Original Research Article

Spectrum of endometrial lesions observed on histopathological examination of endometrial samples in women with abnormal uterine bleeding

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ABSTRACT

Background: Abnormal uterine bleeding is one of the common gynecological complaints of women of all age groups. Histopathological study of endometrial biopsy and curettage samples is an effective diagnostic modality that can be used to identify cause of AUB at its earliest. This study was done to investigate the various endometrial causes of AUB that frequently come to our hospital and their incidence in various age groups i.e. reproductive, perimenopausal and postmenopausal.

Methods: This study was conducted on 108 patients who clinically presented with AUB and had their endometrial biopsy and curettage specimens sent to the histopathology department of our tertiary care hospital and teaching centre, located in Uttar Pradesh from June 2018 to May 2019. The endometrial patterns were observed, and their frequencies and percentages were computed and classified age group wise.

Results: These studies included patients with age range from 19 to 77 years. The predominant age group with AUB was reproductive age group (<40 years). The most common histopathological finding in this study was normal menstrual pattern (48.15 %). The endometrial pathologies observed were hormonal imbalance and pill effect (22.22%), atrophic endometrium (10.19%), chronic endometritis (5.56%), benign endometrial polyp (4.63%), gestation products (3.70%), endometrial hyperplasia (3.70%), and endometrial carcinoma (1.85%). Conclusion: The most commonly known cause of AUB in reproductive age group is due to hormonal imbalance. Endometrial hyperplasia and carcinoma are usually more common in the perimenopausal and postmenopausal age groups. Overall, in patients with no organic cause of AUB, normal cyclical endometrial pattern is the most prevalent endometrial pattern observed.

Conclusions: The most commonly known cause of AUB in reproductive age group is due to hormonal imbalance. Endometrial hyperplasia and carcinoma are usually more common in the perimenopausal and postmenopausal age groups. Overall, in patients with no organic cause of AUB, normal cyclical endometrial pattern is the most prevalent endometrial pattern observed.

Keywords: Abnormal uterine bleeding, Biopsy, Endometrium, Menstrual

INTRODUCTION

Abnormal uterine bleeding (AUB)is a routinely encountered gynecological problem in women of all age groups with a reported prevalence rate of 17.9% in India.[1]

Due to lack of early and proper diagnosis and treatment, it eventually turns out to be a debilitating and life threatening condition. AUB is not a disease in itself, it is actually an outcome of various endometrial pathologies. Thus, it is very important to identify the cause of AUB at

its earliest through several available diagnostic techniques.

Both endometrial biopsy and curettage procedures are convenient and standard methods of endometrial evaluation for analyzing the various causes of AUB. For accurate interpretation of endometrial samples it is crucial to acquire information regarding patients age and other relevant clinical history, menstrual history and drug history particularly use of exogenous hormones.[2,3] Examination of endometrial samples offer great diagnostic challenge to pathologists due to overlapping morphological features, lack of sample adequacy and inter-observer variability.[3] The purpose of this study is to evaluate type and frequency of endometrial patterns encountered in women with AUB of different age groups i.e. reproductive, perimenopausal and postmenopausal age groups.

METHODS

A retrospective observational study was conducted at this tertiary care hospital and teaching centre from June 2018 to May 2019 on endometrial curettage and biopsy specimens received in this histopathology department during this period. These studies included total 108 cases who presented with AUB and underwent endometrial curettage or biopsy. Only those patients with pathology restricted to the endometrium were included in the study and cases with associated hemostatic disorders, cervical and vaginal diseases and myometrial lesions were excluded from the study. The clinical details such as age, marital status, last menstrual period, menstrual complaints, duration of bleeding, hormone therapy and other investigation details were obtained, and the patients were selected based on these findings. The cases were classified in to three age groups namely, reproductive, peri-menopausal and postmenopausal age groups. Reproductive age group was considered from approximately 12 to 39 years.

