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Research Article

Clinicopathological Correlation of Adenomyosis and Leiomyoma in Hysterectomy Specimens as the Cause of Abnormal Uterine Bleeding: A Retroprospective Study

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Abstract: The objective was to study adenomyosis and leiomyoma as the cause of abnormal uterine bleeding in hysterectomy specimens. This was a retrospective study carried out on 218 hysterectomy specimens of subjects who presented to the department of obstetrics and gynaecology at SMS & R, Sharda University with the complaint of abnormal uterine bleeding not responding to conservative treatment from January 2011 to December 2013. Data including age, symptoms and clinical indication for hysterectomy was collected for the study. These women were evaluated and clinical,ultrasonographic and histopathological finding were correlated. Women in the perimenopausal age (41-50 years) accounted for the highest number of cases (52.71%) presenting with symptoms of AUB. In this age group adenomyosis was the found to be the commonest cause of AUB (52.9%). The most common symptom was heavy menstrual bleeding (77.5%) followed by dysmenorrhea(35.6%). Adenomyosis was clinically suspected in 119 cases of which 96 cases were confirmed on histopathology. Fibroid was clinically diagnosed in 99 cases and confirmed in 91 cases histologically .Clinical, radiological and pathological evaluation correlated well to diagnose fibroid but were not of as much help to diagnose adenomyosis. Adenomyosis was found to be the most common cause of abnormal uterine bleeding in possibility of these lesion women of perimenopausal age group. Adenomyosis still remains a clinical challenge. So has to be kept in mind by both clinician, as well as pathologist in women with AUB.
Keywords: Abnormal uterine bleeding, Adenomyosis, Leiomyoma.

INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as bleeding from the uterine corpus that is abnormal in regularity, volume, frequency, or duration and occurs in the absence of pregnancy [1, 2]. Abnormal uterine bleeding occurs in 9 to 14 percent of women between menarche and menopause, significantly impacting quality of life and imposing financial burden [3]. Recurrent anovulation which is seen in cases of AUB causes an increased risk of endometrial cancer [4-6]. About 14 percent of premenopausal women with recurrent anovulatory cycles develop endometrial cancer or its precursor, hyperplasia with atypia [5].

Hysterectomy is the definitive treatment for excessive uterine bleeding in women who no longer wish to conceive. A number of minimally invasive surgical options for hysterectomy do exist now and are promising like endometrial ablation, thermal balloon therapy and uterine artery embolization but restricted availability and cost factor limit them from being widely used [7] even though it has increased number of adverse effects including longer recovery time, and higher initial health care costs compared with uterine-sparing procedures [8, 9]. Hysterectomy also may be associated with ovarian failure nearly four years earlier than expected [10].

The two most important underlying pathology of AUB are leiomyoma and adenomyosis. Adenomyosis, which is a benign uterine disease defined as the downward growth of endometrial basal layer into the myometrium. Although various methods such as ultrasound scan and magnetic resonance imaging have shown high levels of accuracy for the noninvasive diagnosis of adenomyosis [11,12] hysterectomy and microscopic evaluation of the samples are still the only ways of definite diagnosis of adenomyosis [13].

The purpose of our study was to find the prevalence of adenomyosis and leiomyoma as the cause of AUB in patients attending gynaecology department of SMS & R, Sharda University by histopathological examination of hysterectomy specimens and to correlate clinical,

radiological and histopathological findings in these cases. The reason for selecting these two entities for our study was that adenomyosis and leiomyoma are the two most common causes for AUB. Adenomyosis presents with dysmenorrhea and AUB. The clinical presentation of leiomyoma depends on their size and location; the most common are AUB, pain and sensation of pressure. In both of them, AUB is the common presentation but unfortunately they cannot be differentiated solely on clinical ground and a histopathological examination is required.

