OPEN ACCESS
Saudi Journal of Pathology and Microbiology
Abbreviated Key Title: Saudi J Pathol Microbiol
ISSN 2518-3362 (Print) |ISSN 2518-3370 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: http://scholarsmepub.com/sjpm/

Original Research Article

Endometrial Biopsy in Abnormal Uterine Bleeding: An Effective Tool in Minimizing Unnecessary Hysterectomies

Dr. Gitika Hyanki[1], Dr. Prabhat Pant[2], Dr. Ghazala Rizvi[3*]
[1]PG 2nd Year, Govt Medical College, Rampur Road, Haldwani, Nainital, Haldwani, Uttarakhand, India
[2]Assistant Professor, Dept of Pathology, Govt Medical College, Rampur Road, Haldwani, Nainital, Haldwani, Uttarakhand, India
[3]Associate Professor, Dept of Pathology, Govt Medical College, Rampur Road, Haldwani, Nainital, Haldwani, Uttarakhand, India

***Corresponding author:** Dr. Ghazala Rizvi
| **Received:** 06.01.2019 | **Accepted:** 16.01.2019 | **Published:** 30.01.2019
DOI:10.21276/sjpm.2019.4.1.6

Abstract

Introduction: Abnormal uterine bleeding is the most common presentation amongst women of all age groups attending the gynecology OPD. The etiology of AUB varies depending on the age group. Histopathological study of endometrial biopsies by light microscope is considered the gold standard for diagnosing the endometrial pathology of AUB. ***Aims & Objective:*** The aims and objective of this study is to determine histopathological patterns seen in endometrial biopsies of women who presented with AUB. ***Material and methods:*** The study was carried out in the Department of Pathology in Government Medical College Haldwani from January 2008 to January 2018. Biopsy sections underwent proper processing and stained with hematoxylin and eosin and were observed under microscope. Relevant patient details were collected from departmental records. ***Result:*** Total of 505 specimens of endometrial biopsies were studied. Maximum (47%) patients were between 36-45 years. Commonest pathology was disordered proliferative phase (20%). 11% showed hormone related changes. Hyperplasia was observed in 7%. Endometrial polyps were seen in 2%, Endometritis was found in 2% which included 2 cases of tubercular pathology. Endometrial carcinoma was seen in 2%. ***Conclusion:*** Maximum patients in our study belonged to the perimenopausal age group. Disordered proliferative pattern was the most common pathology observed. Endometrial carcinoma was seen only in post menopausal women. Endometrial biopsy proved to be an effective tool in histopathological characterization of endometrium and can be helpful in avoiding hysterectomy in AUB.

Keywords: AUB, endometrial biopsy, hysterectomy.

INTRODUCTION

The most common presentation amongst the women of all age groups attending the Gynecology outpatient department is abnormal uterine bleeding. Although AUB remains one of the most common indications for hysterectomy in developing countries, in 40% of cases no associated definitive organic pathology is found [1]. Histopathological study of endometrium is considered the gold standard for diagnosis of the etiology of AUB [2]. This study was done to observe the morphological spectrum in endometrial biopsies.

MATERIALS AND METHODS

The study was carried out in the Department of Pathology at Government Medical College Haldwani and associated Sushila Tewari Hospital from January 2008 to January 2018. Total 505 endometrial biopsy specimens were received in Pathology Department during this period for investigation of AUB.

Specimens were received in 10% formalin, grossing was done using standard protocols and recorded. Tissue processing was done, slides were stained with hematoxyline and eosin and observations were recorded.

Exclusion criteria

- Endometrial biopsies for infertility and pregnancy related complications.

RESULTS

In our study, maximum (n= 235, 47%) patients were between 36-45 years (Fig-1). The minimum and maximum ages of presentation were 17 years and 74 years respectively.

