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Histopathological Analysis of Hysterectomy Specimens with Clinicopathologic Correlation at HBS Medical College Laboratory

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Abstract

Objective: To determine the frequency of various histopathologic lesions in the hysterectomy specimen received in HBS Laboratory and distribution of different lesions in relation to age and to correlate the histopathologic diagnosis with clinical diagnosis

Methodology: This descriptive cross sectional study was conducted at the Department of Pathology, HBS Medical & Dental College & Hospital, Islamabad from January 21, 2019 to January 30, 2020. Eighty-four hysterectomy specimen including total abdominal hysterectomy (TAH), vaginal hysterectomy (VH), total abdominal hysterectomy with bilateral (TAH & BSO) between ages 20-70 years presenting with abnormal uterine bleeding (AUB) were included while hysterectomies due to pregnancy related complications were excluded. Data was collected by purposive sampling from patients who fulfilled the inclusion criteria on a predesigned proforma with presenting complaints and clinical diagnosis. Specimen were fixed in 10% buffered formalin and histopathologic diagnosis was done from hematoxylin and eosin stained slides of representative sections. The frequency of all types of histopathologic diagnosis was calculated and clinicopathologic correlation was done for structural lesions of uterus causing abnormal bleeding. SPSS version 20 was used for statistical analysis. Mcnemar test was used to find the concordance index.

Results: The most common structural uterine lesion causing abnormal bleeding was leiomyoma (36 cases, (42.8%) followed by adenomyosis (21.4%). There was a strong clinicopathologic correlation in hysterectomy specimen. But clinically malignancy was suspected in more cases than it was diagnosed histologically (p=0.05)

Conclusion: The most common non- endometrial pathology was leiomyoma and endometrial pathology was hormonal imbalance. The clinicopathologic correlation in hysterectomy specimen was good but histopathology is pivotal for the accurate diagnosis.

Key Words: Total abdominal hysterectomy, leiomyoma, adenomyosis

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Introduction

The uterus is a common site for various types of neoplastic and non-neoplastic lesions. These diseases occur across all age groups and are a cause of significant morbidity and mortality during the life time of a woman.[1] The most common gynaecologic complaint is abnormal uterine bleeding which can be due to a variety of reasons of which not all produce a structural uterine lesion (dysfunctional uterine bleeding).[2]

When planning a hormonal therapy, it is important to rule out precancerous conditions such as hyperplasia and subclinical endometrial cancer.[3] Histopathology is the cornerstone for providing an exact diagnosis. Many treatment options are available for dealing with these cases and hysterectomy is one of them.[4] Hysterectomy is the definitive management for diseases like adenomyosis, dysfunctional bleeding, fibroid, prolapsed uterus and malignant uterine and adnexal lesions.[5]

It is estimated by age of sixty around 20% of women have undergone surgical removal of uterus and almost 40% of them have been diagnosed with abnormal uterine bleeding.[6] Hysterectomy is one of the most common specimen is histopathology lab.[7] Histopathologic

examination of hysterectomy specimens has ethical, legal, diagnostic and therapeutic significance for the patient.[8] Histopathology is also necessary to justify the indication of hysterectomy.[9]

This study aims to determine the frequency of various histopathologic lesions in the hysterectomy specimen received in HBS Laboratory and distribution of different lesions in relation to age and to correlate the histopathologic diagnosis of structural lesions with clinical diagnosis.

Methodology

This study was conducted in the department of Pathology of HBS Medical College and Hospital, Islamabad, from 21 January 2019 till 30 January 2020. Eighty four hysterectomy specimen including total abdominal hysterectomy (TAH), vaginal hysterectomy (VH), total abdominal hysterectomy with bilateral (TAH & BSO) between ages 20-70 years presenting with abnormal uterine bleeding (AUB) were included while those of pregnancy related complications were excluded. Data was collected by purposive sampling from patients who fulfilled the inclusion criteria on a predesigned proforma with presenting complaints and clinical diagnosis. Specimen were fixed in 10% buffered formalin and histopathologic diagnosis was done from hematoxylin and eosin stained slides of representative sections. The frequency of all types of histopathologic diagnosis was calculated and clinicopathologic correlation was done for structural lesions of uterus causing abnormal bleeding.

