Journal of Pathology of Nepal (2011) Vol. **1**, 13 - 16

Journal of
PATHOLOGY
of Nepal

www.acpnepal.com

Original Article

Histopathological pattern of endometrial samples in abnormal uterine bleeding

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Keywords:

Endometrium;
Simple hyperplasia;
Complex hyperplasia;
Endometritis;
Endometrial Carcinoma.

ABSTRACT

Background: Histological characteristics of endometrial biopsy material as assessed by light microscopy remain the diagnostic standard for the clinical diagnosis of endometrial pathology. Management of abnormal uterine bleeding is not complete without tissue diagnosis. The aim of the study was to find out the histopathological pattern of the endometrium in abnormal uterine bleeding.

Materials and Methods: Endometrial biopsy specimens received from Jan 2007 to Nov 2010 were studied retrospectively in the Department of Histopathology, Helping Hands Community Hospital, Kathmandu. The specimens were routinely processed and the hematoxyllin and eosin stained slides were studied.

Results: A total of 300 specimens were analyzed. In the group of patients less than 40 years of age, 73 (50%) were normal, 34(23%) had abnormal physiologic changes and 13 (9%) had pregnancy related complications and benign changes. In the age group between 40 – 55 years, abnormal physiological changes, benign conditions and normal physiological changes were 45 (32%), 41 (29%) and 37 (26%) respectively. In the age group > 55 years, there were 3(21%) malignant and 3(21%) benign conditions. There were 5(36%) unsatisfactory samples in this age group.

Conclusion: It is important to know the histological pattern of the endometrium in abnormal uterine bleeding in different age groups since it will help in the management of the cases. In this study endometrial hyperplasias were seen in 55 cases (18.8%). The importance of studying the histological pattern of endometrium in abnormal uterine bleeding in different age group is to help in correctly managing the cases.

INTRODUCTION

Histological characteristics of endometrial biopsy material as assessed by light microscopy remain the diagnostic standard for the clinical diagnosis of endometrial pathology. Indeed, the initial diagnosis is made by endometrial biopsy or by curettage, which in itself may be therapeutic. Conversely, the biopsy or curettage may not sample the entire endometrium, and the areas of greatest histological or cytological severity may thus escape histological identification. Management of abnormal uterine bleeding (AUB) is not complete without tissue diagnosis especially in perimenopause and post menopause. AUB may be the symptom of endometrial carcinoma in 8 – 50% of cases.[1] The aim of this study was to find the histopathological pattern of endometrium in abnormal uterine bleeding in all age group.

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MATERIALS AND METHODS

It is a retrospective study done in the Department of Histopathology of Helping Hands Community Hospital, Kathmandu. The slides were studied under light microscopy for 3 years from January 2007 to December 2010. The endometrial specimens were received in 10% formalin solution. The tissues were processed, sectioned and stained with hematoxyllin and eosin. Study criteria were divided as 1. Normal physiological changes: Proliferative phase, secretory phase and anovulatory changes, 2. Abnormal physiological changes: Pill endometrium, irregular shedding, disordered proliferative endometrium and decidualization. 3. Inflammatory conditions: Chronic endometritis, 4.Pregnancy related conditions: Products of conception, Molar pregnancy - Partial and Complete. 5. Benign condition: Endometrial Polyp. 6. Preneoplastic condition: Endometrial Hyperplasia - Simple and complex hyperplasia with or without atypia. 7. Malignant conditions and 8. Unsatisfactory for evaluation. Data was analyzed by using Statistical Package for Social Sciences (SPSS) version 17 for windows.

RESULTS

A total of 1700 histopathological specimens were received during the study period. Out of 300 endometrial specimens submitted with the diagnosis of AUB, there were 146,140 and14 samples from patients under the age of 40, 40 to 55 and above 55 years of age respectively. In patients less than 40 years 73 (50%) presented with normal and 34 (23%) with abnormal physiologic changes, and 13 (9%) each had pregnancy related complications and benign changes. Normal physiological changes include proliferative phase, secretory phase and anovulatory changes and abnormal physiological changes include pill endometrium, irregular shedding, disordered proliferative endometrium and decidualization. Chronic endometritis was seen in 2 (3%) cases. In the age group between 40 – 55 years abnormal physiological changes, pre neoplastic conditions and normal physiological changes were 45 (32%), 41 (29%) and 37 (26%) respectively. In age group more than 55 years both malignant and benign conditions were 3 (21%) each with maximum number of unsatisfactory samples of 5 (36%). (Table 1)

