

Induced Abortion: A Risk Factor for Adenomyosis

Sunita Pun¹

¹ Department of Obstetrics and Gynecology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

ABSTRACT

Background: Abortion, the medical and surgical termination of a pregnancy, is becoming a more common medical procedure among women in Nepal. Adenomyosis is one of the common gynecological problems among women of reproductive age. However, little is known about the relationship between abortion and adenomyosis. Therefore, our study aims to explore risk factor for adenomyosis in among women who have had abortions.

Methods: A comparative study was carried out among women who visited at the department of Obstetrics and Gynecology of the Tribhuvan University of Teaching Hospital, Kathmandu, between 13th April 2016 to 14th July 2017. Adenomyosis were confirmed through histological examination after hysterectomy. Data were analyzed by using Statistical Package for Social Sciences (SPSS software) 21.0 version. Odd ratio with their 95% confidence interval and *P*-value were calculated and analyzed. A *P*-value equal or below 0.05 was considered as statistically significant.

Results: Of the total 255 women, 85 were confirmed adenomyosis by histological examination. Of the 85 cases, 39% (33/85) had a history of abortion, while only 25 % (44/170) women had abortion among non-adenomyosis group. Overall, women who had abortion were 1.8 times more likely to have adenomyosis (95% CI 1.04- 3.17, *P* value=0.03) compared to women who had no history of abortion. Women with surgical abortions were 2.5 times more likely to develop adenomyosis (95% CI- 1.03- 6.21, *P* value=0.03) compared to women with no abortion history.

Conclusions: This study found that women, who had abortions, are more likely to have been diagnosed with adenomyosis compared to women without abortions. Further studies, however, need to be carried out in order to extend findings of this study.

Keywords: Abortion; adenomyosis; risk factors

INTRODUCTION

Globally, 73 million women are estimated to undergo abortion each year.¹ Most abortions take place in developing countries, especially in south and central Asia.¹ Over the last few years, abortion has increased drastically in among women of reproductive age in Nepal.² Both surgical and medical abortion procedures are common and have been shown to be equally effective,³ although preferable depending on pregnancy weeks, women's choice and health conditions.⁴

In Nepal, abortion is considered to be the third most leading cause of maternal deaths.⁵ However, little is known about long-term gynecological consequences after abortions. Adenomyosis that characterized by the presence ectopic endometrial glands and stroma within the myometrium, is becoming one of the common leading gynecological problems in women in Nepal.⁶ The present study, hence, aims to understand the relationship between abortion and adenomyosis in women in Nepal.

METHODS

A comparative, cross sectional study was conducted at the department of Obstetrics and Gynaecology of Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, between 13th April 2016- and 14th July 2017. After the histopathological reports following surgery, patients with adenomyosis were categorized as "adenomyosis" group while those with absence of adenomyosis were categorized as "non adenomyosis" and analyzed. Data were entered into an excel database (Microsoft, Redmond, Washington, USA). Statistical analysis was performed using SPSS 21 software. Odd ratios (OR) were calculated with 95% confidence interval (CI), and *p* value equal or < 0.05 was considered statistically significant. The ethical approval was obtained from the institutional review committee (Ref: IRC- 338/6-11-E/072-073), Institute of Medicine, Tribhuvan University, Kathmandu, Nepal

RESULTS

Correspondence: Dr Sunita Pun, Department of Obstetrics and Gynecology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. Email: sanpiy01@gmail.com

A total of 255 women were included in this study. Of the total, 85 cases (35%) were histologically confirmed adenomyosis, while 170 (65%) cases were non-adenomyosis.

As shown in figure 1, the majority of patients with adenomyosis were between the age group of 41-50 years (69%) followed by the age group of 51-60 years (17%) and 30-40 years (12%) respectively.

