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Original Research Article

Non-descent vaginal hysterectomy in women with previous caesarean section scar: our experience

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ABSTRACT

Background: Hysterectomy is one of the common gynaecological major surgeries performed worldwide. In spite of technological advancement with laparoscopic and robotic hysterectomy conventional hysterectomy through vaginal route of nonprolapse uterus popularly known as, Non-Descent Vaginal Hysterectomy (NDVH) remains a justifiable cost effective, cosmetically appealing option especially in resource-crunched developing country. NDVH in post caesarean scarred uterus too a technically challenged procedure requiring skills and expertise.

Assessment of technical feasibility and safety of non-descent vaginal hysterectomy in women with previous caesarean section scar were studied.

Methods: The study was a prospective observational study of 72 patients with LSCS scar requiring hysterectomy for benign conditions were selected based on the inclusion and exclusion criteria carried out from June 2012 to May 2017. Operating time, blood loss, surgical techniques, intra/postoperative challenges, conversion to laparotomy or laparoscopic assistance and length of hospital stay were recorded for each case. Patients were followed up till 03 months of surgery.

Results: Vaginal hysterectomy was successful in all cases. Morcellation, bisection or myomectomy, were done in 86% cases. Two patients had bladder injury, which was repaired vaginally, two cases required support of laparoscopy. No patients needed blood transfusion. None of the patients were converted to laparotomy.

Conclusions: Vaginal hysterectomy is a safe and effective procedure for benign non-prolapsed uteri in women with previous caesarean section scar when uterine size is less than 14 weeks. Standby operating laparoscopy provides added advantages to surgeon in doubtful or difficult cases to avoid conversion laparotomy.

Keywords: Hysterectomy, NDVH, Post LSCS scarred uterus, Vaginal hysterectomy

INTRODUCTION

Hysterectomy is the surgical removal of the uterus, being the commonest major gynecological surgeries done worldwide.¹ Conventionally and historically vaginal hysterectomy is done in cases of utero vaginal prolapse and abdominal route used to be performed in most of other indications.² Subsequently, hysterectomy through vaginal route for nonprolapse uterus popularly known as,

“Non Descent Vaginal Hysterectomy” (NDVH) has proved to be feasible, safe, cost effective and justifiable option in comparison to abdominal route even in large size uterus by various studies.³⁻⁵

In the last two decades, laparoscopic hysterectomy has emerged as the most alternative method, is associated with higher costs, skilled surgeon, specially trained paramedical staff with longer training curve, costly

laparoscopic equipment, longer duration of surgery and relatively higher major risks.⁶ In present days practice, cases of hysterectomy with previous caesarean section scar expanding due to higher caesarean section rates, which has been a relative contraindication for NDVH in fear of encountering adhesion and injury to adjacent organs specially to urinary bladder.^{7,8,9} The size of the uterus, nulliparity, previous pelvic surgery or lower segment caesarean section (LSCS), pelvic adhesions and endometriosis are the commonly cited limitations for vaginal hysterectomy.¹⁰ But now vaginal hysterectomy in larger sized uterus is facilitated by bisection, myomectomy, debulking, coring and clamp less approach etc.¹¹

The present study is undertaken to study safety and feasibility of NDVH in cases with previous scarred uterus namely previous pelvic surgery or lower segment caesarean section as an indