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Research Article

Adenomyosis Uteri Defying Size - Aftermath of the Pandemic?

Suneeta Mittal*, Pakhee Aggarwal and Deepika Singh Hooda

Department of Obstetrics and Gynecology, Fortis Memorial Research Institute, India

***Corresponding Author:** Suneeta Mittal, Department of Obstetrics and Gynecology, Fortis Memorial Research Institute, India.

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Abstract

Adenomyosis is a common benign gynaecological disorder often necessitating hysterectomy for disturbing symptoms of heavy menstrual bleeding and/or dysmenorrhoea. In diffuse adenomyosis, uterus becomes globular and enlarges to about 12 weeks gestation uterine size. During the pandemic, our team operated on fourteen cases of adenomyosis, in six of which the uterus was enlarged to more than 12 weeks gestation, with the largest being 22 weeks gestation size. With patients delaying elective surgeries due to the COVID-19 pandemic, will new size criteria for adenomyosis emerge in the future?

Keywords: *Adenomyosis; COVID-19 Pandemic; Hysterectomy; Endometriosis; Heavy Menstrual Bleeding; Leiomyoma; Dysmenorrhoea; Large Uterus; AUB-A*

Abbreviations

AUB-A: Abnormal Uterine Bleeding - Adenomyosis; HMB: Heavy Menstrual Bleeding; LSCS: Lower Segment Caesarean Section; MRI: Magnetic Resonance Imaging; GnRH: Gonadotrophin Releasing Hormone; IVF: *In-Vitro* Fertilization; FIGO: International Federation of Gynaecology and Obstetrics; PALM COEIN: Polyp, Adenomyosis, Leiomyoma, Malignancy and Hyperplasia, Coagulopathy, Ovulatory Dysfunction, Endometrial, Iatrogenic, Not Yet Classified

Introduction

Adenomyosis occurs when the endometrial lining grows into the muscular wall of the uterus. The displaced tissue continues to act normally, responding to hormonal changes resulting in thickening, breaking down and bleeding from the ectopic lining during each menstrual cycle. Thus, the uterus enlarges gradually. It may be a diffuse or focal involvement of the myometrium. The size of uterus in diffuse adenomyosis rarely exceeds 12 weeks [1] and a weight of 80 - 200 gm. It commonly presents in the age group of 35 - 50 years and leads to dysmenorrhoea, heavy menstrual bleeding and chronic pelvic pain, symptoms similar to other gynaecological conditions like endometriosis and fibroids.

There has been a concern that during the COVID-19 pandemic, cancers and other pathological conditions of uterus may advance due to pandemic control measures such as lockdowns and diversion of resources towards COVID-19 prevention and treatment. Several studies have been published highlighting delay or avoidance of healthcare [2,3] and its impact resulting in higher mortality and morbidity. Modelled and real-world data are increasingly demonstrating that an increase in cancer-related deaths will occur because of the effect of the

pandemic on health systems [4]. There is a study evaluating the impact on urological conditions [5], however, the pandemic influence on benign gynaecological conditions has not been reported to date.

Here we present a series of cases with diffuse adenomyosis causing gross enlargement of uterus defying the normal size criteria for adenomyosis. As larger uteri (beyond 12 weeks size) become more common due to delay in seeking care, perhaps a new size criteria for adenomyosis may emerge as an aftermath of the pandemic.

Materials and Methods

This was a retrospective study, which included cases operated between May 2021 and April 2022 at the Gynaecology Department of Fortis Memorial Research Institute, Gurugram, India. Records of all patients who underwent hysterectomy for benign indications were screened and correlated with the radiological and pathological findings of the specimen. A total of 39 patients underwent hysterectomy during this period. Of these, 23 patients had histologically confirmed diagnosis of adenomyosis. Adenomyosis occurs when the endometrial lining grows into the muscular wall of the uterus causing myohyperplasia. Since adenomyosis is frequently associated with other pathologies like leiomyoma, endometrial cancer and/or endometriosis, patients who had other uterine pathologies, like fibroids which can also cause enlargement of uterus have been excluded from this series (n = 9). Those with associated endometriosis (n = 6) are included as both pathologies have a common origin (Figure 1). Due to the retrospective nature of the study, involving mainly retrieval of existing medical records, it was exempted from ethical approval by the institutional ethics committee.

