

Original Article

Use of vault drainage for reducing vault haematoma during vaginal hysterectomy

Laila A¹, Chowdhury F², Akter MT³, Siddika S⁴, Ara I⁵**Abstract**

A hysterectomy may be performed via abdominal, vaginal, or laparoscopic-assisted abdominal or vaginal approaches. Vaginal hysterectomy is associated with lower morbidity, faster recovery and shorter hospital stay compared with abdominal hysterectomy and should be considered the first choice for all benign conditions. But it is associated with a significant risk of vault haematomas. Considering all the measures taken to reduce haematoma formation, vault drainage may help to reduce the postoperative complications and morbidity. The role of drain in abdominal surgery is well recognised. However, no formal evaluation of routine drain insertion at vaginal hysterectomy has been performed. This randomized controlled trial was conducted in the department of Obstetrics and Gynaecology, Dhaka Medical College & Hospital from January 2015 to June 2015 to find the result of vault drainage versus no drainage following vaginal hysterectomy. A total of 60 women scheduled for vaginal hysterectomy (30 cases for vault drainage and 30 cases for no vault drainage) during the study period were selected consecutively for the study. There was no significant difference between vault drainage group and no vault drainage group regarding age distribution, preoperative clinical history and vital parameters. The vault hematoma and febrile morbidity was significantly higher in no drainage group (Group I) than vault drainage group (Group II). No drainage group had significantly more duration of hospital stay than drainage group. This study showed that vault drainage during

vaginal hypstrectomy is a safe and well tolerated technique and reduces vault hematoma.

Key words: Vaginal hysterectomy, vault haematoma, vault drainage

Introduction

According to the most recent surveillance from the CDC, hysterectomy is the second most frequently performed surgical procedure for women of reproductive age, topped only by caesarean delivery.¹ The United states has the highest rate of hysterectomy in the industrialized world, with 5.5 per 1,000 women undergoing the procedure each year. Uterine leiomyoma, endometriosis and uterine prolapse were the most common indications for hysterectomy and accounted for 73% of all hysterectomies performed.

In 2002, the society of Obstetricians and gynecologists of Canada (SOGC) published clinical practice guidelines that provide common indications for hysterectomy. According to these guidelines, endometriosis with severe symptoms that are refractory to other medical options, symptomatic leiomyomas and pelvic relaxation are benign conditions in which hysterectomy may be considered.²⁻⁵

A hysterectomy may be performed via abdominal, vaginal, or laparoscopic-assisted abdominal or vaginal approaches. The appropriate route of surgery is determined by the type of pathology expected, anatomic considerations, patient preference, and physician experience and training. According to the SOGC clinical practice guidelines, vaginal hysterectomy should be considered the first choice for all benign conditions.⁶⁻⁸

Research into the morbidity associated with hysterectomy to date, has predominantly focused on outcomes of the vaginal approach compared with abdominal and or laparoscopic approaches. Vaginal hysterectomy is associated with lower morbidity, faster recovery and shorter hospital stay compared with abdominal hysterectomy.³ Even though vaginal hysterectomy has lower risks compared with abdominal hysterectomy, it is associated with a significant risk of vault haematomas. A haematoma represents the most common perioperative complication following vaginal hysterectomy and is significantly associated with febrile

1. Dr Alif Laila, Medical Officer, Dhaka Medical College Hospital, Dhaka
2. Dr Fahmida Chowdhury, Medical Officer, Obstetrics & Gynaecology Outdoor, Dhaka Medical College Hospital, Dhaka
3. Dr Mst Taslima Akter, Registrar, Obstetrics & Gynaecology, City Medical College Hospital, Dhaka
4. Dr Sharmin Siddika, Registrar, Obstetrics & Gynaecology, Anwar Khan Modern Medical College Hospital, Dhaka
5. Professor Dr Iffat Ara, Department of Obstetrics & Gynaecology, Popular Medical College Hospital, Dhaka

*For correspondence

ransfusion, readmission to hospital and length of hospital stay.³ The incidence of vault haematoma after vaginal hysterectomy is variably reported - from approximately 25% to as much as 98%.⁷ Vault haematoma is one of the important causes of febrile morbidity after vaginal hysterectomy, at least in patients who clinically seem to be infected.

The focus of research into morbidity related to vaginal hysterectomy has most commonly concerned the use of antibiotic prophylaxis or the postoperative diagnosis and management of haematoma. The use of prophylactic antibiotics as well as the use of bipolar vessel sealing system during vaginal hysterectomy was shown to reduce the incidence of perioperative haemorrhagic complications. The use of such a measure depends on equipment availability and the surgeon's willingness to change technique and is therefore unlikely to become standard practice in the near future.⁸⁻¹⁰ Considering all these measures taken to reduce haematoma formation, vault drainage may help to reduce the postoperative complications and morbidity. The role of drain in abdominal surgery is well recognised. However, no formal evaluation of routine drain insertion at vaginal hysterectomy has been performed.

