

Frequency and Spectrum of Non-Malignant Lesions in Abdominal Hysterectomy Specimens

Talat Zehra, Syeda Atiya Batool Gardezi, Mahin Shams, Sumaira Zareen, Iram Kehkashan Khurshid, Zareen Irshad

ABSTRACT:

Objective: To determine the histological spectrum of non-malignant lesions in abdominal hysterectomy specimens from women of reproductive age group.

Study Design and Setting: This was a descriptive cross-sectional study carried out at a private hospital in Karachi from December 2018 to December 2019.

Methodology: The uterine specimens of patients (n=262) between the ages of 24 to 55 years were collected. Hysterectomies done due to any benign uterine disease were included in the study. Hysterectomies due to malignant causes were excluded. Pathological diagnosis was done on light microscopy using routine hematoxylin and eosin staining technique. Data collected during the study period included patient's age, clinical history/diagnosis and histological diagnosis. On receiving the hysterectomy specimens as per protocol, specimens were immediately put in 10% formalin, appropriately labeled for patient's name, gender, age and procedure. In histopathology lab, grossing of the specimens was done using standard protocols. Frequency and variables were analyzed by using descriptive statistics of SPSS-version 22.

Results: Total n=262 hysterectomies were received. Mean age of all the patients was 34.7 years \pm 7.8. Non-malignant uterine pathologies on histopathology included 124(47.7%) leiomyomas, 52(20%) adenomyosis, 32(12.3%) endometrial polyps, 16(6.2%) endometrial hyperplasia, 6(2.3%) endometritis, 3(1.2%) disordered proliferative endometrium and 1(0.4%) endometrial stromal nodule. Rest of the cases showed normal phases of endometrial cycle. Only two cases (0.76%) out of 262 received as clinically benign uterine disease, were diagnosed as malignant on histopathology.

Conclusion: Leiomyoma is the most common uterine pathology diagnosed in clinical setting as well as encountered at histopathological examination followed by Adenomyosis and endometrial polyps in women of reproductive age group in Pakistan.

Keywords: Adenomyosis, Benign pathology; Hysterectomy, Leiomyoma, Prevalence.

How to cite this Article:

Zehra T, Gardezi SAB, Shams M, Zareen S, Khurshid IK, Irshad Z. Frequency and Spectrum of Non-Malignant Lesions in Abdominal Hysterectomy Specimens. J Bahria Uni Med Dental Coll. 2021; 11(3):116-120 DOI: <https://doi.org/10.51985/ZZYV1850>

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non commercial use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION:

Hysterectomy is the most commonly performed gynecological surgery secondary to menorrhagia which can lead to various long-term health risks. Abdominal hysterectomy is one of the most common surgical procedures performed in gynecological setup all over the world.¹ The incidence of hysterectomy in US is 5.38/1000 women. It may or may not involve adnexa along with and may be total, partial or subtotal type depending on indication. Certain non-malignant conditions such as fibroids, adenomyosis and endometriosis also leads to significant surgical, psychological and health related consequences in patients especially if done for non-neoplastic conditions. Some of the common indications are dysfunctional uterine removal of uterus which leads to symptomatic relief. Also, it's a definite treatment to bleeding, uterine fibroids, uterine prolapse, endometriosis and adenomyosis.^{2,3,4} Post-surgical consequences in women include infection, abdominal hernia, wound dehiscence and infertility as well as in patients whose bilateral salpingo-oophorectomy is done in which lack of

Talat Zehra

Lecturer, Department of Pathology,
Sindh Medical College, Jinnah Sindh Medical University

Syeda Atiya Batool Gardezi

Lecturer, Department of Pathology,
United Medical & Dental College, Karachi
Email: atiyagardezi1@gmail.com

Mahin Shams

Karachi

Sumaira Zareen

Consultant, Department of Gynecologist
Ashfaq Memorial Hospital, Karachi

Iram Kehkashan Khurshid

Consultant, Department of Pathology
CITI lab, Rawalpindi

Zareen Irshad

Assistant Professor, Department of Pathology
Sindh Medical College, Jinnah Sindh Medical University,
Karachi

Received: 06-11-2020

Accepted: 11-06-2021

ovarian hormones leads to severe lifelong health issues.

The spectrum of benign diseases in hysterectomy specimens include uterine leiomyomas, adenomyosis, endometrial polyps, endometrial hyperplasia, endometritis, disordered proliferative phase endometrium and endometrial stromal nodule.^{4,5,6,7} Out of which most frequent pathology encountered is leiomyoma.^{3,5,8,9,10}

Uterine leiomyoma is defined as benign tumor of smooth muscle origin. Incidence of leiomyoma is found to be different according to different studies and it ranges from 20.5-69%.^{5,8,9,10,11} It is the commonest benign pathology which leads to menorrhagia, dysmenorrhea, infertility and recurrent abortions in women of reproductive age group. Pathogenesis is unclear but most common risk factors are obesity, insulin resistance, familial tendency, advancing age and hormone therapy.^{2,3,4,7,11} Hysteroscopic or laparoscopic myomectomy are safe and effective treatment options, but in women who do not wish to retain fertility, hysterectomy is still the standard surgical option. However, hysterectomy has its short term and long term sequelae – 1 in 30 women have an adverse post-surgical effect and mortality may be between 0.4-1.1 per 1000 operations³. Non-surgical interventional treatments are uterine artery embolization, and high-frequency MR-guided focused ultrasound surgery.¹²

Adenomyosis is defined as presence of endometrial tissue within the myometrium. Incidence of adenomyosis is variable according to literature. Symptoms are pelvic pain (including dysmenorrhea, dyspareunia), menorrhagia and impaired fertility status.²

Endometrial polyps are abnormal growths from the uterine lining composed of glands, blood vessels and stroma. These are space occupying lesions, are variable in size and present with clinical complaints of dysfunctional uterine bleeding and infertility.⁶

Endometrial hyperplasia also presents with menorrhagia and intermenstrual bleeding and there's a significant risk of developing malignancy in this entity depending upon the histopathological criteria of complexity and atypia.^{3,6,7} Chronic endometritis is a leading cause of infertility in young females. Prevalence rate is approximately 10-11% in patients who underwent hysterectomies due to benign conditions. Presentation of it is however mild clinical symptoms like vaginal discharge and mild pelvic pain.

This study was done to update data and to document the spectrum of non-malignant uterine pathologies diagnosed on histopathology examination as abdominal hysterectomy in women of child bearing age group leads to infertility, unnecessary financial burden and exposes the patient to postsurgical morbidities and detrimental psychosocial effects. Alternative treatment modalities should be considered, encouraged and practiced to avoid unnecessary surgical exposure followed by consequences. Hence; this study was aimed to determine the histological spectrum of non-

malignant lesions in abdominal hysterectomy specimens from women of reproductive age group.

METHODOLOGY:

Cross-sectional study carried out at Yasmeen Syed Lab (Atia Zafar Hospital) in Karachi from December 2018 to December 2019 after getting approval by institutional ethical review committee with reference to ERC number 1/2020. The duration of study was one year. A total of 262 cases were included in study. All the uterine specimens of patients between the ages of 24- 55 years, received at the hospital during sample collection period and fulfilled our inclusion criteria were collected. The inclusion criterion was to include abdominal hysterectomies of reproductive age group women in which the clinical and histological diagnosis was found to be non-malignant. All vaginal hysterectomies, abdominal hysterectomies due to known malignant cause either uterine or non uterine and autolyzed or poorly fixed samples were excluded. Data collected during the study period included patient's age, clinical history/diagnosis and histological diagnosis. On receiving the hysterectomy specimens as per protocol, specimens were immediately put in 10% formalin, appropriately labeled for patient's name, gender, age and procedure. In histopathology lab, grossing of the specimens was done using standard protocols. The tissue sections cut from the paraffin blocks were 3-4µm in thickness. Tissue processing was performed. Pathological diagnosis was done on light microscopy using routine hematoxylin and eosin staining technique. The histological slides were examined by two consultant histopathologists independently. Frequencies and variables were analyzed by using SPSS-version 22. Categorical variables clinical diagnosis and histological diagnosis were summarized into percentages, and mean (standard deviation) was calculated for numerical variable like age distribution. Stratification was done with regards to age to control the effect modifiers.

