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Risk Factors for Adenomyosis

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ABSTRACT

Background: Adenomyosis was largely underdiagnosed before hysterectomy as little was understood regarding the aetiopathogenesis, clinical symptoms and difficult to confirm pre-operatively. Thus, the aim was to evaluate the possible associated risk factors foradenomyosis

Methods: This cross sectional study was done on women who underwent hysterectomy between15th March 2010 to 15th Jan 2012 in Chitwan Medical College. Information was collected on clinical symptoms, menstrual, reproductive factors, contraception history and smoking habits. Presence of adenomyosis was as certained from pathological record.

Results: Out of 160 women, adenomyosis was identified in 69 (43.1%).The frequency of adenomyosis was higher in parous women in comparison with nullipara (OR 1.8, 95%CI 1.5-2.0, p<0.03). Similarly, women reporting one or more spontaneous abortion and having prior dilatation and curettage had an odds ratio for adenomyosis of 1.4 and 1.9.Women who smoked were at increased risk of the condition, in comparison with women who had never smoked; the risk was 1.4 (95%0.7-2.7) and the risk increased with duration of smoking; the OR being 3.6 in those who smoked more than 10 years compared to those who smoked less than 10 years (p=0.008). Likewise, women having irregular menstrual cycle had an odds ratio of 1.7 (95%, CI 0.9-3.3) for adenomyosis, in comparison with those women with regular cycle (p=0.04).

Conclusions: Multiparity, previous abortion, dilatation and currattage, chronic smoker and women having irregular cycles were more risk of having adenomyosis.Still, there is a need of larger population based prospective epidemiological studies to find out clear aetiopathology and clinical symptoms of adenomyosis.

Keywords: adenomyosis; epidemiology; risk factors.

INTRODUCTION

Adenomyosis is a benign uterine disease which is mostly resistant to conservative management and often needs hysterectomy as definitive treatment.[1,2]

Since adenomyosis does not have clinical symptoms of its own, there is limitation of ultrasound to diagnose it and MRI being unaffordable to most of Nepalese women, hysterectomy is the only diagnostic and therapeutic modality.

The major symptoms leading to a presumptive preoperative diagnosis of adenomyosis are abnormal uterine bleeding, chronic pelvic pain and dysmenorrhoea and are often used as indication of hysterectomy.[3-5] Weis et al, have reported the frequency of these symptoms are similar in those with or without evidence of adenomyosis.[6] Thus there is a need of further clinical clues to diagnose adenomyosis preoperatively.

The suggested risk factors with adenomyosis are: age, multiparity, smoking, previous dilatation and curettage,

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caesarean section.[7-9] However these data are scanty and controversial. Therefore, this study is carried out to evaluate the role of these risk factors in development of adenomyosis.

METHODS

A cross sectional study was conducted on women who underwent abdominal, vaginal or laparoscopic hysterectomy ChitwanMedical Collegefrom 15th March 2010 to 15th Jan 2012. The study was done after taking ethical approval from IRC- CMC and written consent was taken from the women before the surgery. Information was collected on clinical symptoms, menstrual and reproductive factors, contraception history and smoking habits. Uterine specimens were sent for histopathological examination and presence of adenomyosis was obtained from pathology record. Types of endometrial pattern was also noted especially presence of endometrial hyperplasia. Adenomyosis was diagnosed when the distance between the lower border of the endometrium and the affected myometrial area was over one- half of a low-power field (2.5mm).[10]

The choice of information to be collected in the study was based on the risk factors for adenomyosis as reported in the literature.[7-9]

Chronic pelvic pain was defined as the presence of acyclical pelvic pain for one year or more. A woman was considered as a smoker if she had smoked more than one cigarette a day for at least one year.[11]

The data were entered in Epi-info program and were analyzed with both Epi-info and SPSS software. The odds ratio (OR) and their corresponding 95% confidence interval [CI] were calculated using unconditional multiple logistic regression analysis for the effect of several potential confounding factors. Mean value were compared with one-way ANOVA.

