

# To Estimate The Prevalence Of Adenomyosis And Its Correlation With Benign Endometrial Lesions In Tertiary Care Center

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## Abstract

**Introduction:** Adenomyosis is a prevalent gynecological disorder among women with no specified causes. It is characterized by non-specific symptoms, and can present itself as abnormal uterine bleeding, abdominal pain, menstrual disorders. The objective of this study is to correlate adenomyosis with benign endometrial lesions like Leiomyoma, Benign endometrial polyp, Endometrial hyperplasia and to evaluate the prevalence of adenomyosis among the hysterectomized specimens.

**Material & methods:** This retrospective study was conducted in the Department of Pathology in Meenakshi Medical College Hospital and Research Institute, a tertiary care center in Kanchipuram, from January 2020 to April 2022. A total of 247 patients who underwent hysterectomy surgery and diagnosed as Adenomyosis and other benign endometrial lesions were studied. After reviewing the patients data, the main complaints as well as benign endometrial lesions associated with adenomyosis, were examined. Finally all the data were analyzed using statistical tests.

**Results:** In our study, the prevalence of adenomyosis was 53.03% and it was most frequently observed in the fourth decade (61.83% ). Adenomyosis was more prevalent in women with parity 2 and parity 3, and the most common complaint was Abnormal Uterine Bleeding (73% ). Leiomyoma (66.6%), Benign Endometrial polyp (19.2%), and Endometrial hyperplasia(14.1%) were the most common endometrial lesions associated with adenomyosis. Among the Benign endometrial lesions, Leiomyoma had the highest correlation with Adenomyosis.

**Conclusions:** The histomorphological study of endometrial lesions is necessary for making a final diagnosis of Adenomyosis, because it is one of the major causes of abnormal uterine bleeding in perimenopausal women.

**Keywords:** Adenomyosis, Abnormal Uterine Bleeding, Leiomyoma, Hysterectomy.

## INTRODUCTION

Adenomyosis uteri is a non-neoplastic condition, characterized by benign invasion of heterotrophic endometrial glands and stroma in the myometrium with adjacent smooth muscle hyperplasia[1,2].

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The degree of invasion is variable and can involve the whole uterine wall upto the serosa[2].Most often affects the posterior wall of the uterus than the anterior wall[2]. Most common symptoms are Abnormal Uterine Bleeding(AUB), dysmenorrhoea, abdominal pain, dyspareunia, but these do not allow diagnosis[3]. Adenomyosis is divided histologically into diffuse and focal types. On abdominal examination-uterus is enlarged(not more than 14 weeks of gestation size), on pelvic examination- uterine enlargement with no restriction of mobility is noted. Grossly, focal or diffuse grey black areas are noted in the myometrium with pinpoint or small cystic areas of hemorrhage are seen in the myometrium[4][FIGURE 1&2]. Microscopically, the criteria for the diagnosis of adenomyosis are the presence of endometrial glands and stroma in the myometrium more than 1/LPF (Low power field) away from the endomyometrium junction[4][FIGURE 2&4].Imaging plays an important role in the evaluation of myometrial lesions and the most common diagnostic modalities used in the outpatient basis were transabdominal sonography(TAS) and transvaginal sonography(TVS).The aim of this study is to evaluate the prevalence of adenomyosis and to correlate adenomyosis with benign endometrial lesions.

## MATERIALS AND METHODS:

This retrospective study is carried out in the Department of Pathology, in tertiary care centre over a period of 28 months between January 2020 to April 2022. 247 hysterectomy specimens in the age group of 20-80 years received from the Gynaecology department were studied. Patient's clinical details were obtained from medical records and data were entered in Microsoft excel sheet, compared and analyzed for statistical significance. Chi-square test was used to assess statistical significance by using IBM SPSS version 21.

All the hysterectomy specimens received were fixed with 10% formalin for 24 hours. The specimens were grossly examined and then multiple bits were taken from representative areas. The tissue bits were processed in an automated tissue processor and embedded in paraffin. 3-5µ thickness sections were taken; slides were made and stained with Routine Haematoxylin & Eosin stain. Histomorphological findings of the uterus which was reported by the Pathologist were noted and then overall prevalence of adenomyosis, frequency of adenomyosis in different age groups and association with other benign pathological lesions were determined. This study was approved by the Institutional Ethical Committee(IEC).

