Understanding clinical features of adenomyosis: a case control study

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ABSTRACT
Adenomyosis is largely under diagnosed before hysterectomy and commonly co-exists with uterine fibroid. Thus this study aimed to elicit the clinical profile of adenomyosis by comparison with uterine fibroid. This is a hospital based prospective case-control study carried out from 1st April 2010 to 31st May 2011 which comprise of women undergoing hysterectomy with a histological diagnosis of sole adenomyosis without fibroid, women with both adenomyosis and fibroid and women with fibroid but no adenomyosis. Ambulatory records were performed. The study comprised 150 women, 78(52%) women with adenomyosis without fibroid, 27(18%) women with both adenomyosis and fibroid, 45(30%) women with fibroid but no adenomyosis. Among women with adenomyosis alone, 78.2% had menorrhagia, 73.1% had dysmenorrhea, 76.9% had chronic pelvic pain and women with adenomyosis and fibroid had menorrhagia in 85.2%, dysmenorrhea in 51.9%, chronic pelvic pain in 48.1% compared with women of fibroid alone had menorrhagia in 75.6%, dysmenorrhea in 66.77%, chronic pelvic pain in 51.1%. Women with adenomyosis group had significantly more of chronic pelvic pain (p-value: 0.003) and had significantly greater parity (p-value: 0.002). Size of uterus was significantly smaller in adenomyosis group (p-value: 0.018) as well as significantly more tender uterus was found in adenomyosis group (p-value: 0.000). Adenomyosis is more frequent among women reporting dysmenorrhea, menometrorrhagia, chronic pelvic pain and along with bulky uterus. Women with fibroid alone has more of menorrhagia than pain and is associated with enlarge uterus. If women have small fibroid uterus but have more symptoms – think about co-existence of “ADENOMYOSIS”.

Keywords: Adenomyosis, fibroid, hysterectomy.

INTRODUCTION:

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INTRODUCTION:

Name Adenomyosis synonyms endometriosis interna, uterine endometriosis, internal endometriosis. By definition, adenomyosis consists of endometrial glands and stroma ectopically placed in the myometrium, at least one high-power field from the base of the endometrium. Leiomyoma (fibroid or myomas) are benign uterine smooth muscle tumors.1

Both uterine leiomyomas and adenomyosis are important clinical problems in gynecology, often resulting in hysterectomy for premenopausal women. Both adenomyosis and leiomyomas commonly coexist; concomitant adenomyosis in hysterectomy specimens of women with fibroid ranges from 15- 57%.2-7 When concomitant adenomyosis is present the risk of treatment failure i.e. – uterine artery embolization (UAE) and magnetic resonance-guided focused ultrasound (MRgFUS); seems to be increased for both methods.8,9 Studies in vitro suggest that leiomyoma and adenomyosis may share some common pathogenetic mechanisms. Specific cytogenetic rearrangements including deletion of chromosome 7q and dysregulation of the fibroblast growth factor (FGF) system have been reported in both conditions.10-12

Little is understood regarding the pathogenesis and clinical features of adenomyosis. Chronic pelvic pain, abnormal heavy uterine bleeding, dysmenorrhea are symptoms thought to be suggestive of and attributable to the presence of adenomyosis in clinical observation.13-15

Given the limitation of USG in diagnosing adenomyosis, and gynecologists reliance on USG findings, adenomyosis is often undiagnosed before hysterectomy and so contribution this disease to the symptoms is only understood retrospectively.2

The current study aim is to elicit the clinical profile of adenomyosis by comparison with uterine fibroid. By identifying adenomyosis in women with leiomyoma will allow improved clinical decision making and plan of treatment.

MATERIALS METHODS

This is a hospital based prospective study carried out in chitwan medical college teaching hospital from 1st April 2010 to 31st May 2011. This study comprised women who had undergone abdominal, vaginal or laparoscopic hysterectomy with histopathologically proven adenomyosis and /or fibroid. Comparison was
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Table-1: Characteristics of the study population (n=150)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adenomyosis (n=78)</th>
<th>Adeno+fibroid (n=27)</th>
<th>Fibroid alone (n=45)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in yrs (mean±SD)</td>
<td>45.8±8.3</td>
<td>46.03±5.3</td>
<td>43.6±6.8</td>
<td>0.25a</td>
</tr>
<tr>
<td>Parity (Median/Range)</td>
<td>3.5(0-8)</td>
<td>3(1-9)</td>
<td>3(0-7)</td>
<td>0.02b</td>
</tr>
<tr>
<td>Hb in gm% (mean±SD)</td>
<td>10.3±1.5</td>
<td>10.11±2.2</td>
<td>10.3±1.6</td>
<td>0.82a</td>
</tr>
<tr>
<td>Duration of symp in yrs (median/Range)</td>
<td>3(1-9)</td>
<td>2.5(1-12)</td>
<td>3(1-15)</td>
<td>0.9c</td>
</tr>
</tbody>
</table>