Perimenopausal age group included women with transition towards menopause (approximately around 40-50 years) and was variable for every female. Postmenopausalage group included women who had greater than 50 years age and had achieved menopause.[4] The standard operating procedure was followed in specimen handling. All the endometrial samples were received in 10% formalin. The specimen gross features were noted, and the endometrial samples were entirely submitted for tissue processing. The tissue processing was done in automatic tissue processor andthe slides were stained with hematoxylin and eosin stains. The histopathological study was done by two consultant pathologists, independently to eliminate any observer bias. The results observed were analysed in spss version 16 software. The data was presented as mean ± SD for age, frequencies and percentages were calculated for other variables.

RESULTS

The mean age of AUB cases included in this study was 39.6 years ±10.4 (19-77 years). The most common age group was reproductive age group which included (61/108 patients, 56.48%) followed by perimenopausal age group, (29/108 patients, 26.85%) and postmenopausal age group (18/108 patients, 16.67%).

Out of 108 cases, 94 (87.04%) were married and 14 cases (12.96%) were unmarried. In this study patients most commonly presented with heavy menstrual bleeding (59 cases, 54.63%) followed by irregular &intermenstrual bleeding (31 cases, 28.70%) cases and postmenopausal bleeding (18 cases, 16.67%). Duration of AUB in this study patients ranged from 6 days to 7.5 years. Authors found that patients with atypia and malignancy had history of higher duration of AUB.

The most common histopathological finding in this study was normal menstrual pattern 52/108 cases (48.15 %). Amongst these 52 cases, 28 cases (53.85%) were in secretory phase and 24 cases (46.15%) were in proliferative phase. The other histological patterns observed were hormonal imbalance and pill effect (24/108 cases, 22.22%), atrophic endometrium (11/108 cases, 10.19%), chronic endometritis (6/108 cases, 5.56%), benign endometrial polyp (5/108 cases, 4.63%), gestation products (4/108 cases, 3.70%), endometrial hyperplasia (4/108 cases, 3.70%), and endometrial carcinoma (2/108 cases, 1.85%). Among 6 cases of chronic endometritis, 2 cases were granulomatousendometritis and other 4 cases were non-specific endometritis. Among 4 cases of endometrial hyperplasia, one case was simple hyperplasia without atypia, one was simple hyperplasia with atypia and two cases were complex hyperplasia with atypia. Both the endometrial carcinoma cases were endometroid carcinoma. One case was well-differentiated and the other was moderately differentiated. Thus 106/108 cases (98.15%) showed benign endometrial pathology while only 2/108 cases (1.85%) showed presence of malignancy.

In the reproductive age group, the most common histological finding was the normal menstrual pattern (36/61 cases,59.02%). However, the most common pathological finding in this age group was hormonal imbalance and pill effect (16/61 cases, 26.23%) followed by gestation products (4/61 cases, 6.56%), chronic endometritis (3/61 cases, 4.92%), and endometrial polyp (2/61 cases, 3.28%). Similarly, In the perimenopausal age group, the most common histological finding was the normal menstrual pattern (16/29 cases, 55.17%). The most common pathological finding in this age group was hormonal imbalance and pill effect (6/29 cases, 20.69%), followed by chronic endometritis(3/29 cases,10.34%), endometrial polyp (3/29 cases, 10.34%), simple hyperplasia (1/29 case, 3.45%).

In the postmenopausal age group, the most common histological finding was atrophic endometrium (11/18 cases, 61.11%) followed by hormonal imbalance and pill effect (2/18 cases 11.11%), endometrial hyperplasia with atypia (3/18 cases, 16.67%) and endometrial carcinoma (2/18 cases, 11.11%).

Table 1: Age-group wise Endometrial patterns observed on histopathological examination of AUB cases.