Results

During the study period of one year 84 specimen of hysterectomy which fulfilled the inclusion criteria were received in the HBS Medical College laboratory. Among those 84 specimen there were 56 cases of TAH (66.6%), 20 cases of TAH & BSO (23.8%) and 8 vaginal hysterectomies (9.3%).

The age distribution of cases ranged from 22 years (minimum) to 70 years (maximum). Average age of patients in the study was 44.6 years. Maximum number of cases were present in the age group of 41- 50 years (42 cases, (50 %). The age distribution of cases is shown in Figure 1.

There were 8 vaginal hysterectomies in this study. 4 were in women more than 60 years of age and 4 women were between 45-55 years of age. The most common histpathologic diagnosis was leiomyoma (36 cases, (42.8%) while there were 18 cases of adenomyosis (21.4%). Both fibroid and adenomyosis was present in 6 cases (7.1%). Ovarian and tubal endometriosis was

present in 4 cases (4.7%) while TAH & BSO was done due to ovarian cysts in 14 cases (16.6%). The distribution of these non- endometrial lesions in relation to the age is shown in table I
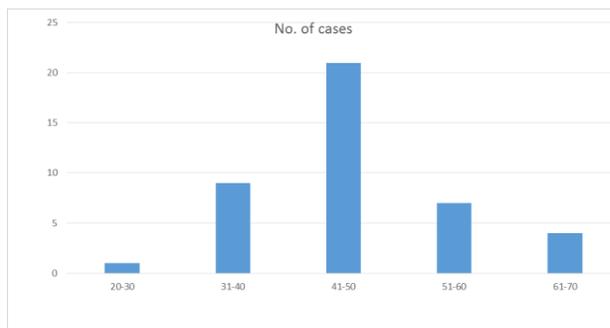
Figure 1. Distribution of cases in different age groups (n=84)

Table I: Distribution of lesions other than endometrial in the hysterectomy specimens

	31-40 years	41- 50 years	>50 years	Total
Leiomyoma	12 (33.3%)	20 (55.5%)	4 (11.1%)	36 cases
Adenomyosis	6 (33.3%)	10 (55.5%)	2 (11.1%)	18 cases
Leiomyoma+ adenomyosis	0 (0.0%)	6 (100.0%)	0 (0.0%)	6 cases
Endometriosis	2 (50.0%)	2 (50.0%)	0 (0.0%)	4 cases
Ovarian cyst (other than endometriotic)	10 (71.4%)	2 (14.2%)	2 (14.2%)	14 cases

The endometrial pathologies seen in 84 cases of hysterectomies are as shown in Table II

Table II: Distribution of endometrial pathologies in 84 cases (n=84) of hysterectomies

Histopathologic diagnosis	Number of cases	Percentage
Hormonal imbalance	28	33.3%
Endometrial polyp	5	5.9%
Disordered proliferative endometrium	7	8.3%
Endometrial hyperplasia	12	14.2%
Proliferative phase	15	17.8%
Secretory phase	4	4.7%
Pill effect	4	4.7%
Endometrial carcinoma	6	7.1%
Atrophic endometrium	3	3.5%

Hormonal imbalance with estrogen dominance pattern was the most common endometrial pathology (33.3%) while normal endometrial cyclic pattern of proliferative and secretory endometrium was also seen in 15 (17.8%) and 2 (4.7%) cases respectively. There were 6 case of endometrial carcinoma (7.1%). The predominant pathology in hysterectomy specimen was benign (92.8% of cases).

(leiomyoma+ adenomyosis and leiomyoma+

Table III: Concordance between clinical and histopathological diagnosis				
Organic lesion in uterus	Clinical diagnosis. Total number of cases (N=72)	Histopathologic diagnosis in total number of cases (N=72)	Correlation between clinical & histopathology in positive cases (Concordance index/%age)	*p*
Adenomyosis	7	18	28.0%	0.02
Leiomyoma	32	36	47.1%	0.61
Endometrial polyp	1	5	16.6%	0.20
Malignancy	**14**	**6**	**70.0%**	**0.05**
Adenomyosis+ leiomyoma	1	6	14.2%	0.11
Adenomyosis+ leiomyoma+ polyp	0	1	0.0%	1.0

Out of N=84 cases of hysterectomy clinicopathologic concordance was checked in structural uterine lesions causing abnormal bleeding (N=72 cases) as shown in the table III.