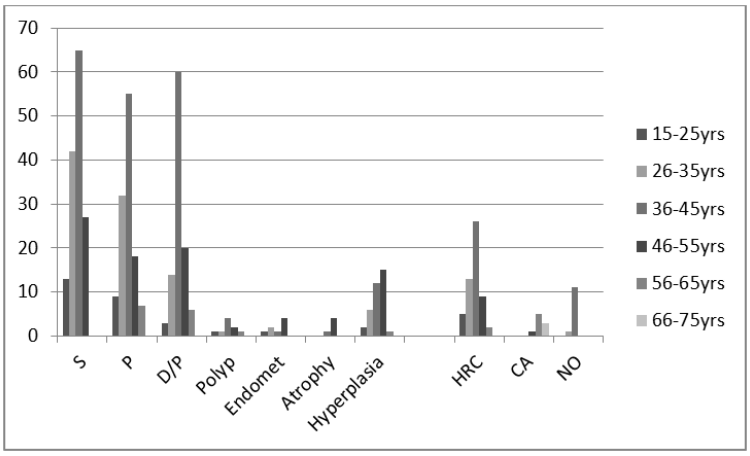

Fig-1: Age wise distribution of diagnosis (S-secretory, P-proliferative, D/P -disordere proliferative phase, Endomet-, endometritis, HRC-hormone related changes, CA-carcinoma. NO- no opinion possible)

Maximum cases were diagnosed as secretory endometrium (n=147,29%) followed by proliferative phase and disordered proliferative phase accounting for 24% (n=121) and 20% (103) respectively. Only 2% (n=9) of cases were of endometrial carcinoma (Fig-2).

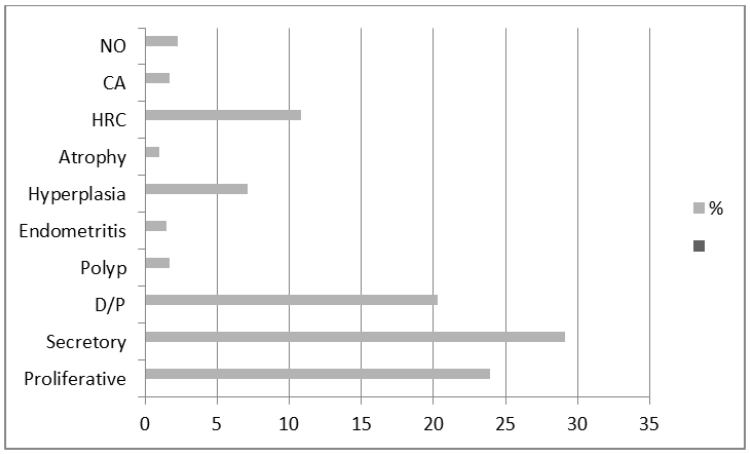

Fig-2: Distribution according to diagnosis (P-proliferative, S-secretory, D/P- Disordered proliferative, HRC-hormone related changes, CA- carcinoma, NO – No opinion possible)

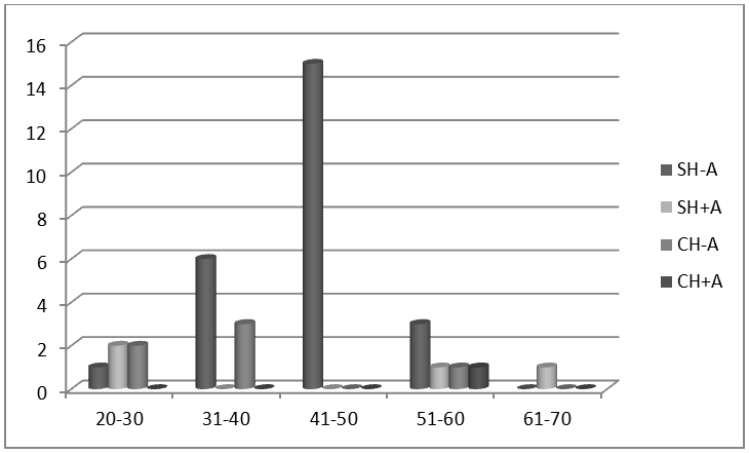

Fig-3: Age distribution of types of hyperplasia.(SH-A=simple hyperplasia without atypia, SH+A=simple hyperplasia with atypia, CH-A=Complex hyperplasia without atypia, CH+A=complex hyperplasia with atypia)

