RA Publications
Journal of Medical Science & Technology

**Original Article** **Open Access**

# Study of endometrial pathology in cases of abnormal uterine bleeding – A Meta analysis of 435 cases

Sandhya Panjeta Gulia*[1], M.Lavanya[2], Madhusudan Chaudhury[3], SP Arun Kumar [4]

1. Associate Professor, Dept. Of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Pondicherry
2. Assistant Professor, Dept. Of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Pondicherry
3. Professor, Dept. Of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Pondicherry
4. Professor, Dept. Of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Pondicherry

## Abstract

Abnormal uterine bleeding is a common cause for women of all ages to consult their physicians. The specific diagnostic approach depends whether the patient is premenopausal, perimenopausal or postmenopausal. Hence hormonal therapy, endometrial biopsy, hysterectomy or imaging studies can be done accordingly. Retrospective analysis of endometrial biopsies to find out the spectrum of causes of abnormal uterine bleeding in different age groups. A total of 435 cases of endometrial biopsies were examined during a three year study period from Jan 2010 - Dec 2012 was examined. Serial sections, 3 – 5 µ were stained with Haematoxylin & Eosin (H&E) stain. 156 endometrial biopsies obtained by dilatation and curettage and 279 cases from hysterectomy specimens were reported. The majority of cases of AUB were noted in perimenopausal age group constituting 258(59.31%) of total cases, the rest being reproductive age 146(33.56%) and postmenopausal 31(7.13%) age group. The most common pattern was normal cyclic endometrium in 200(45.48%) cases, disordered proliferative endometrium in 56(12.88%), hormonal effect 16(3.68%), endometrial polyp 10( 2.30%), endometrial hyperplasia 73(16.78%), endometrial stromal tumor 1(0.23%), endometrial carcinoma 5(1.15%) , gestational endometrium 41(9.43%), vesicular mole5(1.15%), irregular ripening 3(0.69%), irregular shedding 1(0.23%), chronic endometritis 6(1.38%), atrophic endometrium 17(3.91%) , inadequate biopsy 1(0.23%). The study of endometrial biopsies helps to evaluate the cause of abnormal uterine bleeding, thus helps the clinician to guide for appropriate therapeutic intervention.

**Keywords**: Abnormal uterine bleeding, Biopsy, Endometrium

*Corresponding Author: Dr Sandhya Panjeta Gulia, Associate Professor, Dept. Of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Pondicherry, India. Email:sandhya_path@yahoo.com

Received: May 5, 2013, Accepted: July 26, 2013. Published: September 20, 2013. 

## Introduction

Abnormal uterine bleeding is a common cause for women of all ages to consult their physicians [1].The specific diagnostic approach depends whether the patient is premenopausal, perimenopausal or postmenopausal. Hence hormonal therapy, endometrial biopsy, hysterectomy or imaging studies can be done accordingly [1]. The causes of AUB can be functional as well organic like complications related to pregnancy. leiomyoma, endometrial and endocervical polyp, cervical carcinoma, endometrial adenocarcinoma, endometritiis, endometrial hyperplasia and dysfunctional uterine bleeding. Hence for the appropriate management of the cases of AUB endometrial biopsy is considered as a relatively safe, inexpensive office procedure along with imaging studies and hysteroscopy. The aim of the present study was to analyse the histomorphological pattern

 

of endometrium in cases of AUB in different age groups.

## Materials and methods

The study was conducted in pathology department of Sri Venkateshwaraa Medical College Hospital and Research Centre, Pondicherry for a period of 3 years from Jan 2010 – Dec 2012. The cases of endometrial curettage and hysterectomy specimens with the clinical diagnosis of abnormal uterine bleeding were included in the study. The samples were fixed in formalin, processed routinely, cut to 3-4µ thick sections and stained with Haematoxylin and Eosin stain. All the cases were divided into three groups according to the age – reproductive (<40years), perimenopausal (40-50years) and postmenopausal (>50years) and endometrial pathology was studied accordingly [2].

## Results

Out of total 435 cases of AUB, 156 specimens received were endometrial biopsies and 279 hysterectomy specimens. The majority of cases of AUB were noted in perimenopausal age group constituting 59.31% of total cases, the rest being reproductive age (33.56%) and postmenopausal (7.13%) age group.