RESULTS:

A total of 262 hysterectomy specimens were received during the study period. The age group of these patients was 24-55 years. Minimum age was 24 years while maximum age was 55 years. Mean age of all the patients was 34.7 years ±7.8. The patients were distributed into 3 age groups as seen in table 2. Group 1 included patients of 24-34 years of age, which comprised of n=152 out of 262 patients (58%). Group 2 included patients of 35-44 years which comprised n=83(31.6%) of sample size. Group 3 included patients of 45-55 years which comprised of n=27(10.3%) of sample size. Non-malignant uterine pathologies on histopathological examination revealed n=124(47.3%) leiomyomas, n=52(19.8%) adenomyosis, n=32(12.2%) endometrial polyps, n=16(6.1%) endometrial hyperplasia, n=6(2.3%) endometritis, n=3(1.1%) disordered proliferative endometrium and n=1(0.4%) endometrial stromal nodule. Rest of the cases showed normal phases of endometrial

cycle as per table 3 & Figure 1. Only n=2 (0.76%) cases received with benign clinical diagnosis were diagnosed as malignant on histopathology.

DISCUSSION:

In our study, the most common finding is leiomyoma. The leiomyoma incidence varies from 20.5% to 69% and the adenomyosis incidence varies from 7.5% to 47% in the

literature ^{5,9,13,14,15} In a study done by Imam et al, incidence of leiomyoma was 29.04% while incidence of adenomyosis was 11.69%.¹⁴ Study done by Baral R et al, revealed leiomyoma incidence as 48.6% and 10.3% incidence of adenomyosis.¹⁶ Study done by Pradhan SB et al, reported; 60% incidence of leiomyoma and 14% incidence of adenomyosis.¹⁵ Study by VV Sreedhar et al observed 20.5%

Table 1: Age Statistics

N	262
Minimum	24Years
Maximum	55Years
Mean	34.7
Standard deviation	6.56

Table 2: Age group distribution

Age groups	Frequency	Percentage (%)
24-34	152	58%
35-44	83	31.6%
45-55	27	10.3%
Total	262	100%

Table 3: Frequency of histopathological diagnosis

Histopathological diagnosis	Frequency	Percentage
Leiomyoma	124	47.3
Adenomyosis	52	19.8
Endometrial polyp	32	12.2
Proliferative phase endometrium	17	6.5
Endometrial hyperplasia	16	6.1
Secretory phase endometrium	9	3.4
Endometritis	6	2.3
Disordered proliferative endometrium	3	1.1
Endometrial stromal nodule	1	0.4
Endometrioid Carcinoma	2	0.76

Table 4: Comparative frequency of histopathological diagnosis with age

Histological diagnosis (%)	Age groups in years			Total
	23-34	35-44	45-55	
Leiomyoma	68	45	11	124
Endometrioid carcinoma	0	0	2	2
Adenomyosis	19	20	13	52
Endometritis	6	0	0	6
Secretory endometrium	4	5	0	9
Disordered proliferative endometrium	2	1	0	3
Endometrial hyperplasia	10	6	0	16
Endometrial polyp	29	3	0	32
Proliferative phase endometrium	13	3	1	17
Endometrial stromal nodule	1	0	0	1
Total	152	83	27	262

Figure 1, 2: Leiomyoma showing fascicles of smooth muscle cells (1). Adenomyosis showing endometrial glands and stroma within the myometrium (2)