Hyperplasia was observed in 36 cases (7%) out of which 25 cases were of simple hyperplasia without atypia and 4 cases of simple hyperplasia with atypia. Whereas 6 cases were found to be of complex hyperplasia without atypia and complex hyperplasia with atypia was found in only 1 case (Fig-3). Maximum

cases of hyperplasia were seen in the age group of 41-50 yrs (n=15) and all the cases were of simple hyperplasia without atypia.

DISCUSSION

AUB is the most common presenting complaints in Gynecology outpatient department worldwide accounting for almost 20% of total OPD attendance [3]. Prevalence of AUB in developing countries is about 5-15% [4].

Histopathological examination of an endometrial biopsy tissue material on light microscopy is considered the diagnostic gold standard for establishing endometrial pathology. The sensitivity of endometrial biopsy for the detection of endometrial abnormalities has been reported as high as 96% [5]. Its significance rises multifold in perimenopausal and post menopausal age where endometrial carcinoma seen in 8-50% cases [6].

Munro MG *et al*., proposed a classification for different causes of AUB in non gravid females in reproductive age group coined as PALM-COEIN classification that included polyp, adenomyosis, leiomyoma, malignancy, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic and not yet classified [7]. Well defined organic pathological cause is established in only 25% of cases. Etiology of AUB largely depends on whether the female is premenopausal, perimenopausal or postmenopausal [8].

The youngest patient in our study was 17 years old and oldest was 74 years which is similar to the study done by Doraiswami *et al*., [9]. In our study 47% cases presented in 36-45 years age group. Similar pattern was seen in Muzzafer M *et al*., [10], Mahapatra M [11], Moghal *et al*., [12], Doroiswami *et al*., [9] Jairajpuri *et al*., [13] which concluded most common age group as 4th and 5th decade of life. In our country, most women conceive in the age group of 20-30 years. Hence, pregnancy related complications are more common in these two decades rather than any organic abnormality.

Secretory and proliferative phases are part of normal physiological phases of the endometrium. These have been the most frequently encountered pattern in our study with secretory endometrium comprising 29% of cases followed by proliferative with 24%. These findings were in concordance with that of Moghal *et al*., [12] and Gazozai *et al*., [14]. AUB in secretory phase occurs when ovulation takes place but corpus luteum does not develop. A disturbance in the rate and amount of progesterone is responsible for the abnormal bleeding.

AUB in proliferative phase may be a result of hormonal imbalance leading to intermittent anovulatory cycles. Here, follicles are formed but ovulation does not occur either due to pituitary-hypothalamus dysfunction or lack of signals. As a result there is oestradiol but no progesterone. Follicles can either involute leading to estrogen withdrawal or sustained oestrogen levels can lead to endometrium stimulation.

Before the biopsy, many women with AUB are already taking exogenous hormones to control the bleeding. Unfortunately, this information is not always conveyed to the pathologist. Women may also be taking hormone replacement therapy or contraceptives. These hormonal compounds also alter the morphological appearance of the endometrium.

The most commonly occurring pathology was disordered proliferative endometrium (20%) in our study. Similar results have been reported by Doraiswami *et al.*, [9], Sarika *et al*., [15], Afghan S *et al*., [16], Roshan P *et al*., [17]. This is most commonly seen in the perimenopausal age group and represents the unopposed estrogenic influence on the endometrium. It is usually secondary to anovulatory cycles. In the absence of development of corpus luteum, there is a marked decrease in the level of progesterone. The developing follicles however do persist for a variable time period and produce estradiol before finally undergoing atresia which results in bleeding. The other possible explaination for the bleeding could be that the estradiol produced by the follicles results in the thickening of the proliferative endometrium to the extent where it outgrows its blood supply and breakthrough bleeding occurs. With repeated anovulatory cycles there is exaggeration of proliferative endometrium with disorganization and dilatation of glands. The morphological picture which emerges from such alterations is an admixture of proliferative endometrium with cystically dilated glands, although the normal gland to stroma ratio is largely maintained. There can be mild glandular crowding and branching. This is the reason that disordered proliferative endometrium can sometimes show features overlapping with simple hyperplasia. In fact both these conditions are considered to constitute a continuum and there are no distinctive morphological features demarcating them. There is a hypothesis which puts carcinoma at the extreme end of the spectrum with intervening stages of hyperplasias [11].