### Inclusion criteria:

All hysterectomized patients diagnosed with Adenomyosis and benign conditions of uterus(Leiomyoma, Benign endometrial polyp, Endometrial hyperplasia)

### Exclusion criteria:

Hysterectomy done for endometrial carcinoma and cervical

carcinoma were excluded from the study.

## RESULTS:

During this study, 247 hysterectomy specimens were evaluated, out of which 181 were Total abdominal hysterectomy specimens and 66 were Vaginal hysterectomy specimens. Out of 247 specimens, 64(21.9%)were diagnosed as adenomyosis, 97(33.2%) as leiomyoma, 11(3.76%) as endometrial polyp, 8(2.73%) as endometrial hyperplasia, 51(17.4%) as adenomyosis with leiomyoma, 12(4.10%) as adenomyosis with endometrial polyp, 4(1.36%) as adenomyosis with endometrial hyperplasia [FIGURE 5]. The prevalence of adenomyosis among the hysterectomized patients was 53.03%(131 cases). Isolated Adenomyosis was observed in 64 cases (48.85%) and 67 cases(51.14%) of adenomyosis were associated with benign endometrial lesions(Leiomyoma, Benign Endometrial polyp and Endometrial hyperplasia).

The maximum number of patients with adenomyosis were more common in age group of 41-50 years(61.83%) followed by frequency of adenomyosis in age ranging from 21-30years(0.76%), 31-40years(19.84%), 41-50years(61.83%), 51-60years(12.21%), 61-70years(3.81%), 71-80years(1.52%) [FIGURE 6& TABLE 1].

Adenomyosis was more prevalent in Multiparous women with Para 3 (47.32%) & Para 2 (38.93%) compared to nulliparous women (2.29%) which had significant correlation with the p-value of 0.001. [FIGURE 7 & TABLE 2].

Among the most common symptoms for adenomyosis, Abnormal Uterine Bleeding (AUB)(73.01%) was the most prevalent symptom followed by postmenopausal bleeding (14.28%), dysmenorrhoea(9.52%) and abdominal pain (3.17%) [FIGURE 8 & TABLE 3].

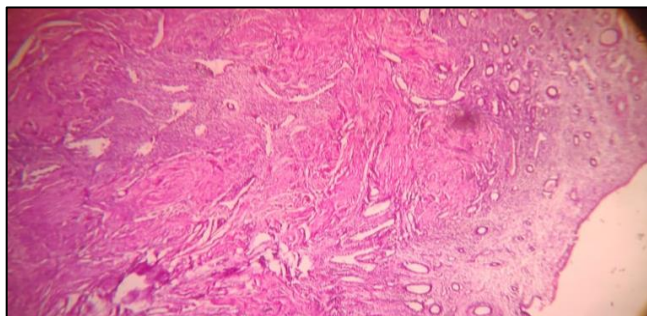
Adenomyosis was usually associated with benign endometrial lesions like Leiomyoma, Endometrial polyp, Endometrial hyperplasia. In our study, Leiomyoma (76.15%) was more frequently associated with Adenomyosis than other Benign Endometrial lesions which include Endometrial hyperplasia (17.95%) and Benign Endometrial polyp (5.90%) [FIGURE 9 & TABLE 4].



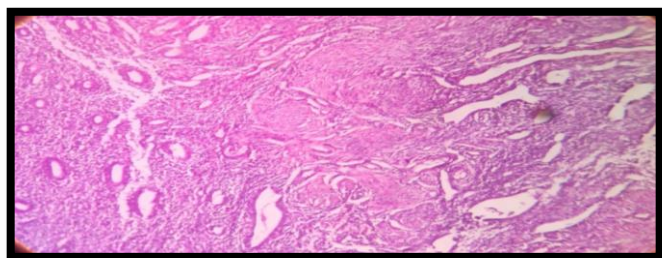
**FIGURE 1:** Gross image of the Uterus showing Adenomyotic foci (Grey black area and Trabeculae in the myometrium)[Black arrow].