**Table 1: Shows the causes of abnormal uterine bleeding in different age groups**

| Biopsy report | Reproductive (<40yrs) age group | Perimenopausal (40-50yrs) age group | Postmenopausal (>50yrs) age group | Total no. of cases |
|---|---|---|---|---|
| **Cyclical endometrium*** | 50 (34.25%) | 143 (25.63%) | 7(22.58%) | 200(45.98%) |
| **Disordered proliferative endometrium** | 16(3.68) | 32(7.36%) | 8(1.84%) | 56(12.88%) |
| **Hormonal effect** | 3(0.69%) | 13(2.99%) | - | 16(3.68%) |
| **Endometrial polyp** | 1(0.23%) | 9(2.007%) | - | 10(2.30%) |
| **Endometrial hyperplasia** | 24(5.51%) | 42(9.66%) | 7(1.61%) | 73(16.78%) |
| **Endometrial stromal tumor** | 1(0.23%) | - | - | 1(0.23%) |
| **Endometrial carcinoma** | - | 1(0.23%) | 4(0.90%) | 5(1.15%) |
| **Gestational endometrium** | 40(9.20%) | 1(0.23%) | - | 41(9.43%) |
| **Vesicular mole** | 4(0.90%) | - | 1(0.23%) | 5(1.15%) |
| **Irregular ripening** | 1(0.23%) | 1(0.23%) | 1(0.23%) | 3(0.69%) |
| **Irregular shedding** | 1(0.23%) | - | - | 1(0.23%) |
| **Chronic endometritis** | 3(0.69%) | 3(0.69%) | - | 6(1.38%) |
| **Atrophic endometrium** | 2(0.46) | 12(2.76%) | 3(0.69%) | 17(3.91%) |
| **Inadequate biopsy** | - | 1(0.23%) | - | 1(0.23%) |
| **Total cases** | 146(33.56%) | 258(59.31%) | 31(7.13%) | 435(100%) |

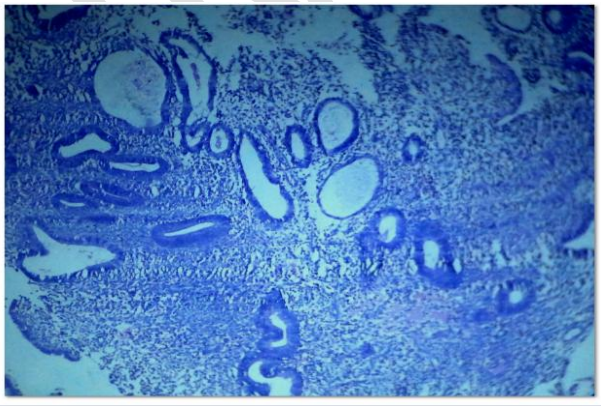

**Figure-1:** Low power (10X) view of disordered proliferative endometrium showing variable sized endometrial glands in compact stroma

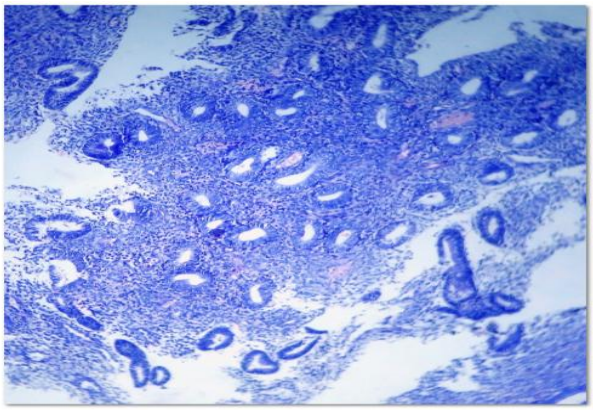

**Figure – 2:** Low power (10X) view of simple hyperplasia without atypia showing increased gland to stroma ratio

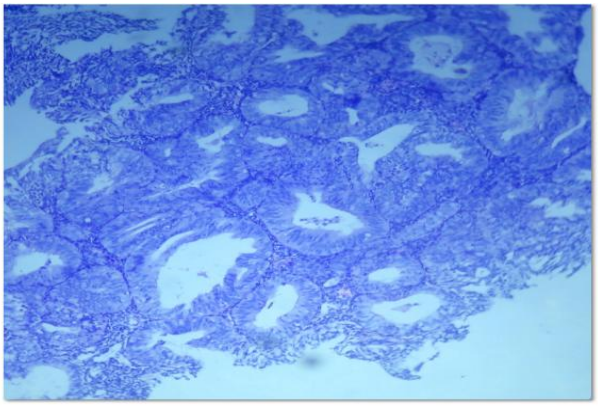

**Figure – 3:** Low power (10X) view of complex hyperplasia of endometrium with architectural complexity and cytological atypia