Discussion

In our study, the ages of women varied from 20 to 70 years. The maximum number of hysterectomies were done in 41-50 years of age group and the major complaint was menorrhagia. Talukdar B found the same age distribution in a tertiary care hospital of Assam, India.[10]

A total of 84 cases of hysterectomy were included in the study. Among the structural causes of bleeding, Leiomyoma, a smooth muscle tumour, was the most common cause of abnormal uterine bleeding (42.8%) which was followed by adenmyosis (21.4%) cases. It can be explained on the basis that leiomyoma can be easily diagnosed in clinical examination and radiological investigations. This relatively high frequency of leiomyoma in our study is consistent with that of Neis K[11], Amin A. et al [12], Subrata P[13]

Out of n=84 case, clinicopathological correlation for structural causes was done in 72 cases of hysterectomies (N=72 cases). The correlation between clinical and histopathological diagnosis was done using concordance index (%). The highest concordance index was found for malignancy between clinical and histopathological diagnosis. Similarly, leimyomas (47.1%) and Adenomyosis (28.0%) also had fair level concordance index. However, the lesions of Adenomyosis+leiomyoma+polyps had the least concordance (0.0%), whereas Adnmomyosis+leiomyoma also had low level concordance index. When the difference in diagnosis was assessed between clinical and histopathologic diagnosis, adenomyosis and malignancy were found significantly varied (p-value, 0.02). Histopathology was able to detect benign structural lesions in 25/72 (34.7%) more cases than clinically alone. And the presence of multiple structural lesions

adenomyosis+ polyp) was confirmed on histopathology in 6 cases while it was suspected clinically in only one case. The higher yield of histopathology as compared to clinical suspicion was also evident in studies by Singh K. et al (2019)[14] and Kumar A.[15]

The malignancy was clinically suspected in 14 cases but was histologically proven in 6 cases. The endometrial curettage in 5 cases was suspicious for malignancy. While curetting's in six cases was of various types of hyperplasia. In one case cancer was not suspected and no curetting's were done while two cases were clinically diagnosed as polyps. Singh K. et al found a good clinicopathologic correlation in this category but clinical suspicion was more than histologic diagnosis.[14]

Regarding adenomyosis, the clinical diagnosis was confirmed histopathologically for 7 cases. However, additional 11 cases were diagnosed on histopathology which were missed clinically. Adenomyosis may be easily missed clinically due to lack of specific signs and symptoms. The noninvasive diagnosis of adenomyosis lacks specificity and requires use of sophisticated radiologic techniqes as is pointed out by Chaperon et al [16] and Abbot JA.[17] Bosco RJ found adenomyosis in 25% of cases in his study in Tamil Nadu, India when adenomyosis was clinically suspected in 12% of cases.[18]

Among the endometrial pathologies a high percentage of cases were of hormonal imbalance (45.2%) largely with estrogen dominance pattern. Shaheen U. et al[19], Smriti S. et al[20] also found hormonal imbalance as the most common endometrial pathology in their studies though the percentage of cases is higher in our study than compared with theirs i-e 28% and 22.22% versus 45.2% in our study. The indications for hysterectomy in women of different regions are heterogeneous and findings are consequently subject to demographic variation.

Nasir A. et al has also reported a similar frequency of endometrial hyperplasia and disordered proliferative endometrium as ours.[21] The distribution of leiomyoma and adenomyosis in relation to the age groups is the same as reported by Rashid A. et al.[22]

The life time risk of hysterectomy is 30-40%. It is a major surgery and not without risk of complications. The frequency of pathologies in our study are comparable to findings quoted in various studies of south Asia. The high percentage of estrogen related pathologies like leiomyoma, hormonal imbalance, hyperplasia and disordered proliferative endometrium calls for the need for further research in this field regarding environmental factors and treatment options. Along with surgical complications, the procedure also has many psychosocial effects on women's life. Taking in view the availability of new medical treatments the decision for hysterectomy must be made carefully as many cases of hormonal imbalance in our study were associated with an organic cause of abnormal bleeding like fibroid. But at the same time there were cases in which the reason for bleeding was hormonal imbalance alone.

Conclusion

The most common age group for hysterectomy was 41-50 years and the most common non- endometrial pathology was leiomyoma and endometrial pathology was hormonal imbalance. The clinicopathologic correlation in uterine structural lesions causing abnormal bleeding is good but many uterine tumors present with similar clinical features and histopathology plays an important role in the accurate diagnosis of different types of tumors and thus helps in providing the patient with appropriate management.

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