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Original Article

Pathology Section

Adenomyosis and Co-existing Gynaecological Pathologies

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ABSTRACT

Introduction: Adenomyosis is defined as presence of benign endometrial tissue comprising of both endometrial glands and stroma into the myometrium leading on to diffuse enlargement of the uterus. Adenomyosis co-exists with various pathologies such as leiomyomas, endometriosis, endometrial polyp, endometrial hyperplasia and carcinoma suggesting hyperestrogenism to be a factor in pathogenesis of adenomyosis.

Aim: To study the associated pathological conditions and histopathological patterns of endometrium in patients presenting with Abnormal Uterine Bleeding (AUB) due to adenomyosis.

Materials and Methods: This retrospective study was conducted in a tertiary care institute of Punjab, India for a period of two years (August 2018 to August 2020). All the patients who underwent hysterectomy were re-evaluated and cases diagnosed with adenomyosis were included in the study. Clinical details were recorded. A total of 101 patients were diagnosed with adenomyosis. These cases were reviewed for presenting symptoms and were associated with histological features of endometrium and other associated gynaecological pathologies. The quantitative variables were expressed as mean and qualitative variables as percentages.

Results: The age of the patients who had adenomyosis ranged from 29 to 79 years, majority were in the age group of 41-50 years. Abnormal uterine bleeding was the most common symptom. The histopathological examination revealed associated pattern of endometrium from proliferative endometrium to endometrial hyperplasia and endometrial carcinoma. Other gynaecological pathologies included leiomyoma, adenocarcinoma ovary, serous adenomas of ovary and Cervical Intraepithelial Neoplasia (CIN) grade 3. Co-existence with leiomyoma is most common. Hyperestrogenemia can be considered as a risk factor as it is associated with leiomyomas, endometrial hyperplasia, endometrial carcinoma or polyps.

Conclusion: Adenomyosis is one of the causes of AUB and this decreases the quality of life in women. It is also considered as a cause of infertility. The associated histopathological findings vary from leiomyoma, endometrial hyperplasia, endometrial polyps and rarely adenocarcinoma of endometrium and ovary. Meticulous and careful examination of gross and microscopic foci of adenomyosis and associated pathologies can help in better management of patients.

Keywords: Abnormal uterine bleeding, Endometrial hyperplasia, Hyperestrogenemia, Hysterectomy, Leiomyoma

INTRODUCTION

Adenomyosis is defined as presence of benign endometrial tissue comprising of both endometrial glands and stroma into the myometrium. This leads on to diffuse enlargement of the uterus [1]. The histological diagnosis of adenomyosis is made by presence of endometrial tissue located at a distance range of 2 mm to 4 mm, or 1-2 low-power fields from the endometrio-myometrial junction [2]. The risk factors associated with adenomyosis are age of more than 40 years, multiparity, prior caesarean section, or uterine surgery [3,4]. Patient with adenomyosis presents with infertility, pain and AUB [5,6], but a third to half of the patients are asymptomatic [7]. It is considered a specific entity in classification of causes of AUB i.e., PALM-COEIN FIGO (Polyp; Adenomyosis; Leiomyoma; Malignancy and Hyperplasia; Coagulopathy; Ovulatory Dysfunction; Endometrial; Iatrogenic; and not yet classified-International Federation of Gynaecology and Obstetrics) [8]. There is a wide range of 8 to 20% of prevalence of adenomyosis in various studies from USA, Germany, Italy, Greece whereas it is 61.5% in Asian subcontinent [9]. Women undergoing Assisted Reproductive Technologies (ARTs) have a prevalence of 20% to 25% [5], whereas in those with a history of endometriosis, the percentage is widely variable, ranging from 20% to 80% [10,11]. Adenomyosis co-exists with various pathologies such as leiomyomas, endometriosis, endometrial polyp, endometrial hyperplasia and carcinoma. This suggests hyperestrogenism to be a factor in pathogenesis of adenomyosis [12,13]. Hyperestrogenic states leads on to non cyclic, anti-apoptotic activity of the basalis [14]. Diagnosis of adenomyosis is usually done on hysterectomy but nowadays MRI and transvaginal ultrasonography has helped in non invasive diagnosis of adenomyosis [8]. Despite the improvement of diagnostic tools, there is poor awareness of the condition [15]. The present study was done to relate the presenting symptoms of adenomyosis with histopathological findings of endometrium and to study its associated gynaecological pathologies.

MATERIALS AND METHODS

This retrospective study was conducted in Department of Pathology, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab, India. The data over a period of two years; from August 2018 to August 2020 was collected and compiled in September and October 2020. All hysterectomy specimens received during this period were taken into consideration. Demographic and clinical details of the patient were collected from the histopathological requisition forms.