RESULTS

One hundred and sixty women were underwent hysterectomy during the study period and the indications for surgery were divided broadly into five categories: heavy uterine bleeding 60 (37.5%), fibroid in 54 (33.8%), genital prolapse in 10 (6.3 %%), adenexal mass in 23 (14.4%) and miscellaneous in 13 (8.1%), some might have more than one indication.

Among 160 womenadenomyosis was identified in 69 (43.1%). The frequency of adenomyosis was higher in women with menorrhagia, lower in women with fibroid but almost similar in women with adenexal mass, genital prolapse and miscellaneous conditions (Figure 1).

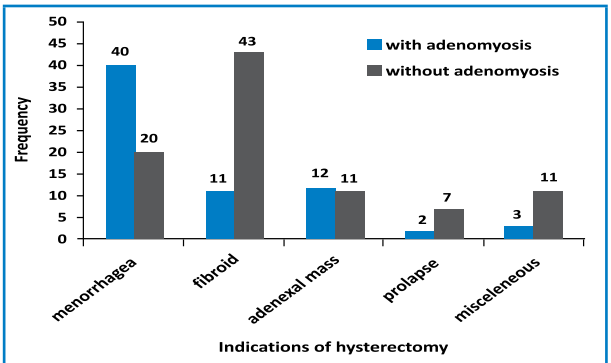

Figure 1. Indications of hysterectomy with or without adenomyosis

Table 1. Comparison of risk factors in patients with and without adenomyosis and corresponding OR

Risk factors	With adenomyosis N=69	Without adenomyosis N=91	Odds ratio (95%CI)	p-value
Smoking habits				
Non smoker	34	55	1*	
smoker	35	36	1.4(0.7-2.7)	0.29
<10cigarattes day	25	28	1*	
>10 cigarettes day	9	7	0.6 (0.2-2.1)	0.7
< 10 years	24	14	1*	
>10 years	10	22	3.6(1.3-10.4)	0.0008
OCP use Never	60	84	1*	
Ever	9	7	1.6(0.4-5.5)	0.2
IUD use Never	69	89	1*	
Ever	0	2	.000	0.9
Depot use Never	37	79	1*	
Ever	12	12	1.3(0.5-3.8)	0.5
Endo hyp†No	48	59	1*	
Yes	21	32	0.8(0.4-1.5)	0.6
PreopHb level<8 gm%	8	7	1*	
>8gm%	58	78	0.8(0.1-4.2)	0.8

*Reference category, †Endo hyp: endometrial hyperplasia

The mean age at hysterectomy in women with adenomyosis (45.7±6.7 years) and without adenomyosis (44.2±7.7 years)was not significantly different (p=0.2). Women who smoked tended to be at increased risk of the condition, in comparison with women who had never smoked; the risk was 1.4and the risk increased with duration of smoking. There was statistically significant association with adenomyosis and those who smoked more than ten years: the odds ratio being 3.6 in those who smoked more than 10 years compared to those who smoked less than 10 years (p=0.008). No relationship was found between risk of adenomyosis and the use of oral contraceptives, intrauterine device (IUD), injection depotprovera (Depo), pre- operative hematocrit level and diagnosis of endometrial hyperplasia (Table 1).

The frequency of adenomyosis was higher in multiparous women in comparison with nullipara. The mean number of parity was 3.8 (±1.7) in women with adenomyosis and 3.04(±1.6) in those without the condition (p=0.0005). Likewise, women reporting one or more spontaneous abortions had an odds ratio for adenomyosis of 1.4. The mean number of spontaneous abortion was 0.4(±0.9) with adenomyosis compare to 0.2(±0.5) without the condition (p=0.03).Similarly, the risk of adenomyosiswas higher in women having prior dilatation and curettage: the odds ratio for the disease is 1.9(p=0.06). No relation emerged with history of induced abortion and caesarean section (Table 2).

The risk of adenomyosis was significantly higher in women having irregular menstrual cycle in comparison with those reporting regular cycle (OR=1.7, p=0.04). Similarly, the risk of adenomyosis was higher in those women attaining menarche after 15 years as compared to those who attended menarche before 15 years(OR=2.4). No association was established between adenomyosis and menopausal status, menstrual pattern and duration of menstrual flow (Table 3).