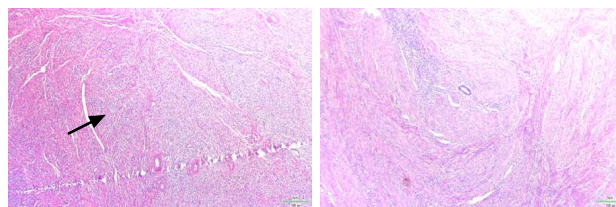


Figure 3: Endometrial polyp showing variably dilated endometrial glands surrounded by endometrial stroma and thick walled blood vessels

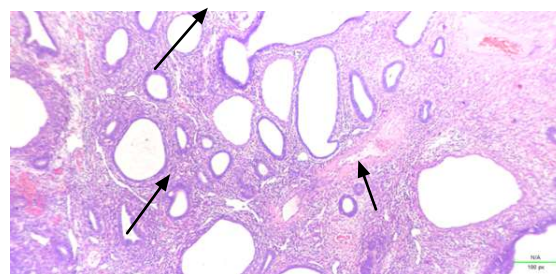


Figure 4,5: Proliferative endometrium(1) and Secretory endometrium(2)

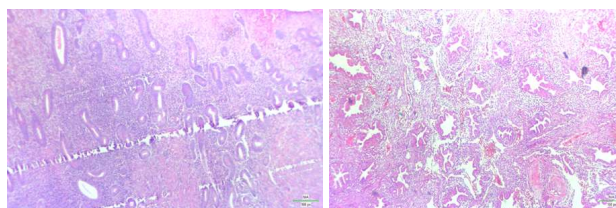
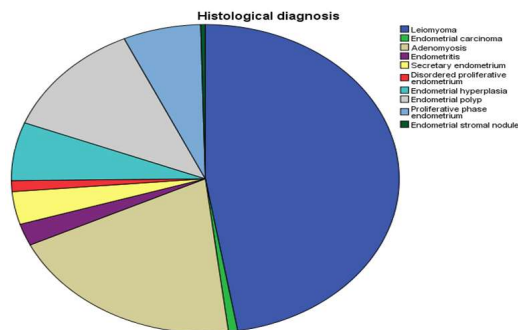


Figure 6: Histological Diagnosis



incidence of leiomyoma and 7.5% incidence of adenomyosis.¹⁷ Incidence of leiomyoma was 69% while incidence of adenomyosis was 47% determined by study done by Sarfraz et al.⁹ Incidence of leiomyoma was 44.7% while incidence of adenomyosis was 29.3% determined by Rauf et al.¹⁸ According to all the above studies, leiomyoma ranks as most frequent among all the benign entities while adenomyosis the second frequent entity. Our study showed similar results in terms of most common histological diagnosis being leiomyoma (figure 1) and adenomyosis (figure 2). In our study, however the incidence of leiomyoma was 47.3% while the incidence of adenomyosis was 19.8%.

Our study was conducted with the aim of reporting morphological spectrum as well as frequency of benign lesions in abdominal hysterectomy specimens in women of child bearing age and to emphasize the importance of alternate treatment modalities to minimize the post-surgical consequences in these patients. The age range included in study was 24-55 years; maximum number of patients was seen in 24-34 years age group which is different from the literature review which shows commonest age group for hysterectomy is 40-50 years.^{2,15,16} The studies done by Shams et al and Rauf et al shows maximum number of patients in 35-50 years and 41-50 years age group consecutively.^{7,18}

Uterine leiomyoma is a benign tumor of smooth muscle origin and is by far the most common benign tumor of the uterus and constitutes the most frequently encountered entity in female genital tract. In postmortem examinations, it was detected in 50% of women. It leads to a spectrum of clinical presentations ranging from no symptoms at all to having severe menorrhagia, metrorrhagia and infertility. It is the most common benign pathology detected in hysterectomy specimens in many studies.^{18,19,20,21}