Vault drainage following vaginal hysterectomy could have major implications to reduce vault haematoma. This study was carried out to find the result of vault drainage versus no drainage following vaginal hysterectomy. The result may have implication for the management of vault haematoma following vaginal hysterectomy and thus reducing postoperative complications.

Methods

This randomized controlled trial was conducted in the department of Obstetrics and Gynaecology of Dhaka Medical College & Hospital from January 2015 to June 2015. A total of 60 women scheduled for vaginal hysterectomy during the study period were selected consecutively for the study. Sixty patients were randomly assigned in to either Group I or Group II with 30 patients in each group. Group I patients were treated with vault drainage following vaginal hysterectomy and there was no provision of vault drainage for Group II patients. Subject with pre-existing pelvic infection, known severe anaemia, diabetes mellitus & bleeding disorder were excluded.

All patients were informed about the prospect and procedure of the study and informed written consent was taken from all the study subjects after full explanation of nature and purpose of the study. Data were collected in preformed questionnaire and by direct questioning of the

patient, attendants, physical examination, daily follow up of the patients post operatively till their discharge, ultrasonography of lower abdomen on 3rd POD and also from clinical records of the patients. Data were processed and analyzed manually and with the help of SPSS program. Ethical clearance for the study was taken from the Ethical review committee of Dhaka Medical College.

Results

Maximum (40%) were found in the age group of 46-50 years followed by 20% in 51-55 years, 16.7% in 56-60 years, 13.3% in 40-45 years and 10% in the age group of 61-65 years. On the other hand, in group II, maximum (26.7%) were found in the age group of 46-50 years followed by 23.3% in 56-60 years, 20% in 40-45 years, 16.7% in 46-50 years and 13.3% in the age group of 61-65 years. The average age was 51.46 years in group I and 52 years in group B. The difference was not significant ($P>0.05$). (Table-I)

Table-I: Age distribution of the study patients (n=60).

Age in years	Group I (n=30)		Group II (n=30)		P value
	No	%	No	%	
40-45	4	13.3	6	20.0	
46-50	12	40.0	8	26.7	
51-55	6	20.0	5	16.7	
56-60	5	16.7	7	23.3	
61-65	3	10.0	4	13.3	
Mean±SD	51.46±6.11		52.00±6.94		0.208

Eighty percent of group I and 83.3% of group II patients were mildly anemic. Jaundice and oedema was not observed in both group. No statistically significant ($P>0.05$) difference was found between two groups. (Table-II)

Table -II: Distribution of the study patients according to general examination (n=60).

General examination	Group I (n=30)		Group II (n=30)		P value
	No	%	No	%	
Anemia					
No anemia	6	20.0	8	26.7	
Mild	20	66.7	22	73.3	0.111
Moderate	4	13.3	0	00	
Jaundice					
Present	0	00	0	00	
Absent	30	100	30	100	
Oedema					
Present	0	00	0	00	
Absent	30	100	30	100	

The mean systolic blood pressure was 10±22.4 mmHg and 111±22.2 mmHg in group I and group II respectively. The diastolic blood pressure 65.5±13.7 mmHg in group I and 70.3±12.2 mmHg in group II respectively. No statistical significance (P>0.05) difference was found between two groups. (Table-III)

Table -III: Distribution of the study patients according to blood pressure (n=60).

Blood pressure (mmHg)	Group I (n=30)		Group II (n=30)		P value
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
Systolic	106±22.4	111±22.2			0.389
Range	(40-140)	(90-170)			
Diastolic	65.5±13.7	70.3±12.2			0.158
Range	(65-100)	(60-100)			

All patients had second degree uterine prolapse in both the groups. Decubitus ulcers was found 17(56.7%) in group I and 9(30%) in group II, which was statistically significant (P>0.05) between two groups. (Table-IV)

Table -IV: Distribution of the study patients according to P/V examination (n=60).

P/V Examination	Group I (n=30)		Group II (n=30)		P value
	No	%	No	%	
Decubitus ulcer					0.037
Yes	17	56.7	9	30.0	
No	13	43.3	21	70.0	

The vault hematoma and febrile morbidity was significantly (P<0.05) higher in no drainage group (Group I) than vault drainage group (Group II). (Table-V)

Table V: Postoperative complication (n=60).