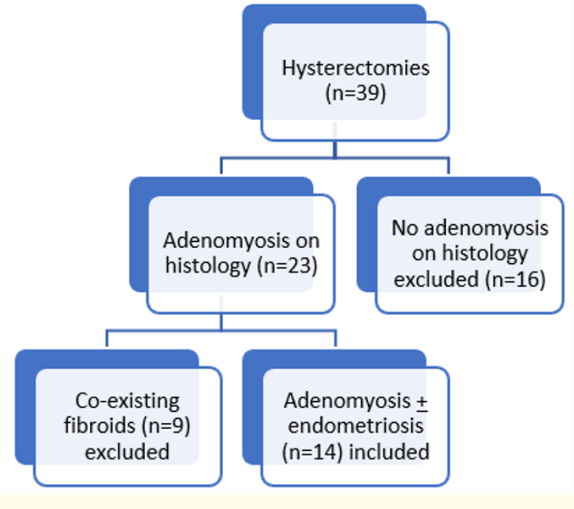

Figure 1: *Infographic of methodology.*

Results

The main results are depicted in table 1. Mean age of the cases was 45.3 (45.3 ± 7) (range 38 - 54) years. Mean parity was 1.6 (1.6 ± 1.4) (range 0 - 3). Main symptoms were heavy menstrual bleeding with or without dysmenorrhoea, pelvic pain and irregular bleeding. Patients were symptomatic on an average for 26.5 (range 2 - 96) months before surgery. Clinical diagnosis of adenomyosis was made in the presence of a large, globular uterus, size ranging from 8 to 22 weeks. This was correlated radiologically (ultrasound and/or magnetic resonance imaging). Seven women had raised CA-125 and six had associated endometriosis. In nine cases, medical management had failed to control symptoms. In three cases, minor surgical procedure of hysteroscopy and Mirena insertion had also failed. Only one case had had COVID-19 infection in the three months period prior to surgery.

S. no	Age (yrs.)	Parity	Symptoms	Duration (months)	Co-existing problems	Imaging	Uterine size (weeks)	Pre- op diagnosis	Previous treatment	Route of surgery
1	54	3	HMB Delayed menopause	24	2 LSCS	MRI: adenomyosis ET-21 mm	16	AUB- A ↑ CA 125 (175)	D & C Mirena	Robotic
2	51	2	HMB- Severe Dysmenorrhoea	8	DVT 1 LSCS	MRI: adenomyosis ET-17.9 mm	14	AUB- A ↑ CA 125 (190)	D & C Mirena	Open
3	46	1	HMB Severe Dysmenorrhoea	24	Chronic pelvic pain	TVS: adenomyosis ET-11.6 mm	18	AUB- A ↑ CA 125 (105)	Medical D & C Mirena	Open
4	43	2	HMB Dysmenorrhoea	36	Anaemia	MRI: adenomyosis ET-8.6 mm	14	AUB- A ↑ CA 125 (416)	Medical	Robotic
5	43	2	Irregular BPV HMB PLA	2	Endometriosis (grade IV)	MRI: adenomyosis Right 4x3 cm endometrioma	10	AUB ↑ CA 125 (66)	-	Laparoscopic
6	43	0	HMB Dysmenorrhoea	96	Primary Infertility	MRI: adenomyosis	22	AUB- A ↑ CA 125 (256)	IVF Anti-tubercular treatment Myomectomy	Open
7	46	2	Polymenorrhagia HMB	3		TVS: multiple adenomyomas	10	AUB- A	Medical Treatment	Laparoscopic
8	48	1	HMB dysmenorrhoea	18	Endometriosis 1 LSCS	MRI: Adenomyosis, endometrioma	10	AUB- A	D&C	Laparoscopic
9	41	2	Dysmenorrhoea Pelvic pain	12	2 LSCS, bowel adhesions	TVS: Adenomyosis, TO mass 8 cm	8	Chronic pelvic pain	Dienogest	Open
10	49	2	HMB	48	-	TVS – Adenomyosis +endometrioma	16	AUB-A	-	Open
11	44	2	Polymenorrhagia Chronic Pelvic pain	24	Endometriosis forming TO masses	MRI Uterus bulky ET 9.3 B/L endometrioma	8 weeks	AUB-A raised CA 125 (110)	Dienogest NSAIDS	Robotic
12	42	2	Continuous bleeding PV Chronic pain	5	-	MRI Uterus bulky ET 16 mm Adenomyosis	8	AUB-A	NSAIDS Trenaxamic acid	Laparoscopic
13	38	0	Dysmenorrhea irregular bleeding	24	Endometrioma	MRI uterus Bulky + B/L Endometrioma	8	AUB-A Endometriosis	Dienogest, lap excision of endometrioma	Open
14	47	2	HMB Dysmenorrhea	48		MRI uterus 10 CM B/L Endometrioma	10	AUB-A		Laparoscopic