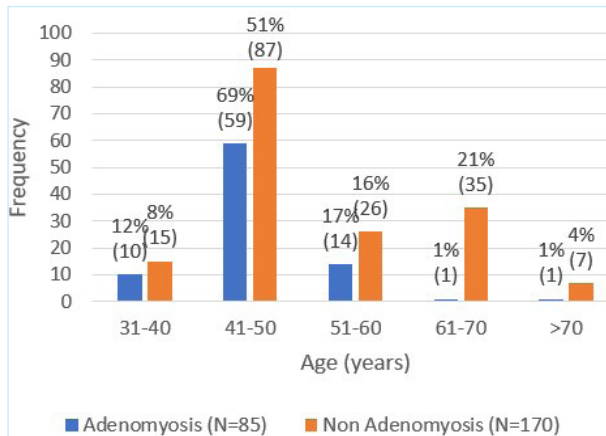


Figure 1. Age distribution of adenomyosis among participants.

Table 1. Comparison of abortion in patients with adenomyosis and non-adenomyosis.

Variable	Adenomyosis N=85 (%)	Non Adenomyosis N=170 (%)	OR (95% CI)	P value
Abortion Yes	33 (39)	44 (25)	1.8 (1.04-3.17)	0.03
Abortion No	52 (61)	126 (75)		

Abortion was found higher (39%, 33/45) in adenomyosis group compared to non-adenomyosis (25%, 44/170) groups as shown in Table 1.

The results showed that the odds of having adenomyosis was 1.8 times greater in women who had history of abortions (OR=1.8, CI=1.04-3.17; P value= 0.03) than those who never had abortions (Table 1), and this finding was statistically significant.

Table 2. Comparison of medical and surgical abortions in patients with adenomyosis and non-adenomyosis.

Variable	Adenomyosis N=33 (%)	Non adenomyosis N=44 (%)	OR (95% CI)	P value
Abortion Medical	22 (67)	33 (75)	2.5 (1.03-6.21)	0.03
Abortion Surgical (vacuum aspiration)	11 (33)	11 (25)		

Of the total 77, surgical abortion was found higher in women with adenomyosis (33%, 11/33) compared to women with non-adenomyosis (25%, 11/44) as shown in Table 2.

Women with prior surgical abortions found significantly associated with adenomyosis (OR=2.5, 95% CI=1.03-6.21; P=0.03) compared to women without abortions (Table 2).

DISCUSSION

The prevalence rate of adenomyosis in hysterectomy patients over the past 50 years has ranged from 8.8% to 61.5% and the wide range frequently of adenomyosis might be due to lack of standard histopathological criteria for diagnosis.⁷ The prevalence of adenomyosis is found to be 23.5% in the Indian population,⁸ while 71% in women in Pakistan.⁹ In our study, the prevalence of adenomyosis at hysterectomy was 35%. Similar observations were made in other studies conducted in Nepal.^{6,10} In this study, adenomyosis was found common in middle-aged women. This result is consistent with previous studies conducted elsewhere.^{6,11}

The exact cause of adenomyosis is unclear, but some of the factors are considered to cause adenomyosis in women. There have been a number of studies that have demonstrated relationship between adenomyosis and age, multiparity, previous dilatation and curettage, cesarean section, smoking and abortion.^{7,10,12,13} A relationship between abortion and adenomyosis, however, is not well established and mixed results have been shown in previous studies.⁷ In fact, majority of the studies, that examine induced abortion found negative association with adenomyosis.⁷ In Nepal, Shrestha et al. showed several risk factors for adenomyosis, however, no information is available about the relationship between induced abortion and adenomyosis.⁶ In Nepal, abortions have been increased drastically, since it was first legalized in 2002.² Most of the studies regarding abortions are focused on unsafe abortions and maternal deaths.⁵ However, abortion as a risk factor for adenomyosis is not well established. This study, thus, focused on the association between abortion and adenomyosis in women.

Abortion, the medical and surgical termination of a pregnancy, is common and legally performed since 2004 across the country. Abortion with pills is more common, particularly among women compared to surgical abortion in Nepal.¹⁴ In our study, medical abortion was positively associated with adenomyosis in comparison with those who had no history of abortion.

This finding, however, is in contrast to findings reported by Parrazini et al. and Shrestha et al., who found women with induced abortion were not at risk of having adenomyosis.^{6,12} Although, this study showed significant association between medical abortion and adenomyosis, more comprehensive studies are needed to extend the result of this study.