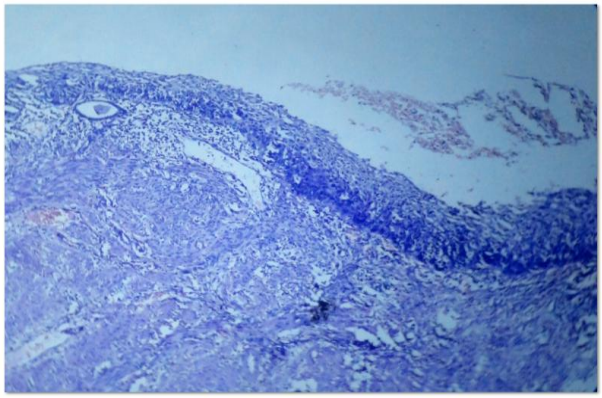

**Figure – 4:** Low power (10X) view of superficial spreading type of squamous cell carcinoma of the cervix metastatic to the endometrium

## Discussion

AUB occurs in women of all ages but is more common in adolescent and perimenopausal women [3]. In the present study the commonest age group presenting with AUB was 40-50 years (59.31%). Muzaffar M [4] and Saraswathi D [5] also reported comparable data with our study being 48% and 33.50% respecively. The most common endometrial patterns in three different age groups were proliferative (31.95%) and secretory endometrium (14.02%) similar to the studies conducted by Layla S Abdullah[6] and Idrisa A[7] who reported 24.90% and 8.60% as proliferative pattern and 21.70% and 47.10% as secretory endometrium respectively.

Disordered proliferative endometrium was reported in 12.87% of cases in our study with highest prevalence in perimenopausal age group. Baral R [8] reported abnormal physiological changes in 32% of his cases with two third cases having disordered proliferative endometrium which is considered as an exaggeration of normal proliferative phase without increase in gland to stroma ratio[8]. Mirz T [10] reported 23% cases of disordered proliferative endometrium in his study. Disordered proliferative endometrium indicates anovulatory cycles and is common in perimenopausal, postmenopausal age group and patients on exogenous estrogen therapy.



 

In the present study pregnancy related complications were reported in reproductive age group in 10.58% cases. Similar study done by Ara S[9] reported 16.15% patients of AUB with pregnancy related complications in the reproductive age group , Baral et al [8] in 5% cases, Saraswathi et al [5] in 20.54% patients, Abdullah LS [6] in 8.70% cases. Arias stella reaction was reported in 2 cases which usually occurs in normal pregnancy, gestational trophoblastic diseases, ectopic gestation and exogenous progesterone therapy.

Chronic endometritis is commonly seen in the reproductive age due to either retained products of conception, pelvic inflammatory diseases or other pregnancy related conditions. The other conditions which needs to be excluded are pelvic inflammatory diseases, intrauterine contraceptive devices, tuberculosis etc. In our study 6 cases(1.38%) of chronic endometritis were reported in reproductive and perimenopausal age group with findings of other studies like Baral R[8]2.7%, Mirza M [10]1.38%, Abdullah LS [6]7.2%, Ayesha Sarwar [12] 24% cases. Functional causes of AUB like irregular shedding (0.23%), irregular ripening (0.69%) were reported in the present study where as Baral R[8] reported in 6% cases.

Endometrial polyps, usually presenting as asymptomatic incidental findings in perimenopausal age group, were reported in 10(2.3%) cases in our study in contrast to 4.35% reported by Ara S [9] and 18 cases in this age group by Saraswathi D [5]. Lower incidence of endometrial polyps in younger age group may be attributed to spontaneous regression mechanism which is characteristic of the cycling endometrium in reproductive age group [5].

Atrophic endometrium was reported in 3.91% cases in the present study with similar results reported by Saraswathi D [5] to be 2.44%, Ara S[9] 4.34%, A. Khare [2] 25%. Atrophic pattern is commonly reported in perimenopausal and postmenopausal women, patients on progesterone therapy, scanty endometrial biopsies and fragments of endometrial polyps.

Effect of hormone was seen in 16 cases (3.68%) with highest incidence in perimenopausal age group 13(5.04%) similar to the data obtained by Baral R [8] 3% with majority being in the perimenopausal age group, similarly A. Khare [2] reported in 8% cases in the same age group. Unopposed exposure of the endometrium to estrogen leads to endometrial hyperplasia. Endometrial hyperplasia was reported in 16.71% cases in the present study.