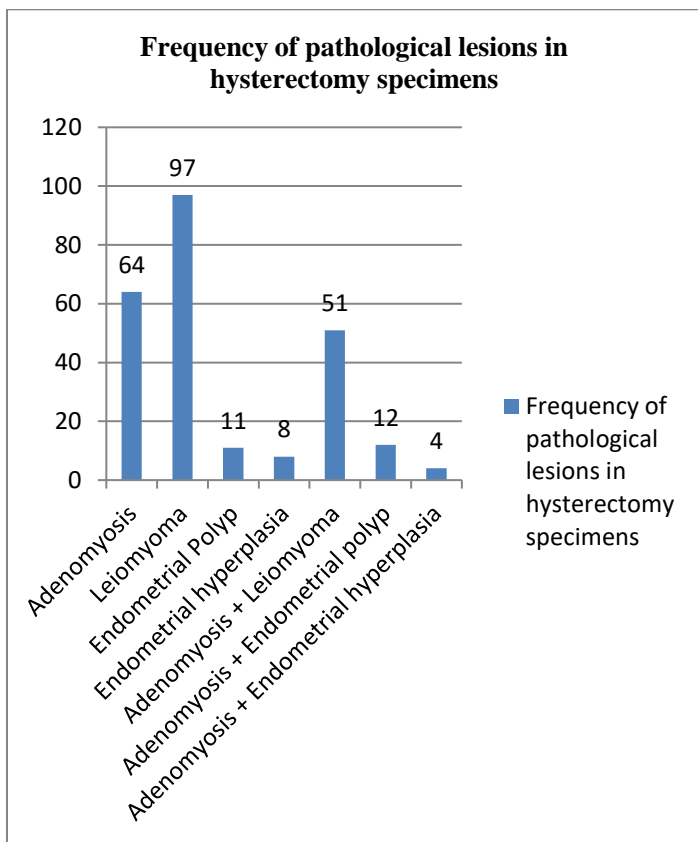
**FIGURE 2:** Gross image of the Uterus showing Adenomyotic foci (white arrow) and Well circumscribed, Grey white, Whorled pattern(black arrow).



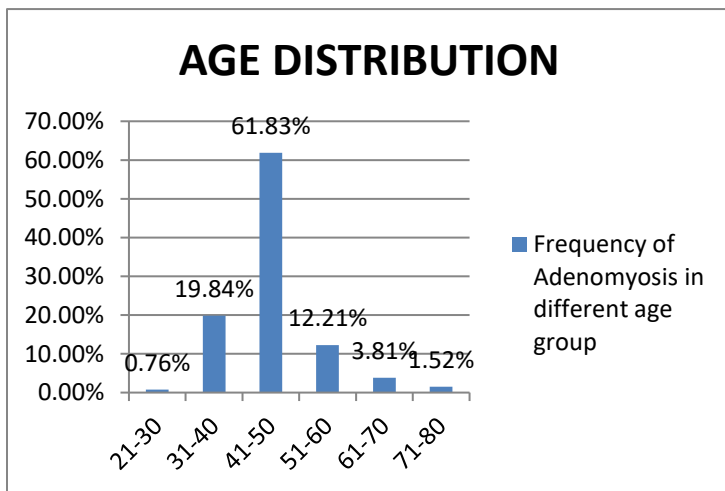
**FIGURE 3:** Adenomyosis of uterus (Endometrial glands in myometrium) [H&E, 10X]



**FIGURE 4:** Adenomyosis of uterus (Showing endometrial glands in myometrium) [H&E, 40X]



**FIGURE 5**



**FIGURE 6**

**TABLE 1:** Frequency of Adenomyosis in different age group.

	Frequency	Percentage	P-value
<b>21-30 years</b>	1	0.76%	0.265
<b>31-40 years</b>	26	19.84%	

<b>41-50 years</b>	81	61.83%
<b>51-60 years</b>	16	12.21%
<b>61-70 years</b>	5	3.81%
<b>71-80 years</b>	2	1.52%
<b>Total</b>	<b>131</b>	

