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GYNECOLOGICAL HYSTERECTOMY: ITS OUTCOMES AND CORRELATION BETWEEN CLINICAL AND HISTOPATHOLOGICAL DIAGNOSIS AT A TERTIARY CARE MEDICAL CENTRE: A CROSS-SECTIONAL STUDY

Obstetrics & Gynaecology

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ABSTRACT

Background: Hysterectomy is the most common gynaecological surgery done in the females worldwide due to different causes of pelvic pathology. Fewer studies have been performed describing the relationship between preoperative clinical, ultrasonological diagnosis and histopathological outcome. Hence the present study was undertaken to determine the surgical outcomes, associated risk factors, histological patterns of uterine specimens and the correlation between pre-operative clinical and histopathological diagnosis. **Methods:** This cross-sectional observational study was conducted in 80 women undergoing planned gynaecological hysterectomy in the Department of Obstetrics and Gynaecology, at tertiary care centre during a period from June 2022 to March 2023. The demographic characteristics and clinical features were recorded. Hysterectomy specimens were saved in 10% formalin and sent to the Department of Pathology. Histopathology reports were analysed and compared with indications of surgery to draw various informative conclusions. **Results:** Maximum number of cases belonged to the age group between 45-64 years (61.2%) and multiparous (98.8%). Most common preoperatively clinical diagnosis was leiomyoma uterus which was diagnosed clinically and sonographically in 51(48.57%) cases. On histopathological examination, the commonest pathology, similar to clinical impression, was found to be leiomyoma at 52.5%(n=42). Adenomyosis (25%) was detected as second most common pathology. Histopathological confirmation of pre-operative diagnosis was 89% for malignancy, 96% for fibroids, 100% for adenomyosis, 100% for pelvic inflammatory disease. **Conclusions:** There was a high correlation when clinical diagnosis was a fibroid, adenomyosis and ovarian mass. Every hysterectomy specimen should be subjected to histopathological examination because it is mandatory for conforming diagnosis and ensuring optimal management, in particular of malignant disease.

KEYWORDS

Hysterectomy; Ultrasonography; Histopathology; Leiomyoma; Adenomyosis; Malignancy

INTRODUCTION

Uterus is a vital reproductive organ and is subjected to many benign and malignant diseases. Many treatment options are available including medical and conservative surgical, but hysterectomy still remains the most common gynaecological procedure performed world-wide [1]. Since the early 20th century, hysterectomy has been the definite treatment for pelvic pathology including fibroid, abnormal heavy menstrual loss, chronic pelvic pain, endometriosis, adenomyosis, uterine prolapse, pelvic inflammatory disease and cancer in the reproductive organs [2]. However, hysterectomy can be performed by abdominal, vaginal or laparoscopic route and may or may not be accompanied by salphingo-oophorectomy of either one or both sides.

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 importance of histopathological examination cannot be neglected in confirming the diagnosis. Moreover, the histological examination of hysterectomy specimens, irrespective of clinical diagnosis is essential to study the associations between multiple lesions in female genital tract, to identify newer etiologies for the diseases and to study the effects of hormones in various parts of the female genital tract with its potential consequences [3].

Abnormal uterine bleeding (AUB) is one of the most important indications for hysterectomy [4]. Though leiomyoma and adenomyosis are frequent causes of AUB and can be diagnosed by ultrasonography, histopathology is essential to confirm these common benign causes and further helps to identify rare causes, hidden pathologies and to rule out malignancy in AUB [5, 6].

Some of the patients may be suspected of having a malignancy on pre-operative assessment, histopathological examination may help in ruling out this suspicion. Whether every hysterectomy is necessary is a topic of debate and appropriate indications for hysterectomy are a subject of substantial disagreement and there should be periodical audit of this issue for its diagnosis [7, 8]. Hence, the present study has been undertaken to determine the surgical outcomes, associated risk factors, histological patterns of uterine specimens and the correlation between pre-operative clinical and histopathological diagnosis at a tertiary care medical center.

MATERIALS AND METHODS

This was a hospital based cross sectional study conducted in the Department of Gynaecology and Obstetrics at a tertiary care medical centre during a period from June 2022 to March 2023. During this study period, a total of 80 patients with age group above 35 years with clinically diagnosed benign gynecological disorders requiring elective hysterectomy were included in the study. Patients requiring emergency hysterectomies, hysterectomies for any other reasons than mentioned above and patients of hysterectomies without adequate clinical data were excluded from the study.