DISCUSSION

Normal and Abnormal Physiological Changes

In normal cycles, the menstrual shedding is followed by endometrial proliferation under estrogenic stimulation. During this phase, the endometrial glands grow and become tortuous.[2, 3]

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.[3-5] In our study, majority of the cases of normal physiological changes 50% were under 40 years. This result correlated with other studies done previously.[6]

In perimenopausal women the abnormal physiological changes was in 45 (32%) with 2/3rd of cases having disordered proliferative endometrium which is an exaggeration of the normal proliferative phase without significant increase in the overall ratio of glands to stroma. These are frequent findings on pathologic examination of

Table 1: Histopathological pattern of endometrial tissue by age group

Age in years		<40	40-55	>55	Total
Histo-pathology pattern	Normal physiological changes	50%	26%	8%	**110**
	Abnormal physiological changes	23%	32%	14%	**80**
	Inflammatory conditions	3%	3%	0	**8**
	Pregnancy related complications	9%	2%	0	**15**
	Benign Condition	1.3%	0	0	**4**
	Pre Neoplastic Condition	8%	29%	21%	**55**
	Malignant condition	0	0	21%	**3**
	Unsatisfactory for evaluation	6%	8%	36%	**25**
Total		**146**	**140**	**14**	**300**

Table 2. Types of Hyperplasia

Types of Hyperplasia		Simple without atypia	Simple with atypia	Complex without atypia	Complex with atypia	Total
Age in Years	<40	8	3	3	1	15
	40-55	27	0	3	7	37
	>55	2	1	0	0	3
Total		37	4	6	8	55

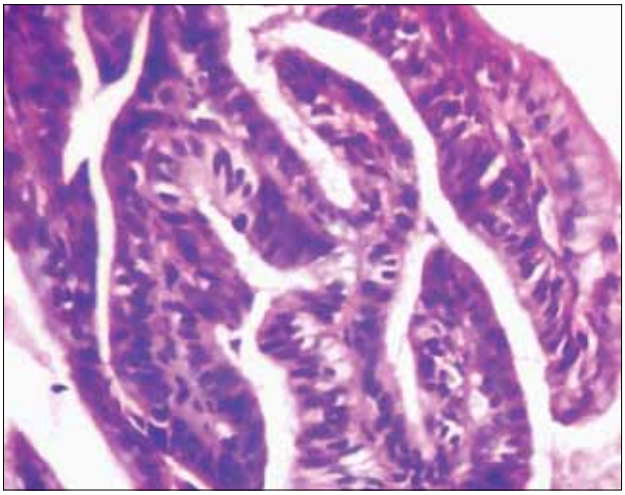

Figure 1: *Complex Hyperplasia with Atypia showing complex glands with papillary projections and cellular atypia (HE stain, X10)*

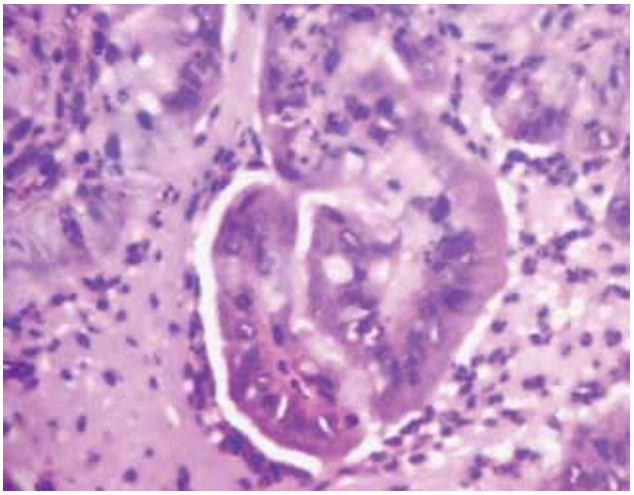

Figure 2: *Endometrial Carcinoma showing malignant glands with neoplastic cells (H E stain, X40)*

endometrial biopsy samples in perimenopausal women.[7]

The histologic patterns seen in endometrial biopsies from women who receive hormonal pills show combination of inactive glands, abortive secretion, decidual reaction, and thin blood vessels is characteristic.[3] Such changes were seen in 10 (3%) cases with majority being in the perimenopausal age group.