Table 1: *Main results.*

HMB: Heavy Menstrual Bleeding; LSCS: Lower Segment Caesarean Section; D&C: Dilatation and Curettage; NSAIDs: Non Steroidal Anti-Inflammatory Drugs; TVS: Transvaginal Sonography; MRI: Magnetic Resonance Imaging; IVF: Invitro Fertilization; B/L: Bilateral; ET: Endometrial Thickness; DVT: Deep Vein Thrombosis.

Route of surgery was decided based on clinical findings. Abdominal hysterectomy was performed in six cases due to very large uterine size and/or coexisting medical problems or adhesions. Minimally invasive laparoscopic assisted hysterectomy was performed in five and robot-assisted hysterectomy in three cases. On gross inspection, the size of the hysterectomy specimen was < 12 weeks in eight cases (57%) conforming to standard definition of adenomyosis. However, six of the cases (43%) had uterine sizes ranging from 14 - 22 weeks. Two of these are depicted in figure 2, both underwent open hysterectomy. All patients made uneventful recovery in the post-operative period.

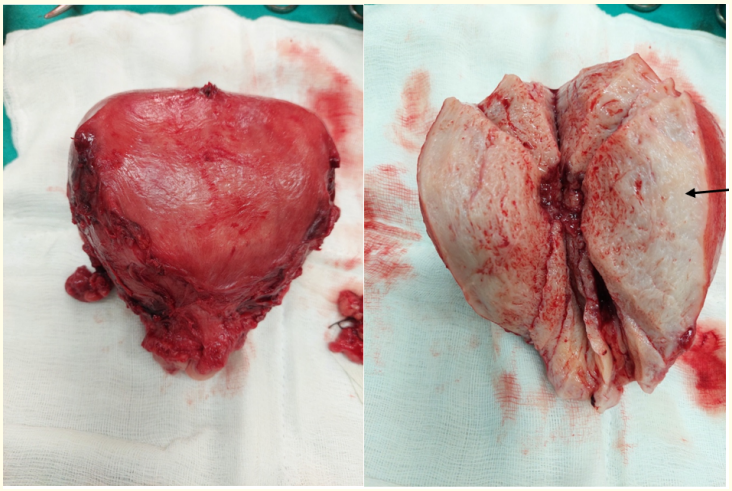

Figure 2a: *S. No 3 with 18 weeks uterine size (arrow depicting adenomyosis).*

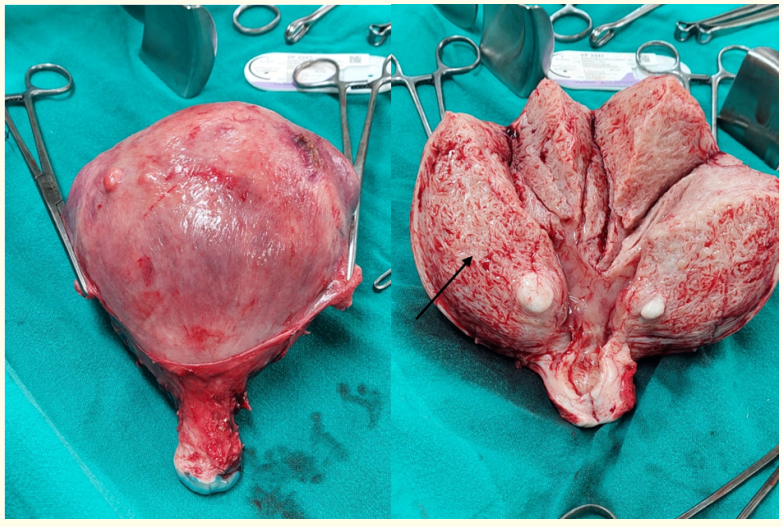

Figure 2b: *S. No 6 with 22 weeks uterine size (arrow depicting adenomyosis).*

Figure 2: *Two cases of adenomyosis with large uterine sizes reported in the series.*

Discussion

Adenomyosis is associated with heavy menstrual bleeding (AUB-A in the FIGO PALM-COEIN classification) due to the increased endometrial surface and dysmenorrhea due to growth of the ectopic endometrium in the myometrium. Uterine enlargement in adenomyosis is uniform (globular) and the uterus rarely exceeds 12 weeks gestation uterine size [1]. This was the case in nearly 60% of our case series. However, in more than 40% of the patients, the uterine enlargement exceeded the criteria traditionally described in literature. Symptoms typically develop between the ages of 35 and 50 years; however, this may reflect the fact that most cases of adenomyosis are diagnosed at hysterectomy, and younger patients are less likely to undergo definitive reproductive surgery [6]. Mean age in this study was 45 years, in keeping with the average age of definitive surgery. There is an association of adenomyosis with parity, as it is mostly seen in parous women, although increasing parity does not increase the risk [7]. Association with prior uterine surgery is also reported; and a third of the patients in this study had prior uterine surgery. No