In our study endometrial hyperplasia was encountered in 7% cases which is similar to Doraiswami *et al*., (6.1%) [9] but lower than that studied by Babbar K *et al.*, (19.8%) [18], Subhashini *et al*., (14.59%) [19]. This can be explained by the fact that bulk of our patients belonged to lower socio-economic class, where the occurrence of risk factors like obesity, diabetes and sedentary life style is low. We have also reported higher incidence of disordered proliferative phase. There is a possibility that patients are being identified at an early stage ie disordered

proliferative phase before they progress to endometrial hyperplasia.

Endometrial polyp was seen in 2% of cases with maximum in the late reproductive age group (36-45 years). A lower incidence was seen in the younger age group. This could be due to a possible regression mechanism which is characterized by the cyclical shedding of endometrium in younger reproductive age group. Though usually considered as benign neoplastic growths, there is a significant difference between the endometrial polyp and normal endometrium regarding the receptor expression, cell proliferation and regulation of apoptosis [20].

In our study endometrial carcinoma was found in 2% cases, maximum were in postmenopausal age group. Similar incidence has been reported by Saera Afghan *et al*., (0.6%) [16], Dhakal *et al.,* (2%) [21], Aslam *et al*., (1%) [22] and by Tabata T (2.6%) [23]. The low incidence of carcinoma in our patients could be attributed to early age of first child birth and multiparity.

Chronic endometritis was found in 2% cases. Studies conducted by Rajshri *et al*., reported 5.68% [24] and 10% by Tewari *et al*., [25]. Tuberculous endometritis was seen in only 2 cases in our study. Tewari et al reported 3% [25] and1.8% was reported by Mani *et al*., [26]. Rajshri *et al*., [24] reported only one case and 0.6% incidence by Sagar *et al*., [27]. The significance of diagnosing this condition is that with specific treatment the normal functioning of the endometrium can be regained.

Although the exact cause of bleeding in atrophic endometrium is not known, it could be attributed to the anatomic location and fragile nature of the blood vessels. The vessels in atrophic endometrium are situated superficial to the expanding cystic glands. Added to this they are thin walled making them vulnerable to bleed on injury. Maximum cases were seen in perimenopausal age group in our study. Similar incidence (1.3%) was seen by Sajita *et al*., [28] where as Cornitescu *et al*., (4.34%) [29] and Ara *et al*., (7%) [30] reported much higher figures (Table-1).

Table-1: Comparison with other studies

Studies	N	D/S P	Endometritis	Polyp	Atrophy	Hyperplasia	Carcinoma
Doraiswami *et al*., [9]	28.3%	20.5%	4.15%	11.2%	2.4%	6.1%	4.4%
Rajshri *et al.*, [24]	39.4%	13.4%	5.8%	2.52%	8.4%	22.6%	2.52%
Sajitha *et al.*, [28]	28.8%	12.1%	0.64%	5.12%	5.12%	25%	4.48%
Muzzafar *et al.*, [10]	61.1%	0.76%	13.07%	1.15%		24.61%	0.76%
Ara Y *et al*., [30]	34.0%		11.61%	14.1%	6.22%	4.97%	2.07%
Padhye A *et al.*,	34.0%	8.7%	11.69%	10.19%	2.23%	30.0%	2.98%
Sarika *et al.*, [15]	58.9%	7.42%	2.97%	1.48%	1.98%	15.34%	1.98%
Our study	53.0%	20.3%	1.5%	1.7%	0.99%	7.1%	1.7%

