Research Article

Morphological Spectrum of Endometrium in Patients Presenting with Dysfunctional Uterine Bleeding

A. Khare, R. Bansal, S. Sharma, P. Elhence, N. Makkar, Y. Tyagi

Department of Pathology, Subharti Medical College, Subharti Puram, Meerut - 250005 (U.P.)

(Received October, 2011) (Accepted June, 2012)

Abstract:

Dysfunctional uterine bleeding (DUB) is a clinical term used to describe bleeding not attributable to any underlying organic pathological condition.

A total of 187 patients were included in the present study which were categorized in reproductive (<40 yrs), perimenopausal (40-50yrs) and postmenopausal (>50yrs) age groups. One hundred sixteen cases (62%) were in reproductive age group, 47 cases (25.1%) in perimenopausal age group and 24 cases (12.8%) in postmenopausal age group. Histopathological examination of dilatation and curettage (D&C) samples was done to elucidate the cause of DUB.

In reproductive age group, proliferative endometrium was the most common finding (26.8%) followed by irregular maturation (25%).Complex hyperplasia was seen in 6 cases, out of which 1 case showed atypia. Nineteen cases (16.4%) showed associated endometritis. No case of malignancy was observed in this group.

In perimenopausal age group, simple hyperplasia was the most frequent finding (29.8%).Complex hyperplasia was seen in 3 cases, out of which 1 revealed atypia. Three cases of malignancy (6.4%) were reported.

In postmenopausal age group, most frequent finding in DUB was complex hyperplasia seen in 8 cases (33.3%), out of which 2 cases showed atypia. Six cases (25%) of simple hyperplasia and 4 cases (16.7%) of malignancy were reported. Atrophic endometrium was observed in D&C samples from 6 patients (25%).

Key Words: Dysfunctional uterine bleeding, hyperplasia,endometritis, adenocarcinoma.

Introduction:

Normal menstruation is defined as bleeding from secretory endometrium associated with ovulatory cycles, not exceeding a length of five days. Any bleeding not fulfilling these criteria is referred to as abnormal uterine bleeding (Rosai, 2005). Abnormal uterine bleeding is considered one of the most common and challenging problems presenting to the gynecologist. It is responsible for as many as one-third of all outpatient gynecologic visits (Awwad et al 1993, Wren, 1998). It can be caused by a wide variety of systemic diseases,endocrine disorders or drugs. On the other hand, it may be related to pregnancy, anovulation, fibroids, polyps,adenomyosis or neoplasia (ACOG Practice Bulletin, 2001). Dysfunctional uterine bleeding (DUB) is a diagnosis of exclusion. Dysfunctional uterine bleeding may represent a normal physiological state or can be sign of a serious underlying condition. Dysfunctional uterine bleeding may be the symptom of endometrial carcinoma in 8-50% of cases (Dangal, 2003). The present study was carried out to evaluate the histomorphological spectrum in endometrial samples in patients clinically labelled as DUB.

Corresponding Author: Dr. Anjali Khare, Department of Pathology, Subharati Medical College, Subarti Puram, Meerut - 250005 (U.P.)

Phone No: 9412104331

E-mail : dr_anjalikhare@yahoo.co.in

Material and Methods:

The present study was conducted in the Department of Pathology, Subharti Medical College, Meerut. A total of 187 patients clinically diagnosed as DUB were included in this study over a period of 2 yrs.Retrospective analysis of Hematoxylin and Eosin(H&E) stained slides of D & C tissue was done under light microscopy.Patients were categorized into reproductive (<40 yrs), perimenopausal (40-50yrs) and postmenopausal (>50yrs) age groups. Histopathological diagnosis was made, recorded and further categorization was done for all cases.This study was approved by Ethical Committee.

Results:

Out of 187 cases, 116 cases (62%) were in reproductive age group, 47 cases (25.1%) were of perimenopausal group and 24 cases (12.9%) belonged to the postmenopausal group (Fig. I). For all cases clinically diagnosed as DUB, histopathological examination was done and findings were noted.