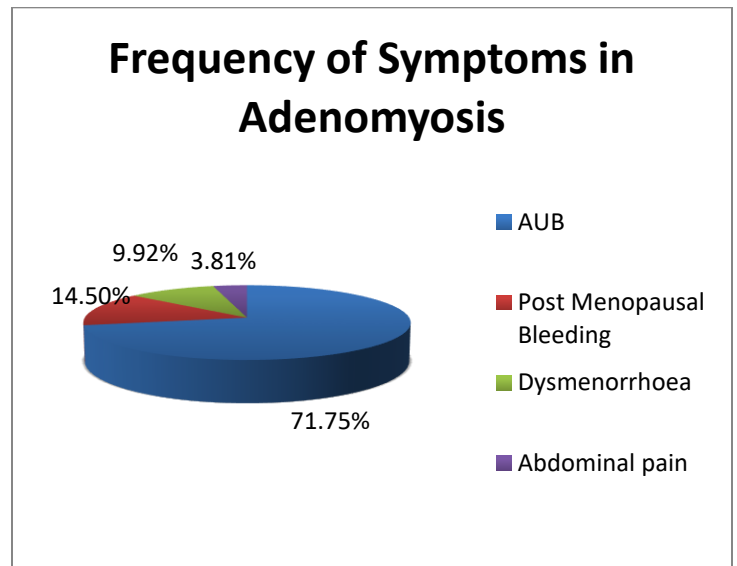


FIGURE 8

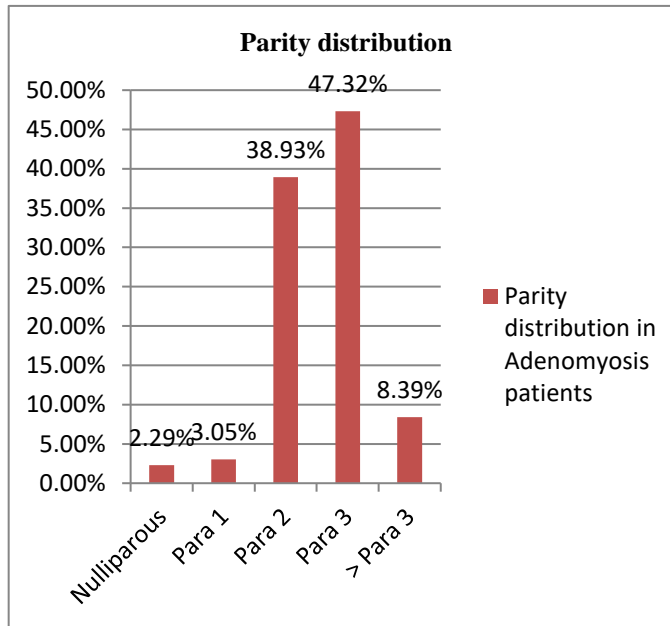


FIGURE 7

TABLE 3: Frequency of symptoms in Adenomyosis.

	Frequency	Percentage	P-value
<b>AUB</b>	94	71.75%	0.129
<b>Post menopausal Bleeding</b>	19	14.50%	
<b>Dysmenorrhoea</b>	13	9.92%	
<b>Abdominal Pain</b>	5	3.81%	

TABLE 2: Parity distribution in Adenomyosis patients

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<b>NULLIPARO US</b>	3	2.29%	<b>0.001</b>
<b>PARA 1</b>	4	3.05%	
<b>PARA 2</b>	51	38.93%	
<b>PARA 3</b>	62	47.32%	
<b>&gt;PARA 3</b>	11	8.39%	
<b>TOTAL</b>	<b>131</b>		

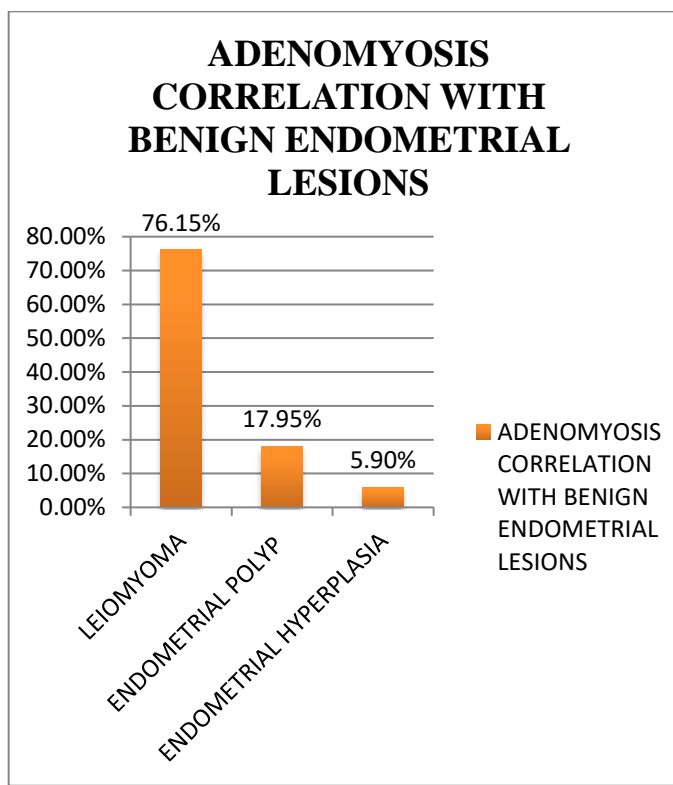


FIGURE 9

TABLE 4: Adenomyosis correlation with benign endometrial lesions

	Frequency	Percentage	P –value
<b>Leiomyoma</b>	51	76.15%	0.128
<b>Benign endometrial polyp</b>	12	17.95%	
<b>Endometrial hyperplasia</b>	4	5.90%	
<b>Total</b>	67		