CONCLUSION

Our study revealed that maximum patients who underwent endometrial biopsy for AUB were in the age group of 36-45 years. Bulk of these cases revealed normal physiologic pattern on histopathologic evaluation with secretory phase contributing a major proportion and disordered proliferative endometrium the commonest histopathology seen. Endometrial carcinoma made a miniscule contribution in the total number of cases in our study. The results of our study clearly reveal that hysterectomy can be avoided in a majority of patients of AUB if endometrial biopsy is successful in adequately characterizing the morphology of the endometrium. Therefore, to investigate the cause of AUB the approach should be individualized with the view to conserve the uterus. For this purpose endometrial biopsy is an effective tool as it not only offers the opportunity to view a wide spectrum of morphological alterations and pathologies of the endometrium, but it also minimizes the number of hysterectomies done for AUB.

REFERENCES

1. Bleeding, H. M. (2007). NICE Clinical Guidelines, No. 44. National Collaborating Centre for Women's and Children's Health.
2. Munro, M. G., Critchley, H. O., Fraser, I. S., & FIGO Menstrual Disorders Working Group. (2011). The FIGO classification of causes of abnormal uterine bleeding in the reproductive years. *Fertility and sterility*, *95*(7), 2204-2208.
3. Goldstein, S. R. (2004). Menorrhagia and abnormal bleeding before the menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *18*(1), 59-69.
4. Harlow, S. D., & Campbell, O. M. (2004). Epidemiology of menstrual disorders in developing countries: a systematic review. *BJOG: An International Journal of Obstetrics & Gynaecology: REVIEW*, *111*(1), 6-16.
5. Albers, J. R., Hull, S. K., & Wesley, R. M. (2004). Abnormal uterine bleeding. *American family physician*, *69*(8), 1915-1934.
6. Dangal, G. (2003). A study of endometrium of patients with abnormal uterine bleeding at Chitwan

Valley. *Kathmandu University medical journal (KUMJ)*, *1*(2), 110-112.