Postoperative complication	Group I (n=30)		Group II (n=30)		P value
	No	%	No	%	
Vault hematoma					0.023
Yes	1	3.3	7	23.3	
No	28	96.7	24	76.7	
Febrile morbidity					0.020
Yes	2	6.7	11	26.7	
No	28	93.3	19	73.3	

Group I: Vault drainage, Group II: No drainage

There was significant (P<0.05) difference duration of hospital stay between two groups of patients. (Table-VI)

Table VI: Duration of hospital stay (n=60).

Duration of hospital stay	Group I (n=30)		Group II (n=30)		P value
	No	%	No	%	
1-5 days	26	86.7	19	63.3	0.001
6-10 days	4	13.3	11	36.7	

Discussion

Vault haematoma is one of the most common complication of vaginal hysterectomy.¹¹⁻¹⁶ The objective of the study to evaluate the efficacy of vault drainage compared with no drainage in reducing the vault haematoma associated with vaginal hysterectomy.

This study found significantly higher vault hematoma in no drainage group (group II) than vault drainage group (group I) which was 23.3% versus 3.3% respectively. It also found significantly higher febrile morbidity in no drainage (group II) than vault drainage (group II) which was 26.7% versus 6.7% respectively.

Analysis revealed that use of vault drainage significantly reduced vault hematoma and postoperative morbidity. Previous studies in the literature have compared the use of prophylactic antibiotics with vault drainage at vaginal hysterectomy. Wijma et al^{17,18} compared suction drainage with perioperative antibiotics in preventing postoperative infections and found significantly more vaginal cuff abscesses and febrile morbidity in the ‘drain’ group. However, in their study population, women who had a drain inserted did not receive prophylactic antibiotics. So it is difficult to ascertain whether the excess febrile morbidity was attributable to drain use or absence of antibiotic prophylaxis. Similar results were observed by Galle et al¹⁹ and Poulsen et al²⁰ in studies comparing suction drainage with prophylactic antibiotics. In contrast, Swartz and Tanaree²¹ in an observational study showed significantly reduced infection rates with the use of drainage compared with a control group and advocated vault drainage instead of antibiotics. They concluded that suction drainage was as effective as prophylactic antibiotics even though no women in this study received any antibiotics. As the use of prophylactic antibiotics is now standard practice, the efficacy of vault drainage warrants further investigation.

Shen et al.²² looked at the efficacy of drains after laparoscopic assisted VH in reducing postoperative

morbidity. They concluded that prophylactic drainage is not necessary because there was no difference in postoperative infectious morbidity or complications. These results however, may not be generalised to VH, as laparoscopic assisted VH surgeons have the benefit of visualising persistent bleeding from the vault after closure and achieve haemostasis under direct vision.

The primary outcome of our study was an objective assessment of immediate postoperative febrile morbidity rather than imaging for vault haematoma. Thomson et al²³ performed transvaginal ultrasound in 223 women following vaginal hysterectomy and found vault haematomas in 25% of women. However, only a small proportion of these women (31%) had a significant increase in febrile morbidity. Dane et al²⁴ concluded that sonographic detection of fluid collection is common following VH but most haematomas were small in size and do not increase the risk of febrile episodes or require additional treatment. Hence, we did not perform routine postoperative ultrasound to detect vault haematoma; instead, we looked at clinical parameters to assess morbidity with the primary outcome measure being febrile morbidity.

There is no consensus on the precise definition of febrile morbidity and consequently the reported incidence of postoperative pyrexia is extremely variable (1–50%).²³⁻²⁶ The incidence of febrile morbidity is highly dependent on the definition applied. Our sample size calculation was based on an incidence of 30% as described by Thomson and Farquharson²⁷ in a review article. This rate represents a combined incidence of febrile morbidity ranging from 16% (for women with no haematoma) to 39% (for women with haematoma). For drain insertion to be considered an effective intervention, we hypothesised a reduction in febrile morbidity by 50% to 15% or less. This study is potentially underpowered to detect a smaller difference, which may be a limitation. However, this represents a large sample and a lower effect size would put the febrile morbidity within this range (16–39%), making our findings less credible. This study showed the length of hospitalization was lower for women in group I than group II. This findings are consistent with the study of Malinowski et al¹⁰ who found length of hospitalization was lower for women in vault drainage group.

This study shows that use of vault drainage during vaginal hysterectomy is a safe and well tolerate technique and reduce vault hematoma. The vault drainage during vaginal hysterectomy is recommended to minimize intra- and postoperative complications. Further comparative studies are recommended to assess the differences in morbidity after vault hematoma for prolapse and other benign conditions.

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