Adenomyosis is characterized by the presence of endometrial glands and stroma within the myometrium. Patients are typically pre-or peri-menopausal women who present with abnormal bleeding. In adenomyosis, uterus becomes bulky and diffusely enlarged. It may accompany uterine leiomyomas. Adenomyosis is the second most common lesion encountered in our study and is the second most common lesion, as per literature review.^{18,19,21,22}

Endometrial polyps are characterized by abnormal growths from the uterine lining composed of glands, blood vessels and stroma. These are space occupying lesions, are variable in size and are one of the leading causes of dysfunctional uterine bleeding and infertility. According to a study by Sajjad et al, incidence of endometrial polyp was 9%.³ Another study conducted by Perveen et al specified the incidence of endometrial polyps 6.1%.⁸ According to our study, incidence of endometrial polyp in child bearing age group is found to be 12.2% (figure 3).

Endometrial hyperplasia is characterized by increased gland to stroma ratio in endometrium. It leads to menorrhagia,

metrorrhagia and post-menopausal bleeding in females. Increased risk of malignancy is associated with architectural complexity and cellular atypia. Studies done by Sajjad et al, Perveen et al and Shams et al documented incidence of endometrial hyperplasia 6% ,7.4% and 1.91% respectively.^{6,7} Incidence of endometrial hyperplasia as per our study was 6.1%.⁶

Other histopathological entities like chronic endometritis, disordered proliferative endometrium and endometrial stromal nodule also represent their fair share in morphological diagnosis⁵ (figure 6).

Hysterectomy is the most common surgical procedure performed by gynecologists all over the world and its indication is variable for different regions.¹ The decision for abdominal hysterectomy in reproductive age group is very challenging for both patient and gynecologist and should be justified. The mean age of the patients who underwent hysterectomy in our study was relatively lower than the literature while leiomyoma frequency is comparable with the available literature. Our study is different from other studies because we haven't included malignancies in it and have focused on diversity of benign entities in the uterus. Alternative modalities like myomectomy should preferably be considered in women of reproductive age group.

The limitations of our study is the shortage of radiological findings. At our center, immunohistochemistry (IHC) is not available so we couldn't confirm the diagnosis on IHC although it didn't majorly affect the histological diagnosis.

CONCLUSION:

Leiomyoma is the most common uterine pathology diagnosed in clinical setting as well as encountered at histopathological examination followed by Adenomyosis and endometrial polyps in women of reproductive age group in Pakistan.

Authors Contribution:

Talat Zehra: Conceived and designed the study, collection and interpretation of data.

Syeda Atiya Batool Gardezi: Literature Review, Analysis and interpretation of data, statistical analysis and drafting of article.

Mahin Shams: Analysis and interpretation of data, critical review of article for intellectual content

Sumaira Zareen: Critical revision of article for some intellectual content, final drafting

Iram Kehkashan Khurshid: Critical revision of article, final drafting of article

Zareen Irshad: Critical revision of article for intellectual content, final drafting

REFERENCES:

1. Wu JM, Wechter ME, Geller EJ, Nguyen TV, Visco AG. Hysterectomy rates in the United States, 2003. *Obstetrics & Gynecology*. 2007;110(5):1091-5.
2. Yogesh Neena, Bhaskar Honey. Clinico-pathological correlation of hysterectomy specimens for abnormal uterine bleeding in rural area. *Journal of Evolution of Medical and Dental Sciences* .2013: 39(2), 7506-12.

