation of USG and Histopathology finding

USG findings	HPE findings	No. (%)
Bulky uterus (76%)	No identified pathology	42 (55%)
	Adenomyosis	22 (28%)
	Leiomyoma	7 (9.2%)
	Others	5 (6.5%)
Fibroid uterus (134 cases)	Leiomyoma	117 (87%)
	Leiomyoma with adenomyosis	8 (5.9%)
	Adenomyosis	5 (3.7%)
	Other	3 (2.2%)
Adenexal mass (20 cases)	Benign ovarian pathology	19 (95%)
	Broad ligament fibroid	1 (5%)
Adenomyosis (26 cases)	Adenomyosis	15 (60%)
	Other	11 (40%)
Normal scan(48cases)	Atrophied endometrium	25 (52%)
	No identified pathology	10 (20%)
	Endometrial	3 (6.2%)
	Leiomyoma	2 (4.1%)
	Other	8 (16.6%)

In our study, USG determine 87% of leiomyoma and 60% adenomyosis were histopathological confirmed later. In case of bulky uterus, 55% cases shows No identified pathology, 28% of which came out as adenomyosis and 9.2% cases came out as leiomyoma. Among patients showing normal scan, 52% had atrophied endometrium and 20.8% has no abnormality on Histology, mostly these were of case of uterine prolapse. USG and HPE of adnexal mass have high correlation of above 95%.

Kappa value for fibroid and adenomyosis in USG is 0.76 and 0.6 respectively, which shows substantial agreement between them. In case of adnexal mass, kappa value is 0.95, which shows perfect agreement. In remaining 2 pathology, kappa value for bulky uterus is 0.39 (fair agreement) and Normal scan is 0.0417 which have(slight agreement).

Table 5: Correlation between Preoperative diagnosis and histopathology

Preoperative Diagnosis (Clinical+USG)	HPE finding	Total	Percentage	Kappa Value
Fibroid (124 cases) 41.3%	Leiomyoma	100	80.6%	0.0065 Substantial agreement
	Leiomyoma + adenomyosis	13	10.4%	
	Adenomyosis	11	8.8%	
Uterine prolapse (106cases) 35%	Atrophied endometrium and no identified pathology	78	73.5%	0.14 Slight agreement
	Adenomyosis	20	18.8%	
	Leiomyoma with adenomyosis	5	4.6%	
	Leiomyoma	3	2.8%	
AUB (47 cases)	Adenomyosis	19	40.4%	0.40

15.6%	No identified pathology	14	29.7%	Fair agreement
	Leiomyoma	10	21.2%	
	Leiomyoma with adenomyosis	4	8.5%	
Adnexal mass (19cases) 6.3%	Benign ovarian cyst	18	95%	0.9 Almost perfect
	Broad ligament fibroid	1	5%	
Adenomyosis (14cases) 4.6%	Adenomyosis	14	100%	0.5 moderate agreement
Endometrial polyp (10cases) 3.3%	Endometrial polyp	8	80%	0.42 moderate agreement
	Fibroid	1	10%	
	Normal pathology	1	10%	

Overall mean correlation of preoperative diagnosis comes out to be 72.3%. In our study, Fibroid (124/300) is the most common Preoperative diagnosis for which hysterectomy was performed, constituting 41.3% of total cases and 80% (100 cases) of the fibroid diagnosed clinically were confirmed on Histopathology as leiomyoma. However coexisting pathology of adenomyosis was reported in 13 cases and 11 were found to have only adenomyosis. Adenomyosis has high sensitivity of 100% correlation of preoperative diagnosis with postoperative histopathological outcome. AUB has poor correlation; out of 47 cases with AUB, 40% (19/47) majority diagnosed as adenomyosis, 21.2%(10/47) came out as leiomyoma, 8.5%(4/47) diagnosis as coexistent of leiomyoma and adenomyosis, (29%), (14/47) show No identified pathology. It can be due to most of AUB cases being in early evolving stage of adenomyosis where uterine size was not much significantly enlarged and often missed on clinical and USG evaluation but presented with Significant symptoms which may remain underdiagnose preoperatively. Out of 106 cases of prolapse, 78 cases (72.2%) showed atrophied endometrium. Ovarian pathology diagnosed Preoperatively had higher histopathological correlation of 95% (18/19) came out as benign ovarian cyst like serous and mucinous cystadenoma, endometriotic cyst, dermoid cyst and 1 case reported to have broad ligament fibroid on HPE. Among 10 cases of

endometrial polyp, 80% cases were concordant with Histopathological findings.