Inclusion criteria: All hysterectomies showing features of adenomyosis on microscopic examination were included in the study.

Exclusion criteria: Cases without adenomyosis and clinical details were excluded from the study.

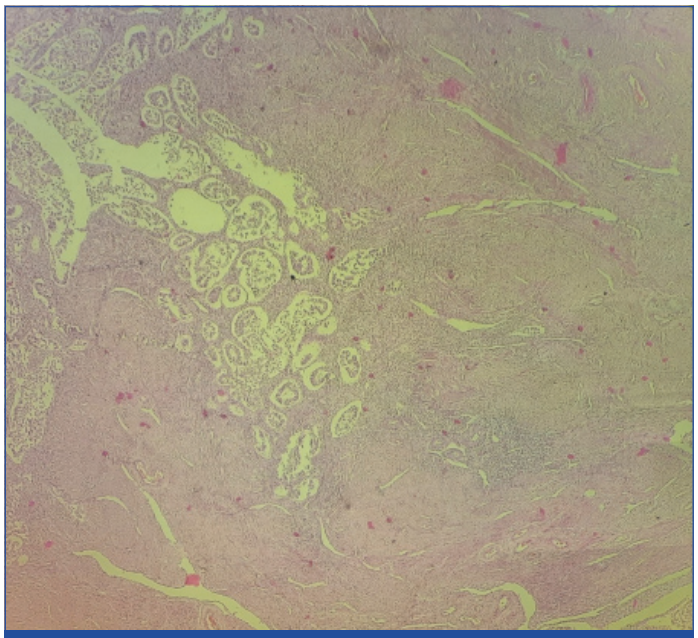
Various clinical features of the patients along with associated pathological findings were evaluated.

STATISTICAL ANALYSIS

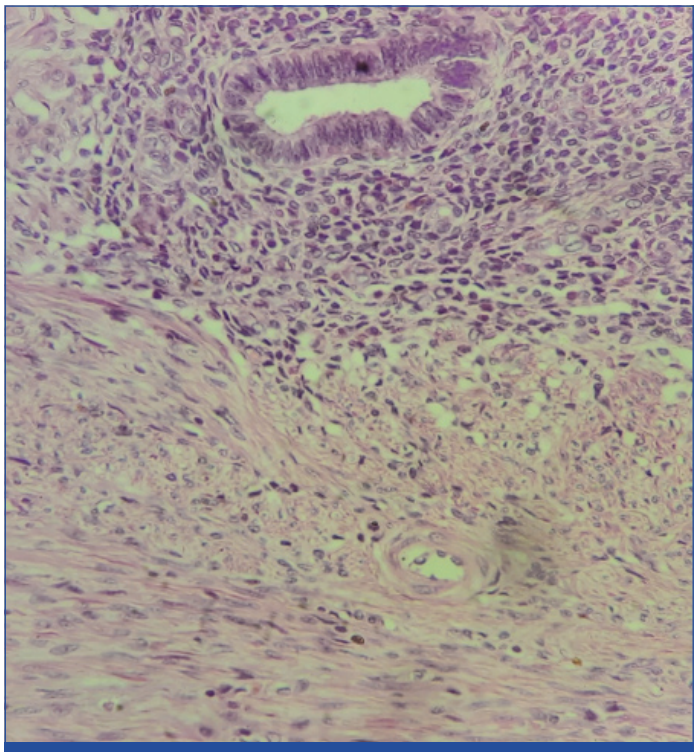
Clinical data was recorded, quantitative parameters were expressed as mean and qualitative parameters as percentage.

RESULTS

A total of 101 hysterectomy specimens studied had adenomyosis as microscopic findings [Table/Fig-1,2]. The patients age ranged from 29 to 79 years. Majority of the cases were between 41-50 years, 48/101 (47.5%) [Table/Fig-3]. AUB was the most common symptom seen in patients 61/101 (60.3%) followed by prolapse in 18 cases (17.8%). Twenty-two patients (21.7%) were asymptomatic [Table/Fig-4]. Various endometrial patterns were studied [Table/Fig-5]. The most common endometrial pattern was proliferative endometrium seen in 40 (39.6%) cases. Secretory phase was seen in 17 cases [Table/Fig-5,6], atrophic in 15 cases and irregular in 23 cases. Endometrial hyperplasia was present in 04 cases (3.97%). Most common co-existing secondary pathology seen in hysterectomy specimens was presence of leiomyomata in 40 cases (39.7%) [Table/Fig-7] followed by endometrial polyp present in seven cases (6.9%) [Table/Fig-8]. Adenocarcinoma ovary was present in five cases and serous cyst adenoma in four cases [Table/Fig-9]. Sex cord stromal tumours were seen in three cases (two of granulosa cell tumour and one of fibrothecoma). Endometriosis of ovary, mucinous cystadenoma with pseudomyxoma peritonei and Cervical Intraepithelial Neoplasia (CIN) grade 3 were present in one case respectively.