aOne way ANOVA test, bkruskal-wallis

Results

A total of 150 Women were included in this study. Out of which 78 (52%) women had adenomyosis alone, 45 (30%) had fibroid alone and 27 (18%) Women had both adenomyosis and fibroid. General characteristic of study population were summarized in Table-1 where mean age, pre-op Hb level and mean duration of symptoms were similar in three groups. However women with adenomyosis had significantly greater parity compared to fibroid (p-value: 0.002).

Clinical symptoms of women are summarized in Table-2, where more of heavy Uterine bleeding, chronic pelvic pain and dysmenorrhea were found in all three groups but women with adenomyosis group had significantly more of chronic pelvic pain (p-value:0.003).

Per vaginal examination findings were elaborated on Table-3 where size of uterus is significantly smaller in adenomyosis group (p-value: 0.018) as well as significantly more tender uterus found in adenomyosis group (p-value: 0.000). 75.7% of women with adenomyosis had either normal or bulky uterus but 40% of women with fibroid had more than 10 weeks size uterus. Volume of uterus was calculated by measuring length, breadth and thickness of hysterectomies uterus, which shows that adenomyosis group had significantly lesser volume of uterus :< 150 cm3.

Comparison between adenomyosis group with fibroid group and adenomyosis group with adenomyosis and fibroid group were done. Significant findings we found were shown in Table-4.

Types of endometrium in histopathological examination of study population are shown in Fig. 1. Women with adenomyosis had more of proliferative type of endometrium (38.5%), however 31.1. % women with fibroid had endometrial hyperplasia either simple with or without
hyperplasia or complex hyperplasia without atypia.

Histopathological examination of cervix was shown in Fig. 2 where maximum no. of women had chronic cervicitis in all three groups. However 22.2% of women with adenomyosis and fibroid group had CIN 1 or CIN 2.

**DISCUSSION**

Our study shows that there are many different features in women with adenomyosis alone when compare to women with fibroid and adenomyosis or fibroid alone. The mean age of hysterectomy in the present adenomyosis group was 47 years, which is consistent with most studies done before.\textsuperscript{16}

Adenomyosis was rarely diagnosed correctly preoperatively and still largely under diagnosed as it has no special symptoms of its own. Chronic pelvic pain, dysmenorrhea and abnormal heavy uterine bleeding with irregular menstrual cycle are most frequent symptoms found in our study related with adenomyosis. In contrast we found women with fibroid alone had more of menorrhagia with regular cycle and less of chronic pelvic pain and dysmenorrhea. Hence there is significantly more frequent chronic pelvic pain and menometrorrhagia with adenomyosis than fibroid. Consisted finding were reported in literature also where only 20% - 25% of the women with fibroid had chronic pelvic pain.\textsuperscript{17-19}

Exact pathogenesis of adenomyosis is not known, however improper uterine contraction during menses, increased endometrial surface, over production of prostaglandin, and hyperestrogenism are listed as causes of menorrhagia, where as dysmenorrhea might be caused by uterine irritability or pseudodecidual edema around the adenomyosis foci.\textsuperscript{20,21}

Women with adenomyosis in the present study had significantly greater parity than women with fibroid. Moliter and Azziz studies also reported that multiparty has been associated with an increase frequency of adenomyosis.\textsuperscript{20,22} Some authors have rendered the opinion that the stresses of labor and delivery and subsequent uterine repair allow the lining cells to invade the muscle wall. However adenomyosis can also occur in women who have never been pregnant. Finally, epidemiologic evidence indicates a decreased risk of fibroid for parous women compared with nulliparous women due to hormonal and non – hormonal mechanisms.\textsuperscript{23-25}

Clinical series have suggested that the frequency of the adenomyosis increases with age until menopause and level off thereafter.\textsuperscript{23} In concord with earlier studies, we also found less no of adenomyosis in menopausal women. But when compare to women with fibroid significantly more number of menopausal women was found with adenomyosis. This may be the fact that fibroid is estrogen dependent which