Discussion

Age: In our study, we found that more than half (58%) of patients belongs to perimenopause age group (41-50year) followed by (31-40years) of age group (27%) and least were in 51-60 year age group (10%). Similar result was obtained by NA Titiloye *et al* who found 58%, 16% and 19% cases between age groups of 41-50, 31-40 and 51-60 years respectively [9]. Mean age at hysterectomy was 45 years, similar to study by Artikumari *et al* (45yrs) and Thamilsalvi *et al* (45yrs) studies [10,11]. In our study patient's age distribution was between 14-70 year, it includes 2 rare teenage girls who underwent hysterectomy for haematocolps and unicornuate uterus with rudimentary horn. Extreme age usually cover prolapse cases, whose Histopathology reports was consistent with clinical Diagnosis.

Parity: Majority of women was multiparous (97%) with mean parity being 3 and peak frequency (1-3). These strata have completed their family and are more readily considered candidate for hysterectomy [12].

Only 1% (3cases) was nulliparous who underwent hysterectomy for fibroid and it was confirmed at histopathology. In our study all cases were married expect 3 cases (2 teenager, 1 unmarried 50 yrs women)

Histopathology Reports

On reviewing 300 hysterectomy specimens, Histopathology revealed leiomyoma (37%) as the commonest pathology followed by adenomyosis (14%). Coexistence of dual pathology leiomyoma and adenomyosis found in 10% cases. Similar results were obtained in study done by Bhugra *et al* where leiomyoma were found in 37.6% followed by adenomyosis in 8.6% and dual pathology (leiomyoma and adenomyosis) in 6.9% cases [13].

Adenomyosis (14%) is the second most common pathologic finding found in Histopathology, which is comparable with study done by Raju GC *et al* who reported adenomyosis in 16% of hysterectomy [14]. It is often underdiagnosed Preoperatively as it has no specific symptoms and usually diagnosed after hysterectomy on HPE. Ovarian cyst found in 7.1% of hysterectomy specimen which goes along with the observation by Siwach *et al* encountered 7.1% of hysterectomy cases whereas slight higher incidence 13% reported in the study done by Sabita Shrestha *et al*. [15,16]. Endometrial hyperplasia accounts for 4.3% cases which is comparable to study by Bharti Mishra *et al* and Gredmark *et al* who observe slight higher incidence 8.5% and 10% cases respectively [17,18]. Endometrial polyp were found in 5% cases in our study. Similar results 7.5% endometrial polyp was reported by Bharti Mishra *et al*. [17]. In our study we found nearly three fourth 217 (72%) cases had chronic cervicitis as most frequent incidental finding along with definitive pathology, It is similar to finding of Patel AS *et al* and Dhuhya V *et al* who documented chronic cervicitis in 76.8% and 77.3% cases [19,20].

We observe no identified pathology in 5% cases these were mainly include prolapse (73%) and DUB cases (30%). Studies from South Africa found highest incidence of no identified pathology up to 84% sample of prolapse [21]. Subrata S *et al* reported 5.6% of normal Histology in their study series [22].

Clinicopathological correlation

In our study, Histopathology analysis correlates well with preoperative diagnosis in majority of cases; overall 72% of all the clinical diagnosis of hysterectomy was confirmed by histopathology. Khan *et al* showed 70.5% Clinicopathological correlation in their study. 91% of leiomyoma cases confirmed on Histopathology with 13 cases having coexistent adenomyosis. Hence it shows significant agreement between Clinical, sonographic finding with histopathology [23]. Clinicopathological correlation of adnexal mass was found to be 95%. Out of 19 cases, 1 case diagnosed histopathologically as Broad ligament fibroid. In patients preoperatively diagnosed as AUB, more than 70% had some structural pathology like leiomyoma or adenomyosis and 30% had normal Histology.

Conclusion

Ovarian mass and fibroid having strong and significant positive correlation on Histology. Prolapse and endometrial polyp show moderate histopathological correlation. However there was a negative correlation for AUB as 70% came out with some structural pathology (leiomyoma and adenomyosis). Leiomyoma and uterine prolapse are the common condition which requires hysterectomy in our hospital based clinical practice. The most common Preoperative clinical diagnosis and Histopathological finding are still dominated by fibroid uterus (leiomyoma). Conservative treatment of uterine lesions has been improved. Remarkable still Hysterectomy may be required in symptomatic patient not relieved with conservative measure, or failed medical management. Hence it's an need of hour to do Encourage Regular careful audit and reviewing of every hysterectomy specimen to help in improving the quality of Health care in our country.

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