specific surgical procedure has been singled out to increase the risk [8]. Patients with persistent pain following adequate treatment for endometriosis may have adenomyosis as an underlying diagnosis [9]. In this study, six patients fell into this category and in all of these the uterine size was < 12 weeks. An association of adenomyosis with infertility exists, with adenomyosis having a detrimental effect on IVF outcomes in a large meta-analysis [10]. We had one patient with two previous failed IVF cycles in this study.

Transvaginal ultrasound and/or magnetic resonance imaging are useful for confirming pre-operative diagnosis. Imaging also helps to distinguish between focal and diffuse adenomyosis, diagnose associated pathologies and define the junctional zone thickness [11]. On examination, size of the uterus usually does not exceed 12 weeks as described in literature [12], although in clinical practice, one does come across a uterus that may be up to 14 - 16 weeks size, due to co-existing pathology like fibroids. Adenomyosis frequently coexists with endometriosis [13] and fibroids [14]. However, uterine enlargement due to adenomyosis alone beyond this size is rare. Hysterectomy is the only definitive treatment for diffuse adenomyosis [15]. Since the diagnosis of adenomyosis can only be confirmed on a hysterectomy specimen, we have only included those cases in this study.

The reason to report this series is to highlight the need for a change in the classical definition of adenomyosis with the changing times. In our study, in the case with the largest uterus (serial number 6), uterine weight was 1250 grams. In review of literature, the largest size and weight of uterine adenomyosis reported to date is 475 gm [16]. As larger uteri (beyond 12 weeks size) become more common due to delay in seeking care, perhaps a new size criteria for adenomyosis may emerge as an aftermath of the pandemic. Although this is a retrospective study, it provides direction to conduct a larger scale prospective study to elaborate on the effect of the COVID-19 pandemic on delayed surgical management of benign gynaecological conditions.

Conclusion

Based on the obtained results, delays in seeking care due to the pandemic restrictions may lead to the emergence of modifications in the classical definitions of benign gynaecological conditions like adenomyosis.

Source(s) of Support

None.

Conflicting Interest

None.

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