



Histopathology

HISTOPATHOLOGICAL STUDY OF ADENOMYOSIS AND LEIOMYOMA IN HYSTERECTOMY SPECIMENS OF WOMEN PRESENTING WITH ABNORMAL UTERINE BLEEDING - A HOSPITAL-BASED STUDY.

Dr. Piyar Anam*

Post Graduate Trainee, Department of Pathology, FAAMCH, Barpeta*Corresponding Author

Dr. Ena Dowerah

Professor, Department of Pathology, FAAMCH, Barpeta

Dr. Balmiki Datta

Professor and Head, Department of Pathology, FAAMCH, Barpeta

ABSTRACT

Uterine bleeding that is not typical in volume, length, regularity, or frequency is referred to as abnormal uterine bleeding. It affects more than 20% of women in outpatient gynecological departments globally. The aim is to study the varied histomorphological features of adenomyosis and leiomyoma in hysterectomy specimens of patients presenting with abnormal uterine bleeding, to study the variants and the degenerative changes of leiomyoma, and correlate the histopathological findings with the clinico-radiological findings of adenomyosis and leiomyoma. Materials and methods: This is a cross-sectional study on 208 hysterectomy cases of women presenting with AUB. Histopathological examination was done in all cases. A thorough history was taken and radiological investigations were noted. Result: Most of the patients in the study were multiparous and aged 41 to 60 years. Menorrhagia was the most common clinical presentation. On histopathological examination, leiomyoma was the most common (47.60%), both leiomyoma and adenomyosis as dual pathology in 23.08% cases, adenomyosis in 17.5% cases, endometrial polyp in 6.73% cases, endometrial hyperplasia in 4.33% cases and 0.48% cases of adenocarcinoma. Conclusion: Various uterine diseases are associated with AUB. Leiomyoma is one of the leading causes of AUB and hysterectomy is the definitive treatment.

KEYWORDS : Abnormal uterine bleeding (AUB), leiomyoma, adenomyosis, histopathology

INTRODUCTION

Abnormal Uterine Bleeding (AUB) – is any sort of bleeding that does not fall within normal parameters for quantity, frequency, duration, or cyclicality. Menorrhagia, polymenorrhoea, metrorrhagia, and intermenstrual bleeding are the most prevalent symptoms. (1) AUB is a frequent disorder that affects 14-25 % of women in reproductive-age group. It is defined as a set of symptoms that include heavy menstrual bleeding involving blood loss of more than 80mL during menstruation or more than 7 days duration than normal, intermenstrual bleeding or metrorrhagia where bleeding occurs frequently and irregularly between menses, and menometrorrhagia, which is a combination of heavy and prolonged menstrual bleeding. (2)

The working committee on menstrual disorders of the International Federation of Gynaecology and Obstetrics has created a categorization system known as PALM-COEIN for causes of AUB in non-gravid women. There are nine major categories organised according to the acronym PALM-COEIN: Polyp; Adenomyosis; Leiomyoma; Malignancy and Hyperplasia; Coagulopathy; Ovulatory dysfunction; Endometrial; Iatrogenic; and Not yet classified are the terms used to describe these conditions. (3)

AIMS AND OBJECTIVES

1. To study the varied histomorphological features of adenomyosis and leiomyoma in hysterectomy specimens of patients presenting with abnormal uterine bleeding.
2. To study the variants and the degenerative changes of leiomyoma.
3. To correlate the histopathological findings with the clinico-radiological findings of adenomyosis and leiomyoma.

MATERIALS AND METHODS

This is a cross-sectional study conducted in the department of Pathology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam. This study included 208 hysterectomy cases. The duration of the study was one year from September 2021 to August 2022. A total of 208 hysterectomy cases of women presenting with AUB was included in the study. Histopathological examination was done in all cases. A thorough history was taken and radiological investigations were noted. Cases which were excluded from the study were pregnancy related cases, coagulation disorders, ovarian disease and known malignancy. Clinicoradiological findings were correlated with the histological diagnosis.

RESULTS

Majority of the patients were in the age group of 41-50 years with 122 cases (58.65%) followed by the age group of 31-40 years in 65 cases (31.25%). Leiomyoma was common in reproductive age group and rare after menopause.

