Original Article

The Success Rate of Manual Vacuum Aspiration in Surgical Treatment of Endometrial Polyps

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Objective: To determine the success rate of manual vacuum aspiration (MVA) in surgical treatment of endometrial polyps.

Materials and Methods: Patients with a diagnosis of one or two endometrial polyps without any other gross pathology under hysteroscopic view were recruited in the present study. After the first hysteroscopy, the endometrial polyps were removed using standard MVA procedure. A second hysteroscopy was performed to re-assess the result and remove any remaining polyps in the same setting. The diagnosis of the resected polyps was confirmed using histopathological examination.

Results: Thirty-five women were recruited in the present study. The most common presentation of the polyps was abnormal uterine bleeding (54.3%). The complete removal of endometrial polyps after MVA was observed in 30 cases (85.7%), whereas incomplete removal was observed in five cases (14.3%). The remaining polyps were mainly located at the fundus and cornu part of the uterus.

Conclusion: MVA could be an alternative treatment of endometrial polyps because of possible complete removal of polyps and low complications.

Keywords: Endometrial polyps, Hysteroscopy, Manual vacuum aspiration

J Med Assoc Thai 2019;102(7):769-73
Website: http://www.jmatonline.com
Received 19 Dec 2018 | Revised 12 Mar 2019 | Accepted 13 Mar 2019

Endometrial polyp is one of the common problems in gynecology. Various clinical presentations can be found such as asymptomatic, abnormal vaginal bleeding, or infertility, and the incidence may be as high as 7.8% to 34.9%[1] depending on the population. Most endometrial polyps are of benign nature. Therefore, the incidence of malignancy is only 0% to 12.9%[1]. The likelihood of cancer is higher in older populations. Presently, hysteroscopic polypectomy is the gold standard for endometrial polyp diagnosis and treatment, thanks to its high efficacy. It can be used simultaneously as a see and treat procedure. The location, size, and characteristics of the polyps can be effectively inspected and then totally resected in the same setting. Moreover, this technique is unlikely complicated by post-operative adhesion. However, this method is unfeasible in many circumstances because it needs special instruments and requires experts to perform. The cost is also higher compared with traditional ways like curettage. Efforts have been made to use effective but more practicable ways to handle the endometrial polyps especially sharp curettage. Nevertheless, the method leads to more unfavorable complications, especially uterine perforation, infection, and uterine synechiae. Generally, the endometrial polyp is treated by sharp curettage in rural hospitals. The efficacy of endometrial polyp removal by curettage is still doubtful[2].

Manual vacuum aspiration (MVA) is a method to remove the intrauterine content especially conceptus products in a first trimester abortion. This instrument consists of a vacuum aspirator connected to a plastic cannula, which will be inserted through the cervical canal into the endometrial cavity. The vacuum effect will suck the uterine content out in the container. MVA was invented to mitigate the risk of the sharp

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How to cite this article: Puangkularb P, Satirapod C, Choktanasiri W, Tantitham C. The Success Rate of Manual Vacuum Aspiration in Surgical Treatment of Endometrial Polyps. J Med Assoc Thai 2019;102:769-73.

curettage such as uterine perforation[3]. It has become popular for first trimester abortions showing high efficacy (95% to 100%)[4]. Adverse events of MVA have been proven to be lower than sharp curettage in terms of pain, uterine perforation, and incidence of intrauterine adhesion[5,6]. Currently beyond the usefulness for surgical abortion, MVA is also used in diagnosing endometrial pathology with comparable efficacy to sharp curettage[5,7]. One related study showed the additional effectiveness of MVA in hysteroscopic removal involving multiple endometrial polyps[8]. Most endometrial polyps are only 1 to 2 cm, which are smaller than conceptive products that can be completely removed by MVA. Therefore, the authors saw the possibility of endometrial polyp treatment by MVA. Hopefully, when MVA is proven to be an effective treatment of endometrial polyps, the cost burden and referral problems will be alleviated compared with the hysteroscopic approach. This is because MVA requires cheaper instruments and can be performed in small to medium size hospitals by a general gynecologist. In addition, sharp curettage would be replaced by the safer MVA.

The aim of the present study was to prove the efficacy of MVA for endometrial polyp treatment and to detect complications associated with the treatment modality.