In reproductive age group, proliferative endometrium was the most common finding observed

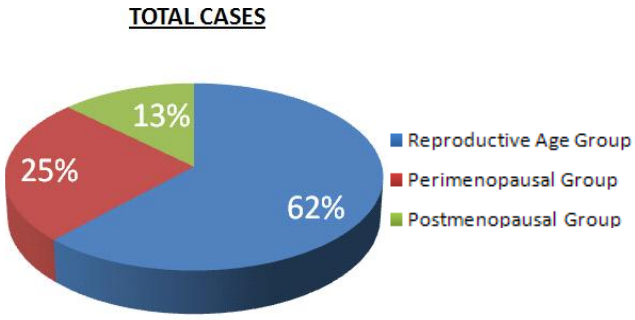

Fig. I Pie Diagram showing age group distribution in total cases

in 31 cases (26.8%) followed by irregular maturation in 29 cases (25%). Complex hyperplasia was present in 6 cases, out of which 1 case showed atypia. Endometritis was seen in 19 cases (16.4%). No case of malignancy was reported in this group.(Table I).

In perimenopausal age group,simple hyperplasia (Fig. II) was the most frequent finding seen

Table I: Endometrial pattern in reproductive age group.

Reproductive Age Group	No. of Patients	Percentage
Proliferative endometrium	31	26.8
Irregular maturation	29	25
Simple hyperplasia	24	20.7
Endometritis	19	16.4
Complex hyperplasia without atypia	5	4.3
Progesterone effect	5	4.3
No interpretation (Scanty material)	2	1.7
Complex hyperplasia with atypia	1	0.8
Malignancy	0	0

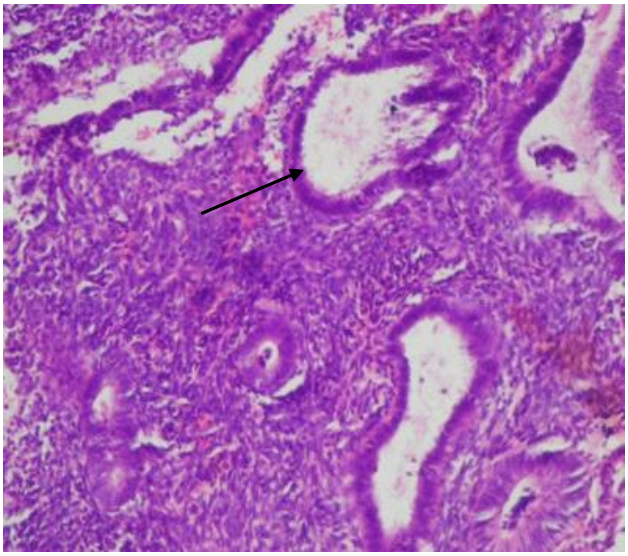

Fig. II: Photomicrograph of simple hyperplasia showing dilatation of glands (H&E stain, 100X).

in 14 cases (29.8%) followed by proliferative endometrium and irregular maturation which were present in 10 (21.2%) and 8 (17%) cases respectively. Complex hyperplasia was present in 3 cases, out of which 1 revealed atypia. Three cases (6.4%) of malignancy were also observed (Table II).

In postmenopausal age group, most frequent finding was complex hyperplasia, seen in 8 cases (33.3%), out of which 2 cases showed atypia. Six cases (25%) were of simple hyperplasia (Fig. II) and 4 cases (16.7%) of malignancy were observed. All cases of malignancy were reported as endometrial adenocarcinoma. Remaining 6 cases revealed atrophic endometrium (Fig. III; Table III).

Table II: Endometrial pattern in perimenopausal age group

Perimenopausal group	No. of Patients	Percentage
Simple hyperplasia	14	29.8
Proliferative endometrium	10	21.2
Irregular maturation	8	17
Progesterone effect	4	8.5
Endometritis	3	6.4
Malignancy	3	6.4
Complex Hyperplasia without atypia	2	4.3
No interpretation (Scanty Material)	2	4.3
Complex hyperplasia with atypia	1	2.1

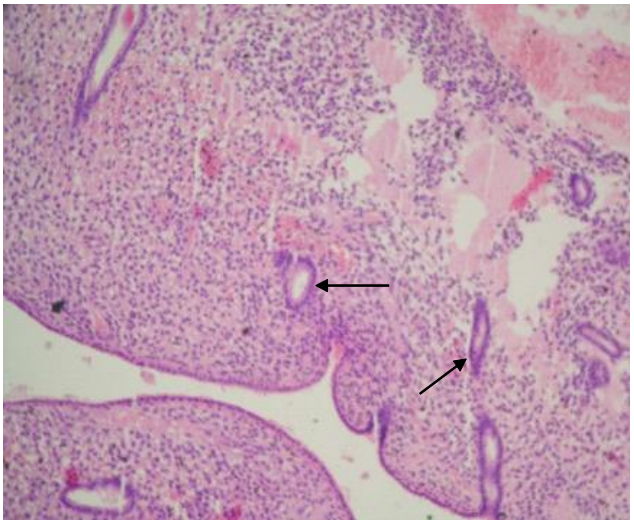

Fig. III: Photomicrograph of atrophic endometrium showing small tubular glands (H&E stain, 100X).