Women with adenomyosis reported more frequently heavy menstrual flow (OR= 1.3), chronic pelvic pain (OR=1.4) and dyspareunia (OR=1.2). But dysmenorrhoea was not related to the frequency of adenomyosis (Table 3).

Table 2. Previous uterine surgery, reproductive history and corresponding odds ratios for the prevalence of adenomyosis at hysterectomy

	With Adenomyosis N=69	Without Adenomyosis N=91	Odds ratio (95%CI)	p-value
Parity0	0	6	1*	
≥ 1	69	85	1.8(1.5-2.0)	.03
Spontaneousabortion 0	54	80	1*	
≥1	15	11	1.44(0.68-3.04)	0.09
Induced abortion0	54	80	1*	
≥ 1	15	11	2.04(0.8-4.8)	0.15
C-S†Never	64	87	1*	
Ever	5	4	1.7(0.4-6.7)	0.3
D&C‡Never	41	67	1*	
Ever	28	24	1.9(0.9-3.9)	0.05

* Reference category, †C-S: caesarean section, ‡D&C: dilatation and curettage

Table 3. Comparison of selected symptoms in patients with and without adenomyosis

	With adenomyosis N=69	Without adenomyosis N=91	Odds ratio (95%CI)	p-value
Heavy flow No	21	32	1*	
Yes	48	59	1.3(0.6-2.6)	0.4
Chronic pain No	29	45	1*	
Yes	40	46	1.4(0.7-2.7)	0.3
Dysmenorrhoea No	33	41	1*	
Yes	36	50	0.7(0.4-1.5)	0.4
Dyspareunia No	48	68	1*	
Yes	21	23	1.2(0.6-2.5)	0.5

* Reference category

DISCUSSION

The reported prevalence of adenomyosis in hysterectomized women ranges from 5-70%.[10] The widely varied frequency is due to the fact that diagnosis of adenomyosis depends on different histological criteria, pathologist's awareness of the condition and great variation in the use and indication of hysterectomy worldwide.[12] The prevalence of adenomyosis at hysterectomy in this study is 43.1%.

In recently published studies, smoking is found to be negatively correlated.[8,10,13] But in contrast this study shows the risk of adenomyosis is higher in smokers group especially in those who smoked for more than 10 years. This different result may be due to the fact that we did not segregate smokers group to current and ex-smokers. Thus larger epidemiological studies are needed to see actual association of adenomyosis with smoking.

As shown in different studies, the present study also shows that adenomyosis is more often observed in multiparous women than nulliparous.[2,8,14] There is possibility that the stresses of labor and delivery and subsequent uterine repair allow the lining cells to invade the muscle wall otherwise the hormonal milieu of pregnancy may favor the development of islands of adenomyosis.[1]

In this study, women reporting one or more spontaneous abortion but not induced abortions are at higher risk of the condition. Consisted findings have been reported by Parazzini*et al*.[10]

No significant association between adenomyosis and contraception methods, previous caesarean section are found which is consistent with previous clinical series.[10,15] Moreover numbers of women using contraceptives methods and having caesarean section are very few in present study.

The increased risk of adenomyosis in women with a history of dilatation and curettage may be due to trauma of curettage which may favor the mechanical transport of islands of endometrial cells in the myometrium. Similar finding was shown by Parazzini*et al*.[11] Bergholdet *al* and Parazzini*et al* found the significant association between adenomyosis and endometrial hyperplasia but such finding is not obtained in this study.[11,15] Clinical observations have related adenomyosis with dysmenorrrhoea, pelvic pain and heavy uterine bleeding.[2-4] Menorrhagia can be a consequence of the increased surface area of the enlarged uterine cavity. In addition, extensive involvement of the myometrium can interfere with the normal contractility of the uterine musculature and can lead to excessive bleeding.[1]

In this series, increased frequency of adenomyosisis seen in women reporting heavy uterine bleeding, chronic pelvic pain and dyspareunia (but not dysmenorrhoea). Dysmenorrhea is more likely to be reported when glandular invasion exceeds 80% or more of the myometrium.[12] Here the depth of penetration was not able to assess, so there is possibility that association with dysmenorrhea may be masked in present study.