Irregular shedding of the endometrium is apparently due to slow degeneration of the corpus luteum with prolonged exposure of the menstruating endometrium to the waning progesterone. Clinically, irregular shedding of the endometrium manifests itself by cyclic prolonged menstruation, which may be profuse. In our study total number of cases with irregular shedding of endometrium was found in 9 (6%) cases distributed equally in under 40 and above. After menopause, the endometrium becomes atrophic due to lack of estrogen stimulation which may yield inadequate sample during endometrial biopsy. Large dilated venules are situated superficial under a thin endometrium and may rupture to cause excessive uterine bleeding.[8]

Inflammatory conditions: Chronic endometritis

The histologic criteria for endometritis in the literature has been somewhat variable with respect to the number of plasma cells present in the endometrial stroma as well as to secondary characteristics including neutrophils in the surface endometrium and gland lumina, increased lymphocytes, or lymphoid aggregates.[9-12]

In our study chronic endometritis was seen in total of 4 (2.7%) equally distributed in under 40 and in perimenopause. Three fourth (3/4th) of it was associated with the disordered proliferative endometrium and rest with the secretory phase endometrium. In a study done by Hannah G 78% of chronic endometritis with plasma cell was seen in disordered proliferative endometrium.[12]

Pregnancy related complications

In our study 15 (5%) of cases were related to pregnancy complications comprising of 8 (53%) products of conception, 6 (40%) cases of partial hydatiform mole and 1 (7%) case of complete mole. In a study done by Jeffers et al. 76% was partial mole and 26% was diagnosed as complete mole.[13]

Benign condition: Endometrial polyp

The prevalence of endometrial polyps in the general population is about 24%. 7 In our study we observed 4 (1.3%) of the cases having polyp with equal number in the under 40 and perimenopausal age group.

Pre neoplastic conditions: Endometrial hyperplasia

The classification system used by the World Health Organization (WHO) and the International Society of Gynecological Pathologists designates four different types 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. Most important, hyperplasias are further designated as atypical if they demonstrate cytologic (i.e., nuclear) atypia. Only atypical endometrial hyperplasias are clearly associated with the subsequent development of adenocarcinoma. If left untreated, approximately 8% of patient with simple atypical hyperplasia will progress to carcinoma, whereas the progression rate in women with complex atypical hyperplasia is almost 30% in one study, and as high as 52% in another.[14] In addition, the risk of coexistent cancer may be as high as 20-50%, leading some authors to recommend that all women with atypical hyperplasia should receive definitive surgical management.

Fifty five (18.3%) were diagnosed as having hyperplasias of different types and 2/3rd of it fell in the perimenopausal age group. Similar to our findings other studies also showed that simple and complex hyperplasia incidences peaked in women ages 50–54.[15] (fig. 1 and fig. 2)

Malignant conditions: Endometrial carcinoma

Our result showed 3 (21%) of endometrial carcinoma and all were in patients above the age of 55. In a study done by Dangal G in Chitwan in 2003 showed the incidence of endometrial cancer in the postmenopausal group was 17.6%.[1] The cases were mainly endometrioid adenocarcinoma and not a single case of serous adenocarcinoma or clear cell carcinoma. All these patients had presented with history of postmenopausal bleeding.

In another study done in BP Koirala Memorial Cancer Hospital, Nepal by Dhakal et al observed a low incidence of endometrial cancer with only 32 cases, 2% of all gynecological cancers with the mean age of 56.7 years.[15]

Unsatisfactory for evaluation

There have been very little publications about the criteria for considering an endometrial specimen as adequate or inadequate. In our study we had 25 (8%) cases of unsatisfactory samples, with 2/3rd being over 40 years of age and in menopausal age group 1/3rd had inadequate sample. Most of these showed only large areas of hemorrhage and scanty glands or stroma. These were labeled unsatisfactory to report and the clinician was advised to repeat biopsy if clinically indicated.

CONCLUSION

This study showed that normal physiological changes were seen predominantly in the under 40 age group. In perimenopausal age group the abnormal physiological changes and benign conditions were seen which included the various hyperplastic conditions of endometrium. Due to the preneoplastic nature, the hyperplasias, especially the complex hyperplasia with atypia has to be detected early. In the menopausal age group, we saw maximum number of unsatisfactory samples which maybe due to atrophy of endometrium. Both benign and malignant conditions were seen in equal percentage in the menopausal age group.

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