Adenomyosis was also found to be common in the age group of 41-50 years with 26 cases (70.27%). Dual pathology with both adenomyosis and leiomyoma was also common in the age group of 41-50 years with 34 cases (70.83%) followed by 31-40 with 12 cases (25%) years age group. Most of the patients in the study were multiparous.

Table 1: Age distribution among the cases

Age group in years	Number of cases	Percentage (%)
21-30	9	4.33%
31-40	65	31.25%
41-50	122	58.65%
51-60	12	5.77%
Total	208	100%

Ultrasonography of the pelvic organs were done in all the cases in the study group prior to surgery. The clinical diagnosis was established after a thorough evaluation of the clinical and radiological findings. The most common clinical diagnosis found preoperatively was AUB-L in 90 cases (43.27%), followed by AUB-A in 40 cases (19.23%), AUB-A+L in 41 cases (19.71%), AUB-P in 14 cases (6.73%), AUB-E in 11 cases (5.29%), AUB-M in 7 cases (3.37%), AUB- A+P in 3 cases (1.44%) and AUB-N in 2 cases (0.96%).

On histopathological examination, out of the 208 cases 99 cases (47.59%) were found to be leiomyoma, 37 cases (17.79%) as adenomyosis, 48 cases (23.08%) as dual pathology with both leiomyoma and adenomyosis, endometrial polyp in 14 cases (6.73%), endometrial hyperplasia in 9 cases (4.33%), and endometrial adenocarcinoma in 1 case (0.48%). Proliferative endometrium and simple hyperplasia without atypia were the common endometrial findings associated with the cases.

Table 2: Histopathological diagnosis

HPE Diagnosis	No. of cases	Percentage (%)
Adenomyosis	37	17.79%
Adenomyosis and Leiomyoma	48	23.08%
Leiomyoma	99	47.60%
Endometrial polyp	14	6.73%
Endometrial hyperplasia	9	4.33%
Endometrial adenocarcinoma	1	0.48%
Total	208	100%

The total number of 10 (10.10%) variants of leiomyoma were identified among the 99 cases diagnosed with leiomyoma in the study group. The variants found are cellular leiomyoma in 9 cases (90%)

and lipoleiomyoma in 1 case (10%).

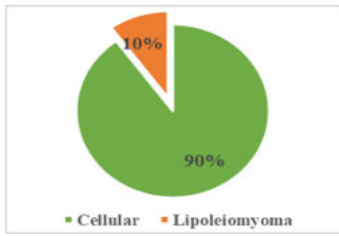


Figure 1: Pie diagram showing the distribution of variants of leiomyoma.

Degenerative changes associated with leiomyoma were detected in 15 of the 99 cases (15.15%) out of which, 11 cases (73 %) were hyaline degeneration and 04 cases (26.67%) showed myxoid degeneration.

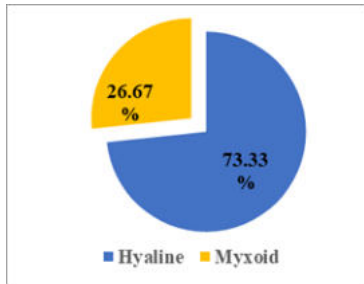


Figure 2: Pie diagram showing the distribution of degenerative changes of leiomyoma.

The clinico-radiological findings were correlated with the histopathological diagnosis. The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of clinical and radiological findings in diagnosing adenomyosis and leiomyoma has been depicted in the table 3.

Table 3: Statistical analysis of clinico-radiological findings with histopathological diagnosis.