To minimize the information bias, history from the women was obtained before hysterectomy and collected by same person. The limitation of this study is that these results cannot be generalized to general population as the diagnosis of adenomyosis is based on histopathological examination of the uterus after hysterectomy, and thus should referred only to this group of women with adenomyosis.

CONCLUSIONS

Multiparity, previous abortion, dilatation and curettage, chronic smoker and women having irregular cycles were more risk of having adenomyosis. Thus this study stresses the need for larger population based prospective epidemiological studies to find out clear aetiopathology and clinical symptoms of adenomyosis so that it will be diagnosed non-surgically and treated medically avoiding the risks of morbidity, mortality and financial burden to women.

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REFERENCES

1. Schorge J, Schaffer J, Halvorson L, Hoffman B, Bradshaw K, Cunnigham F. Pelvic mass. In Williams Gynecology. NewYork: McGraw hill; 2008. p. 209.
2. Basak S, Saha A. Adenomyosis: still largely underdiagnosed. J ObstetGynaecol.2009 Aug;29(6):533-5.
3. Merrill JA, Creasman WT. Disorders of the uterine corpus. In: Scott JR, Di Sala PJ, Hammond CB, et al, editors. Danforth's obstetrics and gynecology. 6th ed. Philadelphia: Lippincott; 1990. p. 1023.
4. Owokabi TO, Strickler RC. Adenomyosis: a neglected diagnosis. Obstet Gynecol.1977;50:424–7.

5. Vercellini P, Ragni G, Trespidi L, OldaniS,PanazzaS,Crosignani PG.Adenomyosis: a deja vu? ObstetGynecolSurv. 1993;48(12):789–94.
6. Weiss G, Maseelall P, Schott LL, Brockwell SE, Schocken M, Johnston JM. Adenomyosis a variant, not a disease? Evidence from hysterectomizedmenopausal women in the Study of Women's Health Across the Nation (SWAN). FertilSteril. 2009;91:201–6.
7. Vercellini P, Vigano P, Somigliana E, Daguati R, AbbiatiA,Fedele IAdenomyosis: epidemiological factors. Best Pract Res ClinObstetGynaecol . 2006;20:465–77.
8. Vercellini P, Parazzini F, Oldani S, Panazza S, Bramante T, Crosignani PG. Adenomyosis at hysterectomy: a study on frequency distribution and patient characteristics. Hum Reprod. 1995;10:1160–2.
9. Molitor JJ. Adenomyosis: A clinical and pathologic appraisal. Am J Obstet Gynecol.1971;110:275-84.
10. Parazzini F, Vercellini P, Panazza S, Chatenoud L, Oldani S, Crosignani PG. Risk factors for adenomyosis. Hum Reprod. 1997;12:1275–9.
11. Parazzini F, Mais V, Cipriani S, Busacca M, Venturini P . Determinants of adenomyosis in women who underwent hysterectomy for benign gynecological conditions: results from a prospective multicentric study in Italy. EurJObstetGynecolReprod Biol. 2009 Aug;143(2):103-6.
12. John S, John A. Endometriosis. In: TeLinde's operative Gynecology.9th ed. Philadelphia: Lippincot William and Wilkins; 2003. p. 629-31.
13. Shaikh H, KhanKS. Adenomyosis in Pakistani women: four year experience at the Aga Khan University Medical Centre,Karachi. J Clin Pathol.1990;43:817-9.
14. Azziz R. Adenomyosis: current perspectives. Obstet Gynecol Clin North Am. 1989;16:221–35.
15. Bergholt T, Eriksen L, Berendt N, Jacobsen M, Hertz JB. Prevalence and risk factors of adenomyosis at hysterectomy. Hum Reprod. 2001;16:2418–21.