7. Munro, M. G., Critchley, H. O., Broder, M. S., & Fraser, I. S. (2011). FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. *International Journal of Gynecology & Obstetrics*, *113*(1), 3-13.
8. Brenner, P. F. (1996). Differential diagnosis of AUB. *Am J Obstet Gynecol*, 175:766-9.
9. Doraiswami, S., Johnson, T., Rao, S., Rajkumar, A., Vijayaraghavan, J., & Panicker, V. K. (2011). Study of endometrial pathology in abnormal uterine bleeding. *The journal of Obstetrics and Gynecology of India*, *61*(4), 426-430.
10. Muzaffar, M., Akhtar, K. A., Yasmin, S., Iqbal, W., & Khan, M. A. (2005). Menstrual irregularities with excessive blood loss: a clinico-pathological correlation. *JPMA. The Journal of the Pakistan Medical Association*, *55*(11), 486-489.
11. Mahapatra, M., & Mishra, P. (2015). Clinicopathological evaluation of abnormal uterine bleeding. *Journal of Health Research and Reviews*, *2*(2), 45.
12. Moghal, N. (1997). Diagnostic value of endometrial curettage in abnormal uterine bleeding-a histopathological study. *Journal-Pakistan Medical Association*, *47*, 295-299.
13. Jairajpuri, Z. S., Rana, S., & Jetley, S. (2013). Atypical uterine bleeding-Histopathological audit of endometrium A study of 638 cases. *Al Ameen J Med Sci*, *6*(1), 21-8.
14. Gazozai, S., Bugti, Q. A., Siddiqa, A., & Ehsan, N. (2004). Excessive Uterine Haemorrhage—A Histopathological Study. *Gomal Journal of Medical Sciences*, *2*(1).
15. Pritam, K., Gopalkrishna, S., Nileema, S., Megha, P., & Aashish, P. (2016). Histomorphological spectrum of lesions in endometrial biopsy in patients presenting with abnormal uterine bleeding-a study of 202 cases.
16. Anvikar, A. R., Ramteerthakar, N. A., & Sulhyan, K. R. (2013). Abnormal uterine bleeding-a clinicopathological study of 160 cases. *Asian Journal of Medical Research*, *2*(1), 12-15.
17. Perween, R., Alam, M. S., Karimi, M. A., & Siddiqui, S. A. (2016). A clinicopathological study of abnormal uterine bleeding in peri and post menopausal age group, with special emphasis on early diagnosis of uterine malignancy. *Pathology*, *10*, 100.
18. Babbar, K., Jogi, S., & Arya, R. C. (2015). Clinical Pattern and Spectrum of Endometrial Pathologies in Abnormal Uterine Bleeding in Perimenopausal and Post Menopausal Women: experience in a Tertiary Care Institute. *Journal of South Asian Federation of Menopause Societies*, 3(1):9-14.
19. Subhashini, B., Praveen, K., & Lakshman, E. (2017). Histopathological study of endometrial biopsies in dysfunctional uterine bleeding. *IOSR Journal of Dental and Medical Sciences*, 16(10), 7-11.
20. Hileeto, D., Fadare, O., Martel, M., & Zheng, W. (2005). Age dependent association of endometrial polyps with increased risk of cancer involvement. *World journal of surgical oncology*, *3*(1), 8.
21. Dhakal, H. P., & Pradhan, M. (2009). Histological pattern of gynecological cancers. *JNMA; journal of the Nepal Medical Association*, *48*(176), 301-305.
22. Aslam, M., Ijaz, L., Tariq, S., & Shafqat, K. (2007). Comparison of transvaginal sonography and saline contrast sonohysterography in women with abnormal uterine bleeding: correlation with hysteroscopy and histopathology. *International journal of health sciences*, *1*(1), 17.
23. Tabata, T., Yamawaki, T., Ida, M., Nishimura, K., Nose, Y., & Yabana, T. (2001). Clinical value of dilatation and curettage for abnormal uterine bleeding. *Archives of gynecology and obstetrics*, *264*(4), 174-176.
24. Damle, R. P., Dravid, N. V., Suryawanshi, K. H., Gadre, A. S., Bagale, P. S., & Ahire, N. (2013). Clinicopathological spectrum of endometrial changes in peri-menopausal and post-menopausal abnormal uterine bleeding: A 2 years study. *Journal of clinical and diagnostic research: JCDR*, *7*(12), 2774-27776.
25. Tiwari, A., Jain, S., Rai, R., & Jain, S. K. (2016). Histopathological study of endometrial biopsy specimens for abnormal uterine bleeding. *Journal of Lumbini Medical College*, *4*(2), 72-76.
26. Mani, R., Nayak, S., Kagal, A., Deshpande, S., Dandge, N., & Bharadwaj, R. (2003). Tuberculous endometritis in infertility: a bacteriological and histopathological study. *Culture*, *15*, 13-6.
27. Sagar, S. (1980). Clinicopathological correlation of abnormal uterine bleeding at the age of 45 years and above. *J Obstet Gynecol lndia*, 165-9.
28. Sajitha, K., Padma, S. K., Shetty, K. J., KishanPrasad, H. L., Permi, H. S., & Hegde, P. (2014). Study of histopathological patterns of endometrium in abnormal uterine bleeding. *Chrismed Journal of Health and research*, *1*(2), 76-81.
29. Cornitescu, F. I., Tanase, F., Simionescu, C., & Iliescu, D. (2011). Clinical, histopathological and therapeutic considerations in non-neoplastic abnormal uterine bleeding in menopause transition. *Rom J Morphol Embryol*, *52*(3), 759-65.
30. Ara, S., & Roohi, M. (2011). Abnormal uterine bleeding. *The Professional Medical Journal*, *18*(04), 587-591.