**DISCUSSION:**

Adenomyosis is considered as a special entity in the PALM-COEIN FIGO classification of causes of abnormal uterine bleeding[5].Abnormal uterine bleeding(AUB) formerly called as menometrorrhagia is defined as the irregular bleeding between monthly cycles, prolonged bleeding or an extremely heavy bleeding. The development of adenomyosis is hypothesised to be influenced by oestrogen, progesterone, and previous uterine surgery. Multiparity, Perimenopausal women, Prior uterine surgeries, Smoking,

Ectopic pregnancy, and use of medications like Tamoxifen and Anti-depressants were risk factors for adenomyosis[6].

In our study, out of 247 hysterectomy specimens 131 were diagnosed as Adenomyosis. Hence, the prevalence of adenomyosis was 53.03% which was higher than the findings noted in the study by Parazzinia et al [7] and Yeniel O et al [8] with prevalence of 28.2% and 36.2% respectively. Another study by Kim and Strawn[9] had adenomyosis with a prevalence of 35.2% which is similar to our study.

The maximum number of patients with adenomyosis were more common in age group of 41-50 years(61.83%) followed by frequency 31-40years(19.84%), 51-60years(12.21%), 61-70years(3.81%), 71-80years(1.52%) and 21-30years(0.76%).Parazzinia et al[7] also showed that the mean age of hysterectomized patients with adenomyosis was 51.2 years. This mean age was close to that of our study. At the onset of menopause and in the later years, the prevalence of this condition decreases because of reduced oestrogen level.

In our present study, Adenomyosis was more prevalent in para 3 and para 2 which was similar to a study done by Gopinath L et al [10], 70.7% of the patients were multiparous, majority of them were para 3 and para2. In nulliparous and uniparous women, the prevalence of adenomyosis was low. Due to the invasive nature of trophoblasts on the extension of the myometrial fibers, pregnancy may facilitate the formation of adenomyosis by allowing the adenomyotic foci to be included in the myometrium[6].

Abnormal Uterine Bleeding (AUB) (73.01%) was the most prevalent symptom for Adenomyosis in our study, followed by Postmenopausal bleeding (14.28%), Dysmenorrhoea(9.52%) and Abdominal pain (3.17%). According to Gopinath L et al [10] the most common symptoms for adenomyosis were Abnormal uterine bleeding, dysmenorrhoea and chronic pelvic pain similar to our present study.

Adenomyosis is more common in perimenopausal women, suggesting a connection with hormonal and cyclical changes. It also denotes its association with other benign endometrial lesions which are in high estrogenic state. In our study, Adenomyosis is associated with Benign endometrial lesions(Leiomyoma, Benign Endometrial polyp, Endometrial hyperplasia), Of these Leiomyoma(76.15%) was frequently associated with Adenomyosis. Similar studies conducted by Bergeron et al [11], showed Leiomyoma as the highest correlation with adenomyosis. In another study done by Mine Genc [12], the correlation between Adenomyosis and Leiomyoma was significant.

In our study, Adenomyosis was mostly prevalent in the fourth decade. The overall prevalence of adenomyosis (with or without accompanying pathological lesions) was high, determined to be 50.03%, and Adenomyosis were more common in multiparous women. Leiomyoma was the most frequent Endometrial lesion accompanying Adenomyosis in our study, whereas in a study done by Kim et al.,[9] Leiomyoma and Endometrial polyps were reported to be the

most frequent accompanying lesions, as well.

## CONCLUSION:

Adenomyosis is a prevalent condition that commonly affects multiparous women over the fourth decade and is a significant cause for abnormal uterine bleeding. Leiomyoma has the strongest correlation with Adenomyosis among the other benign endometrial lesions. Though in recent years, Transvaginal pelvic ultrasonography and Magnetic resonance imaging (MRI) have been helpful for diagnosis, Histomorphological examination is still the cornerstone of diagnostic confirmation for Adenomyosis and its associated Benign Endometrial lesions and it also helps in better understanding and management of the patient.

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