

Adenomyosis among Women undergoing Hysterectomy in Department of Obstetrics and Gynaecology in a Tertiary Care Centre: A Descriptive Cross-sectional Study

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ABSTRACT

Introduction: Adenomyosis is a gynecological condition that causes endometrial tissue to grow within the uterine myometrium, usually occurs in women in their late reproductive years, often presenting with menorrhagia and dysmenorrhea. There are few studies examining adenomyosis in tertiary care centre in our country. The aim of this study was to find out the prevalence of adenomyosis among women undergoing hysterectomy presenting to the Department of Obstetrics and Gynecology of a tertiary care centre.

Methods: A descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynecology of a tertiary care centre, from 13 April 2016 to 14 July 2017, after obtaining ethical approval from the Institutional Review Committee (Reference number: 338/6-11-E-072-73). Women who underwent hysterectomy in the department were included in the study, while those who refused to provide consent were excluded. Convenience sampling method was used. Point estimate and 95% Confidence Interval were calculated.

Results: Among 255 women undergoing hysterectomy 85 (33.33%) (27.55-39.12, 95% Confidence Interval) were histologically confirmed to have adenomyosis. The highest prevalence was observed in women aged 41-50 years 59 (69.41%), while the lowest was found in those over 60 years, 2 (2.36%). Adenomyosis was most common among women with a parity of 3 (36.47%).

Conclusions: The prevalence of adenomyosis was found to be similar to other studies done in similar settings.

Keywords: adenomyosis; age; body mass index; contraceptive use; parity.

INTRODUCTION

Adenomyosis is a gynecological condition that causes endometrial tissue to grow within the uterine myometrium. It usually occurs in women during their late reproductive years, predominantly in those experiencing menorrhagia and dysmenorrhea, mostly among middle-aged women.^{1,2} Besides age group, studies have identified factors such as abortions, multiparity, a history of contraceptive use, and smoking as potential contributors to adenomyosis.³⁻⁵ Moreover, overweight women are more likely to have adenomyosis compared to those with a normal weight.⁶

In Nepal, however, very few studies have attempted to

understand adenomyosis among women, particularly at tertiary care referral hospitals in Nepal.

The aim of this study was to find out the prevalence of adenomyosis among Women undergoing Hysterectomy presenting to the Department of Obstetrics and Gynecology of a tertiary care centre.

METHODS

A descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, Nepal over a period of 15 months, from 13 April 2016 to 14 July 2017 after obtaining ethical approval from the Institutional Review Committee (Reference number: 338/6-11-E-072-73). Women who underwent hysterectomy in the department were included in the study, while those who refused to provide consent were excluded. A Convenience sampling method was used for data collection. Sample size was calculated using the following formula:

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$$n = Z^2 \times p \times q / e^2$$

$$= 1.96^2 \times 0.5 \times 0.5 / 0.07^2$$

$$= 196$$

Where,

n = minimum required sample size

Z = 1.96 at 95% Confidence Interval (CI)

p = prevalence taken as 50% for maximum sample size calculation

q=1-p

e= margin of error, 7%

The calculated sample size was 196. However, the final sample size taken was 255.

After undergoing hysterectomy (either abdominal or vaginal), the specimens' (uterus/ adnexa) were examined for macroscopic features, including uterine size, myometrial thickness, rough towel appearance, and the adnexa. Any associated pathologies, such as fibroids, endometrial polyps, endometriosis, or ovarian tumors, were also noted and recorded. The specimens were placed in a jar containing 10% formalin and sent to the pathology department for histopathological examination (HPE). Each specimen was tagged with identification details, and a histopathology form was completed in detail. Following histopathological confirmation, data including age, parity, body mass index (BMI), history of contraceptive use, and smoking were recorded. A body mass index (BMI) of less than 18.5 kg/m² is considered underweight, a BMI of 18.5-24.9 kg/m² is considered normal weight, a BMI of 25-29.9 kg/m² is considered overweight, and a BMI of ≥30 kg/m² is considered obesity.⁷

Data were entered into Microsoft Excel, and descriptive analysis was performed using IBM SPSS statistics version 21. Point estimate and 95% Confidence Interval were calculated.

RESULTS

A total of 255 women were included in this study, of which 85 (33.33%) (27.55-39.12, 95% CI) were histologically confirmed as adenomyosis. Adenomyosis was most prevalent in women aged 41-50 years 59 (69.41%), while the lowest was observed in those over 61 years 2 (2.36%) (Table 1).

Table 1. Age distribution of patients diagnosed with adenomyosis (n= 85).

Age (years)	n (%)
31-40	10 (11.76)
41-50	59 (69.41)
51-60	14 (16.47)
61-70	1 (1.18)
>70	1 (1.18)

Adenomyosis was most common among women with a parity of 3 (36.47%). In contrast, it was least prevalent among women with nulliparous women 1 (1.18%) and with primipara 7 (8.24%) compared to those with higher parity (Table 2).

Table 2. Parity distribution of patients diagnosed with adenomyosis (n= 85).