Dangal [3] reported 23% cases; Shagufta S [13] reported 4.9% cases of endometrial hyperplasia. The current classification proposed by WHO in 1994 and revised in 2003, entails a spectrum of diseases and takes into account both cytological and architectural abnormalities [14]. The natural history of hyperplasia and its progression to cancer was described by Kurman et al [15]. Only 1% of simple hyperplasia and 3% of complex hyperplasia without cytological atypia progress to carcinoma where as 8% of simple hyperplasia and 29% of complex hyperplasia with cytological atypia do so [14]. I t is important to characterize high or low risk groups before initiation of therapy because 1-28% of hyperplasias progress to carcinoma depending upon the degree of severity [16]. Hence reporting of endometrial hyperplasia into typical and atypical types has its prognostic and therapeutic implications with the atypical type having increased incidence of progression to malignancy.

Endometrial adenocarcinoma was reported in 5 patients; Sarwat Ara [9] reported endometrial carcinoma in 3 cases (1.86%), Layla S Abdullah [6] reported malignancy in 3.3% cases in postmenopausal age>52years; A.Khare [2] in 16.70% in postmenopausal age group; Talat Mirza [10] 2% cases; Baral R [8] in 3 cases in >55 years age, Dangal G [3] in 17.60% cases in postmenopausal age group. We reported a case of basaloid squamous cell carcinoma of the cervix with metastasis to the endometrium in 50 years old female. The myometrium, tubes and ovaries were free from tumor invasion. Marwah N reported 3 cases of squamous cell carcinoma of the cervix with superficial extension to the whole endometrial cavity by expansile intraepithelial growth which is a very rare phenomenon with less than 30 cases being reported in literature [18]. Mitsuaki Ishida and Hidetoshi Okabe also reported 2 cases of superficial spreading type of squamous cell carcinoma of cervix involving the endometrium [19].The rest four cases were reported as well differentiated endometrioid adenocarcinoma of the endometrium. Based on histopathology, molecular profile and clinical course endometrial cancers are divided into two categories: type 1 low grade, estrogen related, early diagnosis and have a favourable prognosis where as type II carcinomas are not hormone dependent they have early spread with poor prognosis [20]. Endometrioid type of adnocarcinoma has better prognostic value as compared to the other special variants of endometrial carcinoma [18]. Reporting of the histological subtype of endometrial carcinoma provides prognostic value



 

and helps in determining the therapy. It is still difficult to determine the optimal treatment for superficial spreading type of squamous cell carcinoma of cervix as fewer than 30 cases have been reported in literature and guidelines for the management of these cases have not been determined yet [18].

Biopsy was reported as inadequate 1 case (0.39%) in the present study in perimenopausal age group. The other studies by Baral R [8] reported 25(8%) cases of unsatisfactory sample with two thirds over 40years and postmenopausal one third; A .Khare [2] study showed that 9% cases did not contain endometrial tissue and were considered insufficient for diagnosis. Layla S Abdullah found inadequate samples in 9% cases [6]. Iandequate sampling rates were common among postmenopausal women due to atrophic endometrium [6]. Use of exogenous hormones, medications, type dose and duration of usage influences the amount of tissue obtained by endometrial biopsy [17].

**Table 2: Comparison of frequency of endometrial hyperplasia in different studies**

| Study | Simple hyperplasia without atypia | Simple hyperplasia with atypia | Complex hyperplasia without atypia | Complex hyperplasia with atypia |
|---|---|---|---|---|
| **Bhosle A, 2011** | 17.80% | - | - | - |
| **Baral et al, 2011** | 37 | 4 | 6 | 8 |
| **Layla S Abdullah, 2011** | 7% | - | 1.4% | 0.7% |
| **A.Khare, 2012** | 20.70% | - | 4.3% | 0.8% |
| **Present study , 2013** | 13.56% | 0.92% | 0.69% | 1.61% |

## Conclusion

Out of total of 435 cases of endometrial biopsies reported, majority of the cases were normal cyclical endometrium, benign lesions were chronic endometritis, endometrial polyps, pregnancy related complications, functional disturbances, premalignant lesions like endometrial hyperplasia in 73 cases and endometrial carcinoma in 5 cases.

Hence it is imperative to determine the exact pathology in endometrial biopsy specimen so that appropriate therapy can be planned accordingly for the treatment of infertility, endometrial hyperplasia, endometrial carcinoma and various other causes of abnormal uterine bleeding.