HPE Diagnosis	Sensitivity	Specificity	PPV	NPV	Accuracy	p-value
Adenomyosis	77.65%	85.37%	78.57%	84.68%	82.21%	<0.001
Leiomyoma	84.35%	88.52%	94.66%	70.13%	85.58%	<0.001
Dual pathology	62.50%	93.12%	73.17%	89.22%	86.06%	0.0075

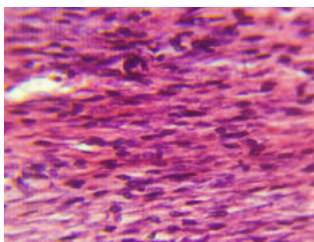


Figure 3: Photomicrograph showing histopathological features of cellular leiomyoma; 40x

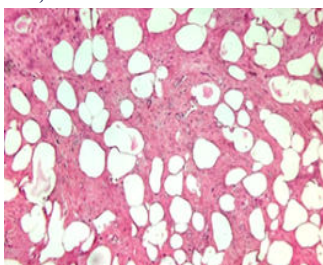


Figure 4: Photomicrograph showing histopathological features of lipoleiomyoma; 10x

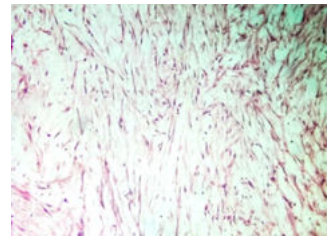


Figure 6: Photomicrograph showing histopathological features of leiomyoma (Hypocellular) with myxoid stroma; 10x

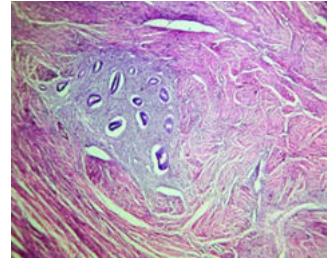


Figure 7: Photomicrograph showing histopathological features of focal adenomyosis; 10x

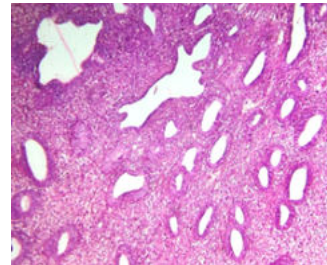


Figure 8: Photomicrograph showing histopathological features of disordered proliferative endometrium; 10x

DISCUSSION

The International Federation of Gynecology and Obstetrics (FIGO) suggests using the term abnormal uterine bleeding (AUB) to indicate any abnormality of monthly volume, control, length, and/or frequency in a non-pregnant woman.⁽⁴⁾ Hysterectomy is the definitive treatment for abnormal uterine bleeding when medical and other conservative approaches fail or after the female has finished her family.⁽⁵⁾ Leiomyoma is the most common indication for hysterectomy as per the study, followed by other pathologies which include adenomyosis, dysfunctional uterine hemorrhage, prolapse, and malignancies.⁽⁶⁾

Ultrasonography, particularly transvaginal ultrasonography (TVS), is a valid diagnostic tool for the preoperative diagnosis of adenomyosis and leiomyoma.⁽⁷⁾ TVS is far less expensive than MRI and is often more readily available in the office for most practicing gynecologists.⁽⁹⁾ Histopathology is the final confirmatory diagnostic tool in these cases.⁽⁸⁾

The age range of the present study was 23 to 60 years with the mean age being 42.22 years with a standard deviation of 6 years. The majority of the cases were in the age group of 41-50 years accounting for 60.87% which is similar to the findings by Mehla S et al. (2014)⁽¹⁰⁾ and Sajjad M et al. (2011)⁽¹¹⁾.

Multiparous women comprise of predominant population the current study which is in agreement with the findings of Patil, Rajesh, et al. (2013)⁽¹²⁾ and Pervez SN et al. (2013)⁽¹³⁾.

The clinical diagnosis was concluded with the help of the clinical and radiological findings and classified under the PALM-COEIN classification of AUB. In the present study AUB- L was found in 43.27% of cases followed by AUB-A in 19.23% which correlates well with the findings of Sabre A et al. (2021)⁽¹⁴⁾ and Mishra D et al. (2017)⁽¹⁵⁾ where AUB-L was found in 47.40% and 41.10% cases respectively and AUB-A in 14.10% and 3.80% respectively.