[Table/Fig-1]: Endometrial gland and stroma infiltrating into the myometrium (H&E, 4X).



[Table/Fig-2]: Endometrial gland and stroma in myometrium (H&E, 40X).

Age group (years)	Number of cases	Percentage (%)
21-30	2	1.98
31-40	24	23.76
41-50	48	47.52
51-60	19	18.82
61-70	6	5.94
71-80	2	1.98
Total	101	100

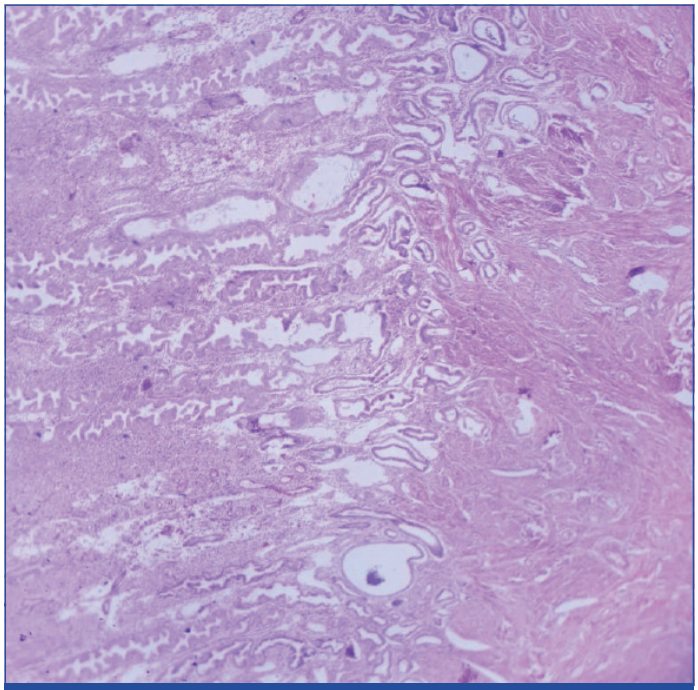
[Table/Fig-3]: Frequency of adenomyosis in different age groups.

Presenting symptoms	Number of cases	Percentage (%)
Abnormal uterine bleeding	61	60.4
Prolapse with pelvic pain	18	17.8
Asymptomatic	22	21.8

[Table/Fig-4]: Presenting symptoms of patients with adenomyosis.

Endometrial changes	Number of cases	Percentage (%)
Proliferative endometrium	40	39.60
Secretory endometrium	17	16.83
Atrophic endometrium	15	14.85
Irregular endometrium	23	22.77
Endometrial carcinoma	2	1.98
Endometrial hyperplasia	4	3.97
Total	101	100

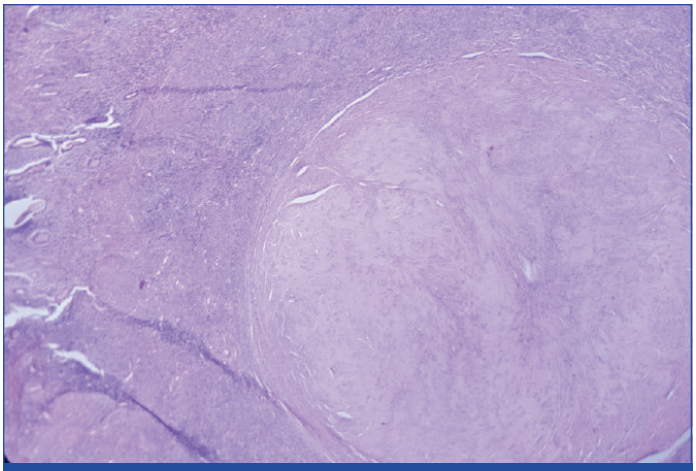
[Table/Fig-5]: Endometrial patterns associated with adenomyosis.



[Table/Fig-6]: Secretory phase of endometrium in a patient with adenomyosis (H&E, 10X).