Discussion:

In normal cycles, menstrual shedding is followed by endometrial proliferation under estrogenic stimulation. During this phase, the endometrial glands

Table III: Endometrial pattern in post menopausal group.

Postmenopausal Group	No. of Patients	Percentage
Complex hyperplasia without atypia	6	25
Complex hyperplasia with atypia	2	8.3
Simple hyperplasia	6	25
Malignancy	4	16.7
Atrophic endometrium	6	25

grow and become tortuous. (Deligdisch, 2000) The secretory activity in the second half of the menstrual cycle is characterized by endothelial proliferation, thickening of the wall and coiling, forming the spiral arterioles on the ninth postovulatory day. (Deligdish, 2000; Mutter & Ferenczy, 2004). Excessive and irregular uterine bleeding (abnormal uterine bleeding) continues to be one of the most frequently encountered complaint in Gynecology. The frequency of the various causes of abnormal uterine bleeding varies with the age of the patient. Dysfunctional uterine bleeding is a diagnosis of exclusion in which no specific organic cause can be attributed to as the reason for the bleeding. It is more common in early and late years of reproductive life.(Rosai, 2005).In most instances dysfunctional bleeding is due to the occurence of an anovulatory cycle.These cycles are most common at menarche and in perimenopausal period (Crum, 2010)

The classification system used by the World Health Organization (WHO) designates four different types of hyperplasias with varying malignant potential. Hyperplasias are classified as simple or complex based on the absence or presence of architectural abnormalities such as glandular complexity and crowding. Hyperplasias are further designated as atypical if they demonstrate nuclear atypia (Rosai, 2005).

Gredmark et al (1995) studied D&C specimens of 457 postmenopausal women and showed atrophy in 50% of cases, varying degrees of hyperplasia in 10 % and adenocarcinoma in 8% cases. In our study, the most common finding in postmenopausal women was complex hyperplasia in 8 cases (33.3%) out of which 2 cases showed atypia while malignancy was seen in 4 cases (16.7%). Atrophic endometrium and simple hyperplasia were other frequent causes. This discrepancy might be due to small sample size of the present study.

Dangal (2003) studied 84 patients of more than 45 years of age who presented with DUB. Out of these 84 patients, 45 were in postmenopusal age group and 39 were in perimenopausal age group. Findings noted in perimenopausal women were proliferative endometrium in 15 cases (38.5%), secretory endometrium and endometrial hyperplasia in 9 cases (23%) each, endocervical carcinoma and endometrial adenofibroma in 3 cases each (7.7%) while in the present study, simple hyperplasia was the most frequent finding (29.8%) followed by proliferative endometrium (21.2%) in the perimenopausal age group.It might be because in this age group , menstrual cycles often become irregular due to decreased number of follicles and their increased resistance to gonadotropic stimulation, resulting in low level of estrogen, which cannot keep the normal endometrium growing. Amongst the postmenopausal group, atrophic endometrium was the most common finding seen in 29 cases (64.4%) followed by endometrial carcinoma in 8 cases (17.7%), endometritis in 5 cases (11.1%) and endocervical cancer in 3 cases (6.6%), but in the present study, most common finding in postmenopausal women was complex hyperplasia in 8 cases (33.3%) followed by simple hyperplasia and atrophic endometrium in 25% of cases.

Muzaffar et al (2005) studied endometrial curettings in 260 patients with DUB. Forty eight percent patients were seen in the age group of 41-50 yrs. Most common lesions seen were endometrial hyperplasia (24.7%) followed by chronic non-specific endometritis (13%). In the present study, most cases were in the reproductive age group and proliferative endometrium (26.8%) was the most common finding followed by irregular maturation (25%). Irregular maturation means regularly recurring menorrhagia in which bleeding phase of the cycle requires 7 days or more for completion,without subsequent prolongation of the cycle. This is due to lag in shedding of the secretory endometrium, which is normally completed by the fourth day of menstruation (Rosai, 2005).