Endometrial pathology	Reproductive	Perimenopausal	Postmenopausal	Total
Normal menstrual pattern	36 (59%)	16 (55.17%)	-	52 (48.15%)
Hormonal imbalance and pill effect	16 (26.23%)	6 (20.69%)	2 (11.11%)	24 (22.22%)
Atrophic endometrium	-	-	11 (61.11%)	11 (10.19%)
Chronic endometritis	3 (4.92%)	3 (10.34%)	-	6 (5.56%)
Endometrial polyp	2 (3.28%)	3 (10.34%)	-	5 (4.63%)
Endometrial hyperplasia	-	1 (3.45%)	3 (16.67%)	4 (3.7%)
Endometrial carcinoma	-	-	2 (11.11%)	2 (1.85%)
Gestation products	4 (6.56%)	-	-	4 (3.7%)
Total				108

DISCUSSION

Abnormal uterine bleeding is one of the most common health problems among females in India and worldwide. These is a tertiary care hospital which caters to the local rural population of a small district in Uttar Pradesh. Most of the patients come from lower middle class and poor families. Hence it is not uncommon for females in this area to be ignorant about their health problems. Abnormal uterine bleeding both directly and indirectly leads to many other clinical problems like anaemia which further impairs the physical and mental health of women.

Also, earlier studies have demonstrated that without treatment about 10-20% of endometrial hyperplasias may advance to malignancy. It is therefore essential for all women aged over 35 years to undergo endometrial screening for early detection and treatment of malignancy.[5] Thus it is pre-requisite for a developing country like this to come with simple and cost effective diagnostic modalities to evaluate the underlying cause of AUB for prior diagnosis and treatment.

Authors conducted a clinico-pathological study to assess the underlying cause of AUB in patients who had visited this hospital for treatment purpose. Authors examined total 108 endometrial biopsy and curettage samples of AUB patients that were received in this histopathology department.

The mean age of the patients with AUB in this study was 39.6 years±10.4. Most of these patients belonged to reproductive age group 61/108 patients (56.48%) followed by perimenopausal 29/108 patients (26.85%) and postmenopausal age group, 18/108 patients (16.67%).

In this study normal menstrual endometrial pattern was seen in 52/108 cases (48.15%). Out of these 52 cases, 53.85% were in secretory phase and 46.15 % were in proliferative phase. Among all 108 patients, 25.93% cases were in secretory phase and 22.22% were in proliferative phase. Majority cases (56/108 cases, 51.85%) in our research showed some or the other endometrial pathology. Authors found that older age group was associated with more aggressive and advancing lesions. As compared to the reproductive age group, atypia and malignancy were more commonly seen in perimenopausal and postmenopausal age group.

Authors observed that overall the most frequent endometrial pathology was due to hormonal imbalance and pill effect (24/108 cases, 22.22%) succeeded by atrophic endometrium (11/108 cases, 10.19%), chronic endometritis (6/108 cases, 5.56%), benign endometrial polyp (5/108 cases, 4.63%), gestation products (4/108 cases, 3.70%), endometrial hyperplasia (4/108 cases, 3.70%), and endometrial carcinoma (2/108 cases, 1.85%). Hence in general the most common endometrial pattern observed in AUB cases of this study was normal menstrual pattern.

Vaidya S et al, noted in their study 165 (40.94%) cases of normal menstrual endometrium, 54 (13.40%) cases of disordered proliferative endometrium, 44 (10.92%) cases of endometrial hyperplasia and 10 (2.48%) cases of endometrial cancer.[6] Mariam A et al, observed that AUB was more prevalent among reproductive age group (49.3%, 119/241) followed by perimenopausal(32%, 77/241) and postmenopausal age groups (18.7%, 45/241). Their study showed 34% subjects (82/241) with normal menstrual endometrial findings while endometrial abnormalities were seen in 66% subjects (159/241). They reported altogether hormonal imbalance as the most recurrent endometrial pathology 27% subjects (65/241) and endometrial carcinoma as least common endometrial pathology 2% subjects (5/241).[4] These findings were in concordance with this study results.

Another study done by Singh P. concluded disordered proliferative endometrium(18/115 cases, 15.6%) and out

of phase endometrium(11/115 cases, 9.5%) as the most common endometrial pathology on histopathological examination.[7] These findings of Vaidya S et al, Mariam A et al and Singh P were in concordance with this study.