A prescribed questionnaire was handed out to collect the information from the participants who met inclusion criteria. A day prior to the elective operations, written informed consent was taken after explaining the risks and benefits of participating in the study. After the consent was signed, face to face interview were taken using a structured questionnaire in order to obtain baseline characteristics of the participants. All patients were followed up post operatively in the ward through ward round notes (every day) to follow their progress until discharge.

After being discharged, they were followed up via telephonic interviews (every 2 days) and on the 10th day post operation period; the patient was discharged from the study. Patients who have complications post discharge was asked to get re-admitted for appropriate management. Two weeks after operation, histology reports were traced from the pathology department. All hysterectomy specimens received at the department of pathology were subjected to the histopathological examination. Surgical specimens were fixed in formalin, embedded in paraffin wax and sections were routinely stained with haematoxylin and eosin stain.

Data analysis

The numerical data were summarized using the mean and standard deviation while categorical data were summarized using the frequency and percentages. The independent variables like age in years, parity, hypertension, diabetes mellitus, hemoglobin level before operation, type of hysterectomy, duration of operation in hours, clinical diagnoses- fibroids, endometrial hyperplasia, premalignant lesions of the cervix, BMI (kg/m^2), previous abdominal operations were recorded using bivariate logistic regression analysis for the crude odds ratio to identify their association with adverse surgical outcomes of gynecological hysterectomy at 95% confidence interval. Variables that indicated significant influence of adverse surgical outcomes of gynecological hysterectomy like BMI (Kg/m^2), previous abdominal

operation and duration of operation in hours were recorded with multivariate logistic regression analysis to control possible modifiable effects on confounders.

OBSERVATIONS AND RESULTS

A total 80 women undergoing planned gynaecological hysterectomy in the Department of Obstetrics and Gynaecology, at tertiary care centre during a study period from June 2022 to March 2023 were included in the study. The age distribution of the study participants ranged from 26 to 85 years with mean age of 48.8±7.4 years. Majority of the patients were obese (43.9%), had their primary education (35%) and majority of patients were married (73.7%) as shown in table 1.

Table 1: Socio-demographic profile of the patients

Scio-demographic data		No. of patients	Percentage
Age groups in years	26 to 44	27	33.7
	45 to 64	49	61.2
	>65	04	5.0
	Mean ± SD	48.8±7.4	
BMI (Kg/m2)	<18.5	6	1.5
	18.5-24.9	3	24.9
	25.0-29.9	59	43.9
	>30	5	29.7
Education level	Non formal	16	20.0
	Primary	28	35.0
	Secondary	26	32.5
	College/ high school	10	12.5
Marital status	Single	06	7.5
	Cohabiting	03	3.7
	Married	59	73.7
	Divorced	05	6.2
	Widowed	07	8.7

Majority of the patients belonged to parity 3 (43.7%), with a mean parity of 3.4±3 as depicted in figure 1. Out of 80, 19 (23.7%) patients had hypertension and 8 (10%) patients had diabetes mellitus. 13 (16.2%) patients had their previous abdominal surgeries done. Majority of the patients had their pre-surgical haemoglobin level, less than 11gm/dl (59; 73.7%) followed by 10.5 to 8.0 gm/dl (21;26.2%).

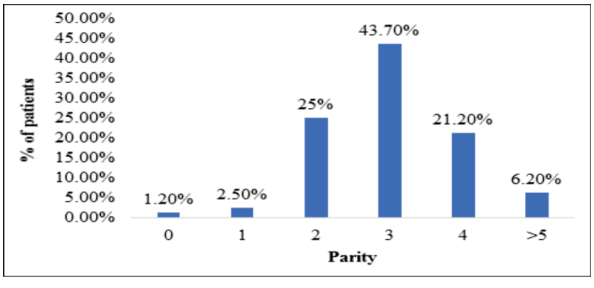

Figure 1: Parity distribution

Most of the patients had undergone abdominal approach for hysterectomy (76; 95%) followed by vaginal hysterectomy (4; 5%). The incidence of surgical complications as classified by Clavien and Dindo system was as follows: Grade I: 12(15%), Grade II: 31(38.7%), Grade III: 06(7.5%), Grade IV and Grade V: 0 (0%), Intra operatively, 8(10%) of women had severe blood loss, 23(28.7%) had blood transfusion and 01(1.2%) sustained visceral injury. Postoperatively, 08(10%) of them had post-operative fever, (Table 2).