Abdullah & Bondagji (2011) analysed 2295 endometrial samples from women presenting with abnormal uterine bleeding from January 1995 to June 2008 and noted that commonest histopathological diagnosis was secretory endometrium in 571 (24.9%)cases,followed by proliferative endometrium in 498 (21.7%), endometrial polyp in 227 (9.9%),disordered proliferative endometrium in 200 (8.7%), simple cystic hyperplasia in 160 (7%), chronic endometritis in 134 (5.8%), inactive endometrium in 126 (5.5%), atrophic endometrium in 70 (3.1%), uterine

malignancies in 41 (1.8%), complex hyperplasia without atypia in 33 (1.4%) and finally complex hyperplasia with atypia in 15 (0.7%) cases. Two hundred twenty (9.6%) samples did not contain endometrial tissue and were considered insufficient for diagnosis. Uterine malignancies and complex hyperplasia with atypia were more common in the age group of 52 years and older, and were seen in 3.3% and 1.2% respectively.

Baral & Pudasaini (2011) analysed D& C specimens of 300 women and concluded that in patients less than 40 years of age, most frequent finding was normal endometrium(50%) In the age group between 40-55 years, abnormal physiological changes (32%) and in patients above 55 years, malignancy were most common observations. There were 36% unsatisfactory samples in postmenopausal (above 55) age group.

Conclusion:

Histopathological examination of D& C tissue in patients of abnormal uterine bleeding shows a wide spectrum of changes ranging from normal endometrium to malignancy, however, frequency of cause varies with age. In the present study, the most frequent finding seen in patients with DUB in reproductive age group was proliferative endometrium.In perimenopausal age group simple hyperplasia was most frequently noted, while in the postmenopausal age group complex hyperplasia was the predominant finding.

Bibliography:

1. Abdullah LS, Bondagji NS: Histopathological Pattern of Endometrial Sampling Performed for Abnormal Uterine Bleeding. *Bahrain Medical Bulletin*, 2011;33(4):1-6.
2. ACOG Practice Bulletin: Management of Anovulatory Bleeding. *International Journal Gynaecology & Obstetrics*, 2001;72(3):263-271.
3. Awwad JT, Toth TL, Schiff I: Abnormal Uterine Bleeding in the Perimenopause. *International Journal of Fertility & Menopausal Studies*, 1993;38(5):261-269.
3. Baral R, Pudasaini S: Histopathological pattern of endometrial samples in abnormal uterine bleeding. *Journal of Pathology of Nepal*, 2011;1:13-16.
10. Crum CP: The female genital tract. In: Robbins & Cotran: Pathological basis of disease. V Kumar, AK Abbas, N Fausto (Eds.); 8th Edn.; Saunders: An imprint of Elsevier, Philadelphia, 2010;pp.1026-1027.
6. Dangal G: A study of endometrium in patients with abnormal uterine bleeding at Chitwan valley . *Kathmandu University Medical Journal*, 2003;1(2):110-112.
7. Deligdisch L: Hormonal Pathology of the Endometrium. *Modern Pathology*, 2000;13(3):285–294.
8. Gredmark T, Kvint S, Havel G, Mattsson LA: Histopathological findings in women with post menopausal bleeding. *British Journal of Obstetrics and Gynecology*, 1995;102(2):133-136.
9. Mutter GL, Ferenczy A: Anatomy and histology of the uterine corpus. In: Blaustein's pathology of the female genital tract. RJ Kurman (Ed.); 5th Edn.; Springer (India) New Delhi, 2004;pp.383-419.
10. Muzaffar M, Akhtar KA, Yasmeen S, Rehman MU, Iqbal W, Khan MA: Menstural irregularities with excessive blood loss:a clinic-pathological correlation. *The Journal of Pakistan Medical Association*, 2005;55(11):486-489.
11. Prat J: Female reproductive system. In: Anderson's Pathology.; I Damjanov , J Linder (Eds.); 10th Edn.; Vol. II. Elsevier, Philadelphia, 2009;pp.2231-2309.
12. Rosai J: Female reproductive system-uterus-corpus. In: Rosai and Ackerman's Surgical Pathology. 9th Edn.; Mosby: An Imprint of Elsevier, Missouri, 2005;pp.1579-1615.
13. Sherman ME, Mazur MT, Kumart RJ: Benign diseases of the endometrium. In: Blaustein's pathology of the female genital tract. RJ Kurman (Ed.); 5th Edn.; Springer (Indian) New Delhi, 2004;pp.421-466.
14. Wren BG: Dysfunctional Uterine Bleeding. *Australian Family Physician*, 1998; 27(5):371-377.

Source of Support : Nil.
Conflict of Interest: None declared.