### Table-2: Clinical symptoms of patients

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Adenomyosis (N=78),n(%)</th>
<th>Adeno+fibroid (N=27),n(%)</th>
<th>Fibroid (N=45),n(%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy uterine bleeding</td>
<td>61(78.2%)</td>
<td>23(85.2%)</td>
<td>34(75.6%)</td>
<td>0.621 a</td>
</tr>
<tr>
<td>Chronic pelvic pain</td>
<td>60(76.9%)</td>
<td>13(48.1%)</td>
<td>23(51.1%)</td>
<td>0.003 a</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>57(73.1%)</td>
<td>14(51.9%)</td>
<td>30(66.7%)</td>
<td>0.127 a</td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>19(24.4%)</td>
<td>6(22.2%)</td>
<td>10(22.2%)</td>
<td>0.953 a</td>
</tr>
<tr>
<td>Painful bowel movement</td>
<td>6(7.7%)</td>
<td>2(7.4%)</td>
<td>5(11.1%)</td>
<td>0.8 b</td>
</tr>
<tr>
<td>Pelvic pressure</td>
<td>8(29.6%)</td>
<td>8(29.6%)</td>
<td>22(48.9%)</td>
<td>0.274 a</td>
</tr>
</tbody>
</table>

\*pearson chi-squared test, a Fisher exact test

### Table-3: Size of uterus and tenderness

<table>
<thead>
<tr>
<th>Uterine size</th>
<th>Adenomyosis (n=78)</th>
<th>Adeno+fibroid (n=27)</th>
<th>Fibroid (N=45)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clin. Examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>23(29.5%)</td>
<td>2(7.4%)</td>
<td>6 (13.3%)</td>
<td>0.018 a</td>
</tr>
<tr>
<td>Enlarge</td>
<td>55(70.5%)</td>
<td>25(92.6%)</td>
<td>39 (86.7%)</td>
<td>0.000 b</td>
</tr>
<tr>
<td>Tender uterus</td>
<td>30(44.1%)</td>
<td>5(18.5%)</td>
<td>4 (8.9%)</td>
<td></td>
</tr>
<tr>
<td>Vol. of uterus cm³ (median/range)</td>
<td>109(14-510)</td>
<td>232 (48-960)</td>
<td>265 (38-1584)</td>
<td>1.00 c</td>
</tr>
<tr>
<td>&lt;150cm³</td>
<td>56(71.8%)</td>
<td>8 (30.8%)</td>
<td>14 (31.8%)</td>
<td>0.000 a</td>
</tr>
<tr>
<td>150-400cm³</td>
<td>21(26.9%)</td>
<td>12 (46.2%)</td>
<td>17 (38.6%)</td>
<td></td>
</tr>
<tr>
<td>400-800cm³</td>
<td>1(1.3%)</td>
<td>4 (15.4%)</td>
<td>8 (18.2%)</td>
<td></td>
</tr>
<tr>
<td>&gt;800cm³</td>
<td>0</td>
<td>2 (7.7%)</td>
<td>5 (11.4%)</td>
<td></td>
</tr>
</tbody>
</table>

\*pearson chi-squared test, a Fisher exact test, ckruskal-wallis
adenomyosis alone. However, 31.1% of women with fibroid type of endometrium in hysterectomy specimen with find such association rather we found more of proliferative adenomyosis and endometrial hyperplasia but we could not Bergholt T et al showed significant association with of adenomyosis as differential diagnosis.

Our study suggests that women with adenomyosis and fibroid have smaller size of uterus as well as smaller fibroid when compared to women with fibroid alone which suggest that adenomyosis is contributing to symptomatology which leads to hysterectomy. Thus if the women had symptoms that is disproportionate to size of fibroid, gynecologists may think about the presence of adenomyosis as differential diagnosis.

Bergholt T et al showed significant association with adenomyosis and endometrial hyperplasia but we could not find such association rather we found more of proliferative type of endometrium in hysterectomy specimen with adenomyosis alone. However 31.1% of women with fibroid alone had endometrial hyperplasia suggesting that both fibroid and endometrial hyperplasia is estrogen dependent.

Thus from this study we can conclude that adenomyosis is more frequent among women reporting dysmenorrhea, menometrorrhagia, chronic pelvic pain and along with bulky uterus. Women with fibroid alone has more of menorrhagia than pain and is associated with enlarge uterus. If women have small fibroid uterus but have more symptoms – think about co-existence of “ADENOMYOSIS”.

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