MATERIALS AND METHOD

A descriptive study was carried out in the department of obstetrics and gynaecology from January 2011-December 2013. During these 3 years, 374 hysterectomy were performed including abdominal, vaginal, laproscopic assisted vaginal hysterectomy in the hospital. Out of these, 218 were included in the study. Inclusion criteria were women coming to outpatient department with complaint of AUB for which hysterectomy was performed. Patients in whom endometrial biopsies were inconclusive for the cause of AUB and subsequently underwent hysterectomies were also included in the study. Malignancies were excluded from the study. Women with associated medical disorders were not included in this study.

We analyzed these women by recording age, menstrual symptoms , associated symptoms for clinical evaluation and clinical indication of hysterectomy was recorded. Ultrasonographic evaluation of all the women was recorded. Data regarding histopathological report was collected from the pathology department. Histopathological reports of the hysterectomy specimens were correlated with clinical diagnosis and ultrasonographic findings.

RESULTS

A total of 218 cases were included in the study. Age of the patients ranged from 30 to 70 years. The largest group (n = 115) was of perimenopausal age (41-50 years) contributing 52.75%% of total cases in the study (Table 1).

Table 1: Age distribution of patients presenting with AUB (n=218)

Age	Number of cases	Percentage
21-30	6	2.75%
31-40	79	36.23%
41-50	115	52.70%
51-60	13	5.96%
61-70	4	1.80%
71-80	1	0.45%

In this age group, adenomyosis was the commonest pathology 46.08% (n = 53) followed by leiomyoma 41.73% (n = 48) where as 12.1% (n = 14) showed dual pathology of adenomyosis and leiomyoma (Table 2). In the extremes of age, the prevalence of adenomyosis and leiomyoma decreased to 3.92 % and 2.29 % in the age group of 21-30 years and 1.96 % and 1.15 % respectively were in the ages of above 60 years. In the younger age groups as well as the post-menopausal age groups adenomyosis was the leading cause of AUB.

Table 2: Distribution of patients according to histological lesion

Age group	Adenomyosis	Leiomyoma	Dual
21-30	4	2	0
31-40	34	33	12
41-50	53	48	14
51-60	7	4	2
61-70	2	1	1
71-80	1	0	0

In our study, maximum cases revealed adenomyosis in the histopathological specimen (n = 102) in women who presented with abnormal uterine bleeding (Table 3).

Table 3: Number of patients for each histopathological lesion

Lesion	Number of cases	Percentage
Adenomyosis	102	46.78%
Leiomyoma	87	39.90%
Both(dual)	29	13.30%

Of total 218 patients 114 had undergone TVS preoperatively on rest transabdominal ultrasound was done . The sonographic diagnosis correlated well with the histopathological findings. 102 patients were given the provisional diagnosis of adenomyosis and 94 of fibroid on sonography rest of them had other pathology (Table 4).Out of 218 patients, 119 were preoperatively diagnosed as adenomyosis while 99 were clinically suspected to have leiomyoma as the cause of AUB. On histopathological examination only 96 of these 119 patients were confirmed to have adenomyosis whereas 91of the 99 patients of leiomyoma showed the same lesion (Table 4) Therefore, the clinico-histological correlation was better for leiomyoma (91.9%) than for adenomyosis (80.7%).

Table 4: Correlation of histopathological diagnosis with clinical and radiological diagnosis

Disease	Clinical	USG	Histopathological
Adenomyosis	119	102	96 (80.7%)
Leiomyoma	99	94	91 (91.9%)

HMB (heavy menstrual bleeding) was the symptom in 76.08% patients as compared to IMB (irregular menstrual bleeding) which was seen in 22.47% cases. In both the categories of AUB, 46.7 % of the patients showed adenomyosis as the underlying histopathological lesion as compared to 39.9% cases of leiomyoma (Table 5). Histological correlation of dysmenorrhea with adenomyosis was seen in 73.68%

cases whereas in leiomyoma the correlation with pain and pressure symptoms was 87.77% in our study (Table-6).