However, in a study done in India by Sajitha et al, results described were slightly variable. In their study, the most common endometrial pathology observed was endometrial hyperplasia (39/156 cases, 25%) followed by disordered proliferative endometrium (19/156 cases,12.2%) and pill endometrium (12/156, 7.7%).[8] Also in another study done by Nivedita Singh et al, proliferative endometrium (71/248, 28.6%) was the most frequent finding in general. The next most common histological patterns observed were non-atypical hyperplasia (48/248, 19.4%), disordered proliferative endometrium (40/248, 16.1%), atrophic endometrium (33/248, 13.3%), secretory endometrium (20/248, 8.1%), endometrial polyp (20/248,8.1%), endometrial atypia(10/248, 4%) and chronic endometritis (6/248, 2.4%).[9] One more study done by Moghal N described similar results citing endometrial hyperplasia as the most common cause of AUB overall followed by endometrial polyp.[10]

The reproductive age group in this study showed hormonal imbalance and pill effect (26.23%) as the most common endometrial abnormality followed by gestation products (6.56%), chronic endometritis (4.92%), and endometrial polyp (3.28%). However, author did not find any case of endometrial hyperplasia in this age group. In a study done by R. Khan et al, hormonal imbalance (22/53 cases, 41.51%)was seen as the most frequent endometrial pathological finding in the reproductive age group followed by endometrial hyperplasia (16.98%), gestation products (9.43%) and endometritis (7.55%).[11]

The perimenopausal age group in this study showed normal menstrual pattern (55.17%) as the most common histological finding. The most frequent pathological finding was hormonal imbalance and pill effect (20.69%), followed by chronic endometritis (10.34%), endometrial polyp (10.34%), and simple hyperplasia (3.45%). Doraiswami S et al, also described disordered proliferative pattern (29.20 %) as the most common endometrial abnormality in the perimenopausal age group followed by endometrial polyp (13.14 %) and hyperplasia (12.41%).[12]

These findings were in contrast to the findings described in a research done by Sujata j et al, They reported endometrial hyperplasia as the most common endometrial pathology in the perimenopausal age group (24/219 cases, 10.9%) out of which non-atypical hyperplasia was seen in 23 cases and atypical hyperplasia was seen in 1 case. The other causes of atypical uterine bleeding in their study were disordered proliferative endometrium 15 cases (6.8%), luteal phase defects 3 cases (1.3%) and pregnancy complications 3 cases (1.3%).[13]

In the postmenopausal age group of this study, the most common histological finding was atrophic endometrium (61.11%) followed by hormonal imbalance and pill effect (11.11%), endometrial hyperplasia with atypia (16.67%) and endometrial carcinoma (11.11%). In a similar study done by Deeba F et al, on postmenopausal women, endometrial hyperplasia (59%) was observed to be the most common endometrial pattern on histology followed by atrophic endometrium (24.5%), endometrial cancer (12.7%) and benign endometrial polyp (3.6%).[14] Various types of endometrial hyperplasia noted in this study was one case of simple hyperplasia without atypia, one case was simple hyperplasia with atypia and two cases were complex hyperplasia with atypia. All the cases of hyperplasia and malignancy in this study were seen in the perimenopausal and post-menopausal age groups (>40 years).Vaidya S et al, also found in their study that endometrial hyperplasia and cancer were usually seen in the perimenopausal and postmenopausal age groups.[6]

It is of vital importance to look for endometrial hyperplasia on histopathological examination as they are considered to be precursors of endometrial carcinoma. The ultimate risk of progression of endometrial hyperplasia to cancer is 5-10%. Simple hyperplasia without atypia, complex hyperplasia without atypia, simple hyperplasia with atypia and complex hyperplasia with atypia have variable progression risks of 1%, 3%, 8%, and 29%, respectively, to malignancy.[8]

CONCLUSION

Abnormal uterine bleeding in women belonging to different age groups show variable endometrial pattern on histopathological examination of samples obtained from endometrial curettage and biopsy. They are valuable in early detection of precancerous endometrial lesions as well as malignancy especially in the perimenopausal and postmenopausal age groups (>40 years). Additionally, they are relatively safe, cost-effective and simple procedures.

Therefore, it is essential to study and accurately interpret the endometrial patterns observed on endometrial biopsy and curettage samples to encourage the use of these procedures to provide early diagnosis and treatment of all causes of AUB in females of all age groups.

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