On histopathological examination leiomyoma (AUB-L) was the most

common finding with 47.59% cases which is comparable to the studies by Radhika K et. al. (2019)⁽¹⁶⁾ and Mishra D et al. (2017)⁽¹⁵⁾. Adenomyosis with leiomyoma as dual pathology was found to be quite high in the present study (23.08%) but Mishra D et al. (2017)⁽¹⁵⁾ and Radhika K et. al. (2019)⁽¹⁶⁾ found a comparatively lower number of cases of the same which was 4.23% and 11.10% respectively.

In the present study, we have observed various endometrial findings on histopathological examination in all the cases. Proliferative endometrium was the commonest normal pattern of endometrial finding in our study (28.85%). Similar findings were seen in the studies conducted by Soleymani E et al. (2014)⁽¹⁷⁾, Bolde, Saroj A., et al. (2014)⁽¹⁸⁾, and Bhatta S. et al. (2012)⁽¹⁹⁾. Abnormal finding of the endometrium were also found in our study. Among them, simple hyperplasia without atypia of the endometrium (25.48%) was the most common finding in our study which is comparable to the findings of Chhatrasal C et al. (2017)⁽²⁰⁾, Bolde, Saroj A., et al. (2014)⁽¹⁸⁾ and Bhatta S. et al. (2012)⁽¹⁹⁾.

In a study conducted by Lahori M et al.⁽²¹⁾ in 2016, it was found that cellular leiomyoma was the most common variant encountered and hyaline change was the most common degenerative change. Similarly, Raza AM et al. (2018)⁽²²⁾ and Naz S et al. (2019)⁽²³⁾ found cellular leiomyoma as the most common variant and hyaline change as the most common degenerative change in leiomyoma. In the present study, we have also found cellular leiomyoma as the most common variant and hyaline change as the most common degenerative change in leiomyoma.

The clinico-radiological findings were correlated with the histopathological findings. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of clinico-radiological findings in cases of adenomyosis and leiomyoma is comparable to the findings by Botsis, Dimitrios, et al. (1998)⁽²⁴⁾ and Hanafi M. (2013).⁽⁹⁾

CONCLUSION

All the patients included in the study presented with AUB, and the commonest clinical presentation was menorrhagia followed by polymenorrhoea in the cases studied. Very few patients presented with postmenopausal bleeding. Most of the specimens showed multiple fibroids (submucosal, intramural and subserosal) with most of them being intramural and a relatively a smaller number of subserosal fibroids. The most consistent gross finding in cases of adenomyosis was cystic spaces in the myometrium. In cases of dual pathology, intramural fibroid with cystic spaces in myometrium was the commonest finding. The clinical and radiological findings correlated well with the histopathological diagnosis in cases of adenomyosis and leiomyoma.