## References

1. Kathleen A Oriel, Sarina Schrager. Abnormal uterine bleeding. Am Fam Physician 1999;60(5):1371-1380
2. A.Khare, R.Bansal, S.Sharma, P.Elhence, N.Makkar, Y.Tyagi. Morphological Spectrum of Endometrium in Patients Presenting with Dysfunctional Uterine Bleeding. Peoples Journal of Scientific Research 2012;5(2):13-16
3. Dangal G. A study of Endometrium of patients with abnormal uterine bleeding at Chitwan valley, Kathmandu university. Med J 2003;1:110-12
4. Muzaffar M, Akhtar KA, Yasmeen S, Rehman MU, Iqbal W, Khan MA. Menstrual irregularities with excessive blood loss: a clinicopathological correlation. The Journal of Pakistan Medical Association 2005;55(11):486-489
5. Saraswathi D, Thank Johnson, Shalinee R, Rathi Rajkumar, Jaya Vijayaraghavan, Vinod Kumar Panicker. Study of Endometrial Pathology in Abnormal Uterine Bleeding. J Obstet Gynaecol India 2011;61(4):426 - 430
6. Abdullah LS, Bondagji NS. Histopathological Pattern of Endometrial sampling performed for Abnormal Uterine Bleeding. Bahrain Medical Bulletin 2011;33(4):1-6
7. Idrisa A, Emeka O, Abimiku BM. Endometrial Sampling at a teaching hospital in Northern Nigeria. West Afr J Med 2000 jul-sep;19(3):212-215



 

8. Baral R, Pudasaini S. Histopathological pattern of endometrial samples in Abnormal Uterine Bleeding. Journal of Pathology of Nepal 2011;1:13-16
9. Ara S, Roohi M. Abnormal Uterine Bleeding: histopathological diagnosisby conventional dilatation and curettage. Professional Med J 2011;18(4):587-591
10. Mirza T, Akram S, Mirza A, Aziz S, Mustansar T. Histopathological pattern of Abnormal Uterine Bleeding in Endometrial biopsies. Journal of Basic and Applied Sciences 2012;8:114-117
11. Archana Bhosle, Michelle Fonseca. Evaluation and histopathological correlation of Abnormal Uterine Bleeding in Perimenopausal Women. Bombay Hospital Journal 2010;52(1):69-72
12. Ayesha Sarwar, Anwar ul Haque. Types and frequencies of Pathologies in Endometrial Curetting of Abnormal Uterine Bleeding. International Journal of Pathology 2005;3(2):65-70
13. Shagufta S, Akhtar S, Uttam N. Causes of menorrhagia and its pathological diagnosis by dilatation and curettage. J Postgrad Med Inst 2005;19(1):62-66
14. TN Yau, WM Pong, WH Li, Mym Chan. Uterus resected for Complex Atypical Hyperplasia of the Endometrium and co-existing Endometrial Carcinoma: Ten year experience in a regional hospital. Hong kong J Gynaecol Obstet Midwifery 2010;10:23-30
15. Kurman RJ, Kaminski PF, Norris HJ. The behavior of Endometrial Hyperplasia –A long term study of untreated hyperplasia in 170 patients. Cancer 1985;56:403-412
16. Baak JP, Mutter GL, Robboy S, Van Diest PJ, Uterlinde AM, Orbo A, Palazzo J, Fiane B, Lovslett K, Burger C, Voorhorst F, Verhejen RH. The molecular genetics and morphometry based endometrial intraepithelial neoplasia classification system predicts disease progression in endometrial hyperplasia more accurately that the 1994 WHO classification system. Cancer review 2005;103(11):2304-12
17. U Philips, WGMc Cluggage. Results of a questionnaire regarding criteria for adequacy of endometrial biopsies. J Clin Pathol 2005;58:417-419
18. Marwah N, Garg M, Singh S, Sethi D, Sen R. Unusual form of squamous cell carcinoma of the cervix extending in situ into the endometrium: Three case reports and review of literature. Int J App Basic Med Res 2012;2:139-141
19. Mitsuaki Ishida, Hidetoshi Okabe. Superficial spreading squamous cell carcinoma of the uterine cervix involving the endometrium: Report of two cases with emphasis on the likely molecular mechanism. Oncology letters 2013(5):31-34
20. G. Plataniotis, M. Castiglione. Endometrial cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow up. Ann Oncol 2010;21(5);41-45