3. Sajjad M, Akram M, Khan ZA, Ghafoor A. Pattern of histopathological lesions in uterine corpus of hysterectomy specimens. *Gomal J Med Sci*. 2015; 13: 58-61.
4. Vaidya S, Vaidya SA. Patterns of Lesions in Hysterectomy Specimens in a Tertiary Care Hospital. *Journal of the Nepal Medical Association*. 2015; 53(197):18-53
5. Bhatta S, Bhandari S, Osti BP. Histopathological study of Uterine Leiomyoma in Hysterectomy Specimens. *Annals of Clinical Chemistry and Laboratory Medicine*. 2017; 3(2):16-20.
6. Perveen SA, Ansari AS, Naheed FU, Sultana A. Pattern of lesion in hysterectomy specimens and clinical correlation. *PJMHS*. 2014; 8:465-8.
7. Shams R, Naz S, Nadeem S. Histopathological Analysis of Hysterectomy Specimen. *P J M H S*. 2020; 14 (1):344-6
8. Jandial R, Choudhary M, Singh K. Histopathological analysis of hysterectomy specimens in a tertiary care centre: study of 160 cases. *International Surgery Journal*. 2019;6(8):2856-9.
9. Sarfraz RA, Sarfraz MA, Kamal.F, Afsar.A. Pattern of benign morphological myometrial lesions in total abdominal hysterectomy specimens. *Biomedica*. 2010; 26:140-3.
10. Usha K, Maheshwari J. Histopathological spectrum of lesions in Hysterectomy specimens at a tertiary care hospital-one year study. *IOSR Journal of Dental and Medical Sciences*. 2017;16(10):34-8
11. Rather GR, Gupta Y, Bardhwaj S. Patterns of lesions in hysterectomy specimens: a prospective study. *JK science*. 2013; 15(2):63-8
12. Donnez J, Dolmans MM. Uterine fibroid management: from the present to the future. *Human Reproduction Update*. 2016;22(6):665-86.
13. Fergusson RJ, Rodriguez MB, Lethaby A, Farquhar C. Endometrial resection and ablation versus hysterectomy for heavy menstrual bleeding. *Cochrane Database of Systematic Reviews*. 2019(8):1-31.
14. Imam ZS, Chandra K, Kumar B, Sinha A, Singh A, Singh SK. Histopathological Spectrum Of Hysterectomy Specimens- -A Retrospective Analysis At Igims, Patna, Bihar. *Journal of Evolution of Medical and Dental Sciences*. 2018 Jul 23;7(30):3352-6.
15. Pradhan SB, Sedhain M, Acharya S, Maharjan S, Regmi S. Clinico-pathological Study of Hysterectomy Specimens in Kathmandu Medical College Teaching Hospital. *Birat Journal of Health Sciences*. 2018;3(2):423-6.
16. Baral R, Sherpa P, Gautam D. Histopathological analysis of hysterectomy specimens: one year study. *Journal of Pathology of Nepal*. 2017;7(1):1084-6.
17. Sreedhar, V.V., Jyothi Sailaja V, Paul MC, SireeshaO, Vani T, Kumar KM. Histopathological Spectrum of Lesions of Hysterectomy Specimens-A Study of 200 Cases. *Saudi J Pathol& Microbiol*. 2016;1(2):54-9
18. Rauf A, Zaman MA. A Histopathological Study of Hysterectomy Specimens in Gujrat-Pakistan. In *Med. Forum* 2018;29(6):6-10.
19. Dil AS, Tahir F, Ahmed F, Mumtaz A. Adenomyosis and co-existing Pathologies in Hysterectomy Specimen: Four Year Experience at the National Institute of Health, Islamabad. *International Journal of Pathology*. 2016;14(1).
20. Gupta AK, Gupta I, Suri AK. Histopathological Spectrum of Hysterectomy Specimens. *Journal of Advances in Medicine and Medical Research*. 2020:96-104.
21. Mandal SK. Clinico-Pathological Correlation of Hysterectomy Specimens for Abnormal Uterine Bleeding in Peri Menopausal Women. *J Med Sci Clinic Res*. 2017; 5(1):16016-22.
22. Kýnay T, Bařarýr ZÖ, Tuncer SF, Akpýnar F, Kayýkçýođlu F, Koç S. Prevalence of endometrial polyps coexisting with uterine fibroids and associated factors. *Turkish Journal of Obstetrics and Gynecology*. 2016; 13(1): 31–6.