REFERENCES

- 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.
- Pramana C, Damayanti L, Latuheru EP, Ningtyas DR, Michell C, Angelina J. A Histopathological Study of Endometrium in Abnormal Uterine Bleeding: A Retrospective Study. *International Journal of Psychosocial Rehabilitation.* 2020;24(05).
- Mishra D, Sultan S. FIGO'S PALM-COEIN Classification of abnormal uterine bleeding: A Clinico-Histopathological correlation in Indian setting. *The Journal of Obstetrics and Gynecology of India.* 2017 Apr;67(2):119-25.
- Elmaogullari S, Aycan Z. Abnormal uterine bleeding in adolescents. *Journal of clinical research in pediatric endocrinology.* 2018 Sep;10(3):191.
- Singh S, Best C, Dunn S, Leyland N, Wolfman WL. No. 292-Abnormal uterine bleeding in pre-menopausal women. *Journal of Obstetrics and Gynaecology Canada.* 2018 May 1;40(5):e391-415.
- Pandya B, Gandhi H, Rathod G, Parmar P. Histopathological analysis of hysterectomy specimens. *National Journal of Physiology, Pharmacy and Pharmacology.* 2022 Mar 28;12(12):0-.
- Fedele L, Bianchi S, Dorta M, Zanotti F, Brioschi D, Carinelli S. Transvaginal ultrasonography in the differential diagnosis of adenomyoma versus leiomyoma. *American journal of obstetrics and gynecology.* 1992 Sep 1;167(3):603-6.
- Sharma K, Bora MK, Venkatesh BP, Barman P, Roy SK, Jayagurunathan U, Sellamuthu E, Moidu F. Role of 3D ultrasound and Doppler in differentiating clinically suspected cases of leiomyoma and adenomyosis of uterus. *Journal of clinical and diagnostic research: JCDR.* 2015 Apr;9(4):QC08.
- Hanafi M. Ultrasound diagnosis of adenomyosis, leiomyoma, or combined with histopathological correlation. *Journal of Human Reproductive Sciences.* 2013 Jul;6(3):189.
- Mehla S, Singh M, Chutani N. Clinicopathological correlation of adenomyosis and leiomyoma in hysterectomy specimens as the cause of abnormal uterine bleeding: A retrospective study. *Sch J App Med.* 2014;2:3320-3.
- Sajjad M, Iltaf S, Qayyum S. Pathological findings in hysterectomy specimens of patients presenting with menorrhagia in different age groups. *Ann Pak Inst Med Sci.* 2011;7(3):160-2.
- Patil R, Patil RK, Andola SK, Laheru V, Bhandar M. Histopathological spectrum of endometrium in dysfunctional uterine bleeding. *Int J Biol Med Res.* 2013;4(1):2798-801.
- Pervez SN, Javed K. Adenomyosis among samples from hysterectomy due to abnormal uterine bleeding. *Journal of Ayub Medical College Abbottabad.* 2013 Jun 1;25(1-2):68-70.
- Sabre A, Serventi L, Nuritidnova D, Schiattarella A, Sisti G. Abnormal uterine bleeding types according to the PALM-COEIN FIGO classification in a medically underserved American community. *Journal of the Turkish German Gynecological Association.* 2021 Jun;22(2):91.
- Mishra D, Sultan S. FIGO'S PALM-COEIN Classification of abnormal uterine bleeding: A Clinico-Histopathological correlation in Indian setting. *The Journal of Obstetrics and Gynecology of India.* 2017 Apr;67(2):119-25.
- Radhika K, Gomathy E. Clinico-pathological correlation of AUB patients undergoing hysterectomy in a rural tertiary care centre.
- Soleymani E, Ziari K, Rahmani O, Dadpay M, Taheri-Dolatnabi M, Alizadeh K, Ghanbarzadeh N. Histopathological findings of endometrial specimens in abnormal uterine bleeding. *Archives of gynecology and obstetrics.* 2014 Apr;289(4):845-9.
- Bolde SA, Pudale SS, Pandit GA, Matkari PP. Histopathological study of endometrium in cases of abnormal uterine bleeding.
- Bhatta S, Sinha AK. Histopathological study of endometrium in abnormal uterine bleeding. *Journal of pathology of Nepal.* 2012 Sep 25;2(4):297-300.
- Chhatrasal C, Shelgaonkar G, Kulkarni CV, Ghanghoria S, Yadav A, Aggarwal P. Evaluation of endometrial histopathological patterns in abnormal uterine bleeding: A study of 1545 cases. *International Journal of Medical Science and Public Health.* 2017 Aug 1;6(8):1240-4.
- Lahori M, Malhotra AS, Sakul KA, Goswami KC. Clinicopathological spectrum of uterine leiomyomas in a state of Northern India: a hospital based study. *Int J Reprod Contracept Obstet Gynecol.* 2016 Jul 1;5(7):2295-99.
- Raza AM, Tazri SA, Ahmed M, Nahar S, Afroz D, Barua D. A Study on Uterine Leiomyoma with Clinicopathological Spectrum. *Journal of Histopathology and Cytopathology.* 2018 Jan;2(1):41-6.
- Naz S, Rehman A, Riyaz A, Jehangir F, Naeem S, Iqbal T. Leiomyoma: Its Variants And Secondary Changes A Five-Year Study. *Journal of Ayub Medical College, Abbottabad: JAMC.* 2019 Apr 1;31(2):192-5.
- Botsis D, Kassanos D, Antoniou G, Pyrgiotis E, Karakitsos P, Kalogirou D. Adenomyoma and leiomyoma: differential diagnosis with transvaginal sonography. *Journal of clinical ultrasound.* 1998 Jan;26(1):21-5