Table 2: Surgical complications of gynaecological hysterectomy according to Clavien-Dindo classification

Complication	Clavien-Dindo Grade					Percentage
	I	II	III	IV	V	
Blood transfusion	0	23	0	0	0	28.7%
Visceral injury	0	0	01	0	0	1.2%
Ureteric injury	0	0	03	0	0	3.7%
Urinary bladder injury	0	0	02	0	0	2.5%
Bowel injury	0	0	0	0	0	-
Post-operative fever	08	0	0	0	0	10%
Haemorrhage	0	08	0	0	0	10%
Anaemia	04	0	0	0	0	5%
Wound infection	0	0	0	0	0	-
Total	12 (15%)	31(38.7%)	06(7.5%)	0	0	

Table 3 shows the association between surgical complications and background characteristics. Obese women had 3 times higher odds of having surgical complications during gynaecological hysterectomy than non-obese women. Likewise, women who had previous history of abdominal operation had 9 times higher odds of developing surgical complications during gynaecological hysterectomy.

Table 3: Multivariate logistic regression analysis for the adjusted odds ratio of hysterectomy related complications by the associated factors

Variables		Adjusted OR	95% CI	P-value
BMI (Kg/m2)	Normal: 18.5-24.9	1.00	-	-
	Underweight:<18.5	5.51	0.31-102.81	0.261
	Overweight: 25-29.9	1.81	0.78-4.61	0.145
	Obesity>/ 30	3.79	1.42-10.28	0.007
Previous abdominal operation	No	1.00	-	-
	Yes	8.3	2.54-10.45	0.001

The most common chief complaints were menstruation related excessive irregular or frequent bleeding (43 53.7%) whereas most common preoperatively clinical diagnosis was leiomyoma uterus which was diagnosed clinically and sonographically in 35 (43.7%) cases as shown in table 4.

Table 4: Distribution according to clinical symptoms and clinical indicators

Variable		Frequency	Percentage
Symptoms	Menstrual related problems	43	53.7
	Pain abdomen	27	33.7
	Urinary symptoms	01	1.2
	Excessive discharge per vaginum	02	2.5
	Backache	03	3.7
	Lump abdomen	02	2.5
	Post -menopausal bleeding	02	2.5
Clinical indicators/ diagnosis	Leiomyoma uterus	35	43.7
	Dysfunctional uterine bleeding	17	21.2
	Post-menopausal bleeding	12	18.7
	Ovarian cyst	03	3.7
	PID	02	2.5
	Ovarian mass	05	7.5
	Adenomyosis	04	6.2
	Endometrial hyperplasia	02	2.5

On histopathological examination, the commonest pathology, similar to clinical impression, was found to be Leiomyoma at 52.5% (n=42). Adenomyosis (25%) was detected as Second most common pathology on histopathological examination followed by ovarian tumour (10%) as depicted in figure 2.

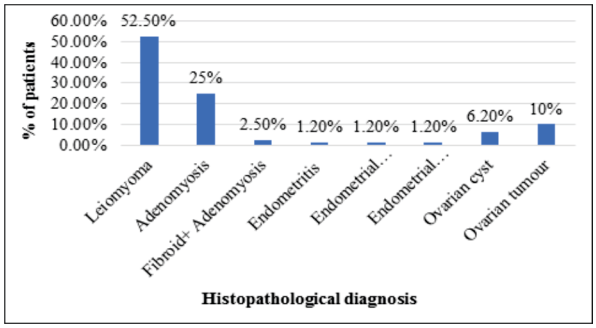

Figure 2: Histopathological diagnosis

The correlation between the clinical and histopathological diagnosis with respect to benign uterine pathologies was found to be very good. 96.07% of the Fibroids diagnosed clinically were confirmed on histopathology as leiomyoma. However, double pathologies of Adenomyosis in 4 cases coexisted. Majority of cases (62.96%) pre-operatively diagnosed as DUB were found to have adenomyosis. Histopathological confirmation of pre-operative diagnosis was 89%

for malignancy, 96% for fibroids, 100% for adenomyosis, 100% for pelvic inflammatory disease, (Table 5).