Variables (Parity)	n (%)
P0	1 (1.18)
P1	7 (8.24)
P2	18 (21.18)
P3	31 (36.47)
>P3	28 (32.94)

Adenomyosis was most frequently observed in women with a normal body mass index of 44 (51.76%). In contrast, it was least prevalent among underweight 3 (3.53%) and obese 9 (10.59%) (Table 3).

Table 3. BMI of patients diagnosed with adenomyosis (n= 85).

Variables (BMI)	n (%)
Underweight	3 (3.53)
Normal weight	44 (51.76)
Overweight	29 (34.12)
Obese	9 (10.59)

Among the women diagnosed with adenomyosis, 68 (80%) had a history of contraceptive use, while 79 (92.94%) reported a history of smoking. Moreover, 26 (30.59%) of the cases had undergone uterine surgery, and 13 (15.29%) cases had a history of caesarean section.

DISCUSSION

Adenomyosis is a common cause of dysmenorrhea, menorrhagia and chronic pelvic pain, yet it is often underdiagnosed.¹ Globally, adenomyosis accounts for 8% to 28% of gynecological problems among women,⁶ undergoing hysterectomy, with reports as high as 71%.⁸ Our study showed that 33.33% of women who underwent hysterectomy were confirmed to have adenomyosis, with the highest prevalence observed in women aged 41-50 (69.41%). Similar findings have been reported in other studies conducted in Nepal.^{1,2}

Several gynecological conditions have been found to have either an increased or decreased risk related to higher parity.^{9,10} Studies have demonstrated a link between adenomyosis in women with multiparity elsewhere.^{11,12} Our study also showed higher adenomyosis cases in women multiple parity (>2), particularly in those with a parity of three. This finding is supported by the study conducted by Shrestha et al. in Nepal.² A possible explanation for the elevated incidence of adenomyosis in women may be attributed to repeated pregnancy-related uterine trauma,¹³ which results in alterations to the uterine structure and subsequently leads to the developing adenomyosis. Moreover, hormonal changes may facilitate endometrial cell infiltration into the myometrium.¹⁴ Myometrium is believed to be one of the main factors in the development of adenomyosis. Genetic factors may play a role in developing adenomyosis that cannot be ruled out.¹⁵

A study conducted in the United States showed that obese women were more likely to be diagnosed with adenomyosis.¹² Similarly, Kadiyaran also demonstrated that obese women have a potential to be diagnosed with adenomyosis, perhaps due to an increase in thickness in the subcutaneous fatty tissue.¹⁶ In contrast to these findings, our study revealed that adenomyosis cases were more frequently observed in women with a normal body mass index. Moreover, it is interesting to observe that adenomyosis was least prevalent among underweight and obese women. There may be a co-relationship between reproductive hormonal imbalances, BMI, and adenomyosis;¹⁷ highlighting the need more comprehensive studies.

In this study, the majority of women with adenomyosis had a history of contraceptive use. Similar findings have been reported in other studies; however, these results were not statistically significant.¹⁸ Shrestha et al, also showed a higher frequency of contraceptive use among women with adenomyosis; nonetheless, this finding was not statistically significant.² While the present study did not examine the

duration of contraceptive use, age at first use, and the type of contraceptive, more research is required to understand their impact on the development of adenomyosis.

Smoking among women of reproductive age is prevalent in Nepal.¹⁹ A history of smoking in women diagnosed with adenomyosis was common in our study. Shrestha et al. showed that women who smoked for more than 10 years had a 1.4 times higher risk of developing adenomyosis.² Our study, however, did not assess the duration of smoking among women with adenomyosis. Controversy, however, persists regarding the possible casual relationship between adenomyosis and smoking.⁴ Hence, further study is needed to understand the underlying mechanisms associated with this relationship.

Various studies have shown that previous uterine surgeries may contribute to the development of adenomyosis in women.^{20,21} Interestingly, in our study, the frequency of previous uterine surgeries in women with adenomyosis, was found to be only 31%. Uterine surgeries such as myomectomy, dilation and curettage (D&C), and dilation and evacuation (D&E) have been shown to be the common factors associated with adenomyosis.²² Nevertheless, studies on this issue remains inadequate in Nepal.

In Nepal, cesarean sections have become increasingly common in obstetric practice, ranging from 15% to 81%, in both government and private hospitals.²³ Studies have shown that cesarean sections may be a contributor factor to the development of adenomyosis.^{24,25} Nonetheless, little is known about the frequency of cesarean sections among women diagnosed with adenomyosis in Nepal. In our study, only 15% of the cases had a history of previous cesarean sections. This study, however, did not include information regarding the number of cesarean sections in women diagnosed with adenomyosis. Future research, especially analytical/higher studies would be valuable in understanding the relationship between cesarean sections and adenomyosis. One notable constraint of this study is its single-centre design, which could reduce the applicability of the findings to other populations and settings.

CONCLUSIONS

The prevalence of adenomyosis was found to be similar to other studies done in similar settings. Adenomyosis was more prevalent in women with a parity of 3, particularly in those aged 41 to 50, especially among those with a history contraceptive use and smoking. Further research is needed to corroborate these findings.

Conflict of Interest: None.

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