Materials and Methods

The present study was conducted in accordance with the Helsinki Declaration at Ramathibodi Hospital between August 2017 and August 2018, after it had been approved by the Ethics Clearance Committee of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University. Patients with a diagnosis of endometrial polyp from hysteroscopy, ultrasonography, or saline infusion sonohysterography were the study group. The inclusion criteria were the patients that received a diagnosis of endometrial polyp from hysteroscopy in the operation room, and the number of polyps must be 1 or 2. The patients with another concurrent gross intrauterine pathology, uterine anomaly, or bleeding disorder would be excluded from the study. The sample size was calculated using single proportion formula based on a pilot study of 10 patients that achieved a success rate of 90%. All recruited patients agreed to participate in the study and signed the consent forms. Patient information and characteristics were recorded. Sublingual misoprostol tablet 200 mcg, two to four hours before the procedure was prescribed. On the operation day, hysteroscopy (26105BA, 4 mm, 30 degree, Karl Storz GmbH & Co., Tuttlingen, Germany) was performed under anesthetic technique to confirm the diagnosis of endometrial polyp. The location, size, number, and characteristics of the polyps were evaluated and recorded. Subjects not meeting the study criteria were excluded at this step. After completing hysteroscopic diagnosis, MVA (Ipas, North Carolina, USA) with Karman cannula No.8 was performed for all included subjects using standard protocol[9]. The aspiration was continued until the feeling of entrapment and gritty sensation occurred and no more tissue was sucked into the cannula. Then the instrument was removed, and the tissue collected was sent for pathological evaluation. After MVA, the hysteroscopy was performed again to detect any leftover lesions. The remaining tissue was removed by resectoscope (27040GP1, 4 mm, Karl Storz GmbH & Co., Tuttlingen, Germany) by hysteroscopy (26105FA, 4 mm, 12 degree, Karl Storz GmbH & Co., Tuttlingen, Germany) and sent to the pathologist in the same setting. The resectoscope tip was used as a reference instrument to measure the polyps according to the captured pictures from hysteroscopy.

The data were analyzed using PASW statistics 18 (SPSS Inc., Chicago, USA). The estimation for single proportion was used for sample size calculation. Demographic data and characteristics were described in mean ± standard deviation (SD). Percentage was used to report the results. Qualitative data were described by frequency and compared using the chi-square test and Fisher's exact test. Statistical significance were set at p-value of less than 0.05.

Results

Thirty-five women were recruited to the present study with an average age of 48.6±13.5 years (range 26 to 72 years). The mean body mass index was 24.9±5.6 kg/m^2. Fifteen women were nulliparous, while twenty women were multiparous, with the parity ranged from 1 to 5. Post-menopausal status was observed in 13 cases (37.1%). The most common presentations of the polyps were abnormal uterine bleeding 34.3% and postmenopausal bleeding 20%, whereas another 16 cases (45.7%) had other symptoms such as pain, infertility, and endometrial thickening while prescribed tamoxifen (Table 1).

In all, 27 patients had one polyp and eight patients had two polyps (total 43 polyps). The maximal size of polyps in each patient was smaller than 2 cm in 29 cases (82.9%) and 2 cm or larger in six cases (17.1%) (Table 1). In 43 polyps, the polyps size was smaller than 1 cm in 32.6%, 1 to 2 cm in 62.8%, and larger

Table 1. Demographic data (n=35)

Patient characteristic	n (%)
Age (year), Mean±SD	48.6±13.5
Parity	
0	15 (42.8)
1	8 (22.9)
≥2	12 (34.3)
BMI (kg/m^2)	
<18.5	2 (5.7)
18.5 to 24.9	18 (51.5)
25.0 to 29.9	9 (25.7)
≥30	6 (17.1)
Post menopause	13 (37.1)
Clinical symptoms	
Abnormal uterine bleeding	12 (34.3)
Postmenopausal bleeding	7 (20.0)
Others	16 (45.7)
Number of polyps	
1	27 (77.1)
2	8 (22.9)
Size max	
<2 cm	29 (82.9)
≥2 cm	6 (17.1)

SD=standard deviation; BMI=body mass index

Table 2. Characteristics of endometrial polyps (n=43)

Polyp characteristic	n (%)
Size	
<1 cm	14 (32.6)
1 to 2 cm	27 (62.8)
>2 cm	2 (4.6)
Location	
Fundus	5 (11.6)
Cornu	4 (9.3)
Body	34 (79.1)

Table 3. Success rate of MVA (n=35)

Procedure	n (%)
Success rate of MVA	
Complete removal	30 (85.7)
Partial removal	5 (14.3)
Unchanged	0 (0.0)