Table 5: Co-relation between clinical and histopathological diagnosis

Clinical diagnosis	Frequency	Histopathological report	No of cases	% co-related
Leiomyoma uterus	39	Leiomyoma	37	96.07%
		Unremarkable	2	
Dysfunctional uterine bleeding	20	Adenomyosis	12	8.1%
		Leiomyoma	3	
		Leiomyoma+ Adenomyosis	3	
		Unremarkable	2	
Ovarian cyst	03	Cystic teratoma	2	75%
		Chocolate cyst	1	
		Unremarkable	0	
PID	02	Endometritis	2	100%
Ovarian tumour	07	Serous cystadenoma	3, 2,1, and 1	88.8%
		Serous cystadenocarcinoma		
		Granulosa cell tumour		
		Unremarkable		
Adenomyosis	05	Adenomyosis	5	100%
Endometrial hyperplasia	04	Endometrial hyperplasia	2	50%
		Endometrial carcinoma	2	

DISCUSSION

Hysterectomy is the most common gynaecological surgery performed in females worldwide as it provides definitive care to a wide range of gynaecological diseases. The indications to perform this surgery should always be justified and should also be proved histo-pathologically. This is so because the hysterectomy is a major surgery which has its own physical, economic, emotional, sexual, and medical significance to the women. Histopathological analysis and review are important to evaluate the appropriateness of the hysterectomy. In the present study, the commonest age group undergoing hysterectomy was between 45-64 years which is in accordance with the study done by Ramachandran T et al [9], and Gupta G et al [10]. The maximum number of patients i.e., 43.7% were seen in parity 3 which is comparable with the study done by Nausheen F et al [11]. The abdominal hysterectomy with bilateral salphingooopherectomy was the most common surgery done which is comparable with the previous studies [12-14].

In the current study, most common surgical complication observed was blood transfusion, this finding was similar with the findings which was observed in studies done by Ahmed ZD et al [15]and Rabiu A et al [16]. We were not able to make a comparison of surgical complications by route of hysterectomies. This is because our study had very small number of vaginal hysterectomies compared to abdominal hysterectomy, thus it was not statistically meaningful.

The most common clinical symptom for hysterectomy was menstrual cycle related problems followed by abdominal pain. The other less common symptoms observed were urinary tract problems, discharge per vaginum, backache, abdominal lump, and post- menopausal bleeding. Menstrual related issues (mennorrhagia) were reported as the most common presentation in the studies by Jamal S. et al [17] and Perveen S et al [18]. Most common clinical indication for hysterectomy in the present study was fibroid of uterus (34%), followed by dysfunctional uterine bleeding (26%) and post-menopausal bleeding. Similar results have been reported in earlier studies [19, 20].

Diagnosis of dysfunctional uterine bleeding was made in 20% cases. However, on histopathological examination, only 8.1% had finding consistent with the diagnosis of dysfunctional uterine bleeding, while the rest of the patients operated with this pre-operative diagnosis were found to have adenomysosis (12 cases) and leiomyoma (3 cases). These findings were missed preoperatively. Dysfunctional uterine bleeding is a blanket diagnosis and inadequate work up, either due to financial constraints or the pressure of the patient to get the surgery done earlier, leads to such scenario. Various previous studies found that the actual diagnosis confirmed by histopathological examination was missed pre-operatively in the majority of the cases operated with the pre-operative indication of dysfunctional uterine bleeding [21, 22]. This result emphasizes the fact that the pre-operative diagnosis of dysfunctional uterine bleeding should be made only after the comprehensive and necessary investigations are done. No significant pathology was detected in 6.25% patients undergoing hysterectomy.

We found that majority of pre-operative diagnoses 96.07 % of fibroid cases were confirmed on histopathology. Similarly, histopathological confirmation of pre-operative diagnosis was 88.8% for malignancy, 75% for ovarian cyst, 100% for adenomyosis, 100% for pelvic inflammatory disease. The exception was patients with dysfunctional uterine bleeding in whom pathology like adenomyosis or small fibroids were found on histopathological specimens. Lee NC et al found 80% of the pre-operative diagnoses were confirmed in the potentially confirmable group [23]. However, in Miller study clinical diagnoses were confirmed in 50% of the cases [24].

CONCLUSION

The most common pathology identified among the hysterectomy specimens was leiomyoma. There was a high correlation when the clinical diagnosis was a fibroid, adenomyosis and ovarian mass, however the clinical and pathological correlation were poor when DUB was the preoperative clinical diagnosis, as any surgical procedure, abdominal hysterectomy is also associated with risk factors, thus indication should be carefully evaluated. Every hysterectomy specimen should be subjected to histopathological examination because it is mandatory for confirming diagnosis and ensuring optimal management, in particular of malignant disease. A yearly audit should be conducted in every government and private institute to collect data and to analyse the pattern of indications and types of histopathological lesions and pattern of diseases.

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