Table 5: Correlation of histopathological lesion with type of bleeding in AUB

Type of AUB	Adenomyosis	Leiomyoma	Both(dual)
HMB	86	64	19
IMB	16	23	10

Table 6: Correlation of histopathological lesion with presenting symptoms

Symptoms	Number of cases	Adenomyosis	Leiomyoma	Dual
Dysmenorrhea	114	84	8	6
Pain & pressure	90	0	79	4

DISCUSSION

The etiologies of AUB is multifactorial .The Menstrual Disorders Working Group of the International Federation of Gynecology and Obstetrics proposed a classification system and standardized terminology for the etiologies of the symptoms of AUB, which has been approved by the International Federation of Gynecology and Obstetrics' executive board and supported by the American College of Obstetricians and Gynecologists [1, 2]. With this system, the etiologies of AUB are classified as "related to uterine structural abnormalities" and "unrelated to uterine structural abnormalities" and categorized following the acronym PALM–COEIN: Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia, Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, and Not otherwise classified.

The two most common histopathological diagnoses reported for hysterectomy specimens of AUB are adenomyosis and leiomyoma. Leiomyoma are the most frequent benign uterine tumors that develop during a woman's reproductive years; occurrence tends to regress after menopause [14]. Approximately, 140.000 hysterectomies and 20.000 myomectomies were applied within one year based on leiomyoma caused symptoms [15]. Adenomyosis is an another common condition detected in hysterectomy specimens. It is characterized by the presence of endometrial glands and stroma within the myometrium. Patients are typically pre or perimenopausal women who present with abnormal bleeding [16].

In our study, 52.71% (n = 115) of the patients with AUB belonged to the 41-50 years age group.In a cross-sectional retrospective study Kim and Strawn [17] reported that the uterine samples of 64 patients out of the 182 participants (35.2%) had adenomyosis. These patients were in the age range of 25–52 years. In the current study, adenomyosis was mostly prevalent in the age range of 41-50 years, which was in agreement with the findings of previous studies. The overall prevalence of adenomyosis was determined to be 46.78%, which was, however, higher than those of the previous reports [17, 18] whereas leiomyoma was found in 87 cases (39.9%). Isaoglu *et al*. [19] found that 30.23% of the hysterectomy cases were diagnosed as adenomyosis whereas leiomyoma constituted (28.19%) cases of hysterectomy in AUB.

Diagnosis of adenomyosis on clinical findings is usually different. Transabdominal sonography doesn't allow reliable diagnosis of adenomyosis, even transvaginal ultrasonography has limitation in tissue characterization [20]. MRI is more helpful to diagnose adenomyosis but is expensive, whereas it is very useful diagnostic tool in cases with fibroid uterus. Out 94 cases diagnosed as leiomyoma on USG out of 91 were confirmed histologically whereas only 96 cases of 102 diagnosed on USG as adenomyosis were confirmed histologically.

Menorrhagia in fibroids is due to increased size of uterine cavity thereby increasing the surface area of the endometrium, hyperestrogenemia causing endometrial hyperplasia, vascular alteration of the endometrium and obstructive effect of fibroid on uterine vasculature leading to endometrial venule ectasia which causes proximal congestion in the myometrium and the endometrium. The cause of menorrhagia in adenomyosis is not known. HMB (heavy menstrual bleeding) was the symptom in 76.08% patients with adenomyosis as compared to IMB (irregular menstrual bleeding) which was seen in 22.47% cases similar to a study done by Pilli *et al*. [21]. Histological correlation of dysmenorrhea with adenomyosis was seen in 73.68% cases whereas in leiomyoma the correlation with pain and pressure symptoms was 87.77% in our study.

Ours is a retrospective study done on 218 patients. Larger sample size will have a better correlation of the clinical, radiological & histopathological findings.

CONCLUSION

In our study, adenomyosis was the most common cause of the AUB. Second common cause was fibroid. Clinical, radiological & pathological evaluation correlated well to diagnose fibroids, however clinically as well as USG proved to be of little help in diagnosing adenomyosis. AUB occurring as heavy cyclical or acyclical flow at perimenopausal age is alarming and

needs thorough evaluation, as it could be the only clinical manifestation of endometrial cancer.

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