There are mainly two types of surgical abortion: vacuum aspiration and dilatation and curettage. Women having prior surgical abortion such as dilatation & curettage have been found higher risk of adenomyosis in previous studies.^{7,12} However, relationship between manual vacuum aspiration and adenomyosis is not well known. In Nepal, Shrestha et al. reported higher risk of adenomyosis in women who had prior dilatation & curettage.⁶ In this study, adenomyosis was found higher frequency in women after surgical abortion (i.e., manual vacuum aspiration). Manual vacuum aspiration is more common than dilation and curettage (17% vs 7%) procedures performed in Nepal,¹⁴ further study, therefore, is needed to understand the relationship between manual vacuum aspiration procedure and adenomyosis.

Although this study was conducted in a tertiary hospital in Kathmandu, multi-centric studies are needed to acquire a greater understanding on the relationship between abortion and adenomyosis. This study, however, clearly demonstrated that abortion, especially surgical abortion, is strongly associated with adenomyosis that lays the groundwork for future study.

CONCLUSIONS

Women with a history of abortion, are more likely to have been diagnosed with adenomyosis compared to women without abortion. After legalization of abortion, it is becoming more common medical procedures among adult women in Nepal. Future studies on the relationship between abortion and adenomyosis are, hence recommended to extend the findings of this study.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

- World Health Organization. Abortion. [Available from <https://www.who.int/news-room/fact-sheets/detail/abortion>]
- Bhandari TR, Dangal G. Abortion Practices in Nepal: What does Evidence Show?. Nepal Journal of Obstetrics & Gynaecology. 2015 Jan 1;10(1). [Article]
- Ireland LD, Gatter M, Chen AY. Medical Compared With Surgical Abortion for Effective Pregnancy Termination in the First Trimester. *Obstet Gynecol.* 2015 Jul;126(1):22-8.
- World Health Organization. Clinical Practice Handbook for Safe Abortion. [Available from https://apps.who.int/iris/bitstream/handle/10665/97415/9789241548717_eng.pdf]
- Suvedi BK, Pradhan A, Barnett S, Puri M, Chitrakar SR, Poudel P, et al. Nepal Maternal Mortality and Morbidity Study, 2008/2009. Kathmandu: Family Health Division, Department of Health Services, Ministry of Health, Government of Nepal; 2009 [Download PDF]
- Shrestha A. Risk factors for adenomyosis. *J Nepal Health Res Counc.* 2012 Sep;10(22):229-33. [PubMed]
- Upson K, Missmer SA. Epidemiology of Adenomyosis. *Semin Reprod Med.* 2020 May;38(2-03):89-107. [PubMed]
- Arunachalam B, Manivasakan J. A Clinico-Pathological Study of Adenomyosis. *J Clin Diagnostic Res.* 2012;6(3):428-30. [Download PDF]
- Shaikh H, Khan KS. Adenomyosis in Pakistani Women: Four Year Experience at the Aga Khan University Medical Centre, Karachi. *J Clin Pathol.* 1990;43(10):817-9. [Article]
- Shrestha A, Shrestha R, Lb S, Pandit U. Adenomyosis at Hysterectomy : Prevalence , Patient Characteristics , Clinical Profile and Histopathological Findings. *Kathmandu Univ Med J.* 2012;10(1):1-4. [PubMed]
- Bergholt T, Eriksen L, Berendt N, Jacobsen M, Hertz JB. Prevalence and risk factors of adenomyosis at hysterectomy. *Human reproduction.* 2001 Nov 1;16(11):2418-21. [Article]
- Parazzini F, Vercellini P, Chatenoud L, Oldani S, Crosignani PG. Risk factors for adenomyosis. *Hum Reprod.* 1997;12(6):1275-9. [Article]
- Taran FA, Stewart EA, Brucker S. Adenomyosis: Epidemiology, risk factors, clinical phenotype and surgical and interventional alternatives to hysterectomy. *Geburtshilfe Frauenheilkd.* 2013;73(9):924-31. [Article]
- Ministry of Health, Nepal; New ERA; ICF. Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health and Population; 2017. [Download PDF]