MVA=manual vacuum aspiration

Table 4. Complete removal rate in number, size, and location

Polyp characteristic	Complete removal n (%)	Incomplete removal n (%)	p-value
Number of polyps (by cases)			0.67
1	25 (92.6)	2 (7.4)	
2	5 (62.5)	3 (37.5)	
Size max (by cases)			0.195
<2 cm	26 (89.7)	3 (10.3)	
≥2 cm	4 (66.7)	2 (33.3)	
Size (by polyps)			0.152
<1 cm	14 (100)	0 (0.0)	
1 to 2 cm	21 (77.8)	6 (22.2)	
>2 cm	2 (100)	0 (0.0)	
Location (by polyps)			0.016
Fundus	3 (60.0)	2 (40.0)	
Cornu	2 (50.0)	2 (50.0)	
Body	32 (94.1)	2 (5.9)	

than 2 cm in 4.6%. The most common location was at the body of the uterus (79.1%), while 11.6% were located at the fundus and 9.3% at the cornu (Table 2). After MVA was performed, complete removal of endometrial polyps was observed in 30 cases (85.7%), whereas incomplete removal was observed in five (14.3%) (Table 3). The polyps smaller than 1 cm were completely removed after MVA in all cases. The polyps located at the body of the uterus had a high success rate in complete removal (94.1%). From statistical analysis, we found that location was associated with complete removal of endometrial polyps with the p-value of 0.016 (Table 4). For the incomplete removal cases, the remaining polyps were mainly located at the fundus and cornu part of the uterus. No immediate surgical or anesthetic complications occurred after the procedure.

Histopathological exam results of the polyps from all patients were benign. One week after the operation, there was no post-operative complication. For patients presenting abnormal uterine bleeding, the recurrent symptom did not occur for one to two months after the operation.

Discussion

According to the present study, the success rate of MVA in removing endometrial polyps was 85.7%. This result comprised a higher success rate when compared with that of sharp curettage[2]. The present result was also comparable to related studies using grasping forceps with curettage (86.6%)[10] and transvaginal ultrasound guided polypectomy (86.5%)[11]. The present data showed the feasibility of MVA for treating one or two endometrial polyps. Importantly, there was no serious complication from MVA in the present study, which could be due to simplicity and ease of use of the device. Not only MVA is available at most hospitals, but general gynecologists are also very familiar with the device, so the authors believe that its application for uterine polypectomy is practical.

Five unsuccessful cases (14.3%) required hysteroscopic resection from the 35 cases treated. Among the failed cases, common characteristics included location and size of the polyps. In terms of location, the polyps with stalks located in the fundal area or around the ostium in the cornu were prone to be incompletely removed. Regarding the fundal area, this might be explained because the tip of the cannula has a blind end; therefore, causes less suction effect around the fundus. Polyp locating at cornu area is also problematic because its location is farther from the MVA cannula than polyp at body area. Consequently, less suction force is generated causing incomplete resection of polyp at cornu area. The size of the polyp also matters. Polyps larger than 1 cm in length tended to be partially removed. However, these findings have to be carefully interpreted because the present study was not designed for this purpose. Further, well-designed studies can be conducted to prove these interesting issues in the future.

One strength of the present research was being one of the early studies to discover the success rate of MVA in treating endometrial polyps. The present study's useful information could lead to applying the method in general practice. However, the method employed in the present study involved specific conditions. For example, to use Hegar dilators for resectoscope and large diameter cannula, all patients were under general anesthesia, so the confounding factors such as patient cooperation and pain were controlled. In contrast, there are many different situations in real-life practice. A more feasible technique in general settings would be to perform MVA using smaller cannula without general anesthesia. The authors suggest further study on this aspect including cost effectiveness of the procedure. In addition, long-term follow-up of complications and symptom recurrence would also provide interesting points for study designs in the future.

Conclusion

MVA could be used as an alternative treatment for endometrial polyps including the feasibility of complete removal and a favorable safety profile.

What is already known on this topic?

Currently the gold standard treatment method of endometrial polyp is hysteroscopic resection, which is not feasible in most Thai healthcare centers. The obsolete treatment modality is curettage, which is generally available. However, there is a high adverse event rate according to former studies. There is no confirmed data about success rate of endometrial polyp treatment with MVA. Nevertheless, efficacy and safety of MVA in early pregnancy abortion is very satisfying. Thus, removing endometrial polyp with MVA is promising in terms of availability, efficacy, and safety.

What this study adds?

This study shows that there is 85.7% success rate of endometrial polyp removal by MVA. The location and size of polyps may affect treatment outcome. This study confirms that MVA can be used to treat endometrial polyp with comparable or better outcome compare to other methods except the gold standard hysteroscopic resection.

Conflicts of interest

The authors declare no conflict of interest.

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