DISCUSSION

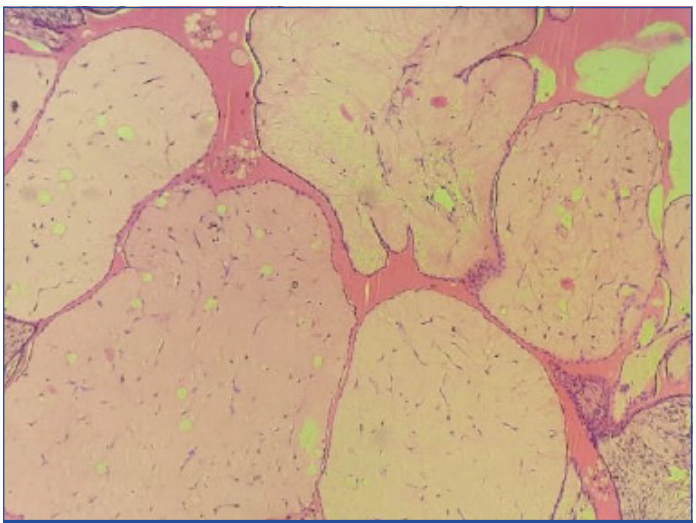
Adenomyosis is a common incidental finding in hysterectomy specimens. But recent advancement in diagnostic techniques like Magnetic Resonance Imaging (MRI) and Ultrasonography has improved the diagnosis. In 1860, Carl Von Rokitansky coined the term cystosarcoma adenoids uterinum for adenomyosis. Later on, Bird CC et al., described the condition as benign endometrial tissue (glands and stroma) present ectopically in the hyperplastic and hypertrophied myometrium [13].



[Table/Fig-7]: Leiomyoma (right side) along with adenomyosis (left upper corner) (H&E, E 10X).

S. No.	Gynaecological pathologies associated with adenomyosis		Number of cases
1	Leiomyoma		40
2	CIN III		01
3	Adenocarcinoma ovary		05
4	Serous cyst adenoma		04
5	Sex cord stromal tumours	Granulosa	02
		Fibrothecoma	01
6	Endometriosis of ovary		01
7	Endometrial polyp		07
8	Mucinous cystadenoma with pseudomyxoma peritonii		01
	Total		62

[Table/Fig-8]: Other gynaecological pathologies associated with adenomyosis.



[Table/Fig-9]: Serous adenoma ovary in a case of adenomyosis (H&E, 10X).

The various pathogenic factors involved in adenomyosis are sex steroid hormone receptors, inflammatory molecules, extracellular matrix enzymes, growth factors, and neuroangiogenic factors [16-18]. According to the most common theory, adenomyosis results from the invagination of basalis endometrium into the myometrium through an altered or interrupted Junctional Zone (JZ) [16,19] which represents a highly specialised hormone-responsive structure located in the inner third of the myometrium [20].

Adenomyosis is seen most commonly in age group of 41-50 [21,22]. Similar finding were seen in our study with 47.5% cases. Similar findings were noted in study by Shivananjiah C et al., and Ali A et al., with 50% and 73.7% cases, respectively in 41-50 years age group [21,22].

Patients with adenomyosis can be either asymptomatic or may present with symptoms like dysmenorrhea, dyspareunia, chronic pelvic pain, abnormal vaginal bleeding and infertility [23,24]. In present study, AUB was the most common symptom seen in 61/101 (60.4%) followed by prolapse in 18 cases (17.8%). Twenty-two patients (21.8%) were asymptomatic [Table/Fig-4].

In the present study, the most common endometrial pattern was proliferative endometrium seen in 40 cases (39.6%). Similar findings were noted by Shivananjiah C et al., with proliferative endometrium in 59.1% cases and Dayal S and Nagrath A in 44.4% of the cases [21,25]. In present study, 40 cases (39.6%) cases had co-existing leiomyoma. These findings were similar to study done by Sagar N et al., (41.4%) while Mehla S et al., showed a very low percentage (13.3%) of co-existence of adenomyosis and leiomyoma [7,26]. Many studies have reported the co-existence in a range of 15-57% cases [27]. Two studies showed a significant association between adenomyosis and endometrial hyperplasia [9,28]. In present study, only 04/101 (3.9%) cases were found to have endometrial hyperplasia. Adenomyosis is linked to hyperestrogenic states like endometrial polyps and endometrial carcinoma [29]. In present study, seven cases showed endometrial polyp (6.9%) and only two cases showed endometrial carcinoma.

Adenomyosis and endometriosis often co-exist in same patient showing a prevalence from 20 to 80% [10,11]. In our study, this co-existence is very low, only one case out of 101 (0.99%) showed the co-existence.

The most important factor in pathogenesis of adenomyosis seems to be hyperestrogenemia and it is associated with many gynaecological diseases. The present study was done to evaluate the clinical presentation of adenomyosis. Also, the endometrial changes and other gynaecological diseases associated with adenomyosis were also studied.

Limitation(s)

In the present study, the sample size may not represent a target population.

CONCLUSION(S)

Dysfunctional uterine bleeding is a major gynaecological problem which decreases the quality of life of a woman and adenomyosis is one of the major causes of it. Adenomyosis is associated with various histopathological findings which vary from leiomyoma, endometrial hyperplasia, endometrial polyps and rarely adenocarcinoma of endometrium and ovary. Proper diagnosis and treatment of adenomyosis and associated pathologies is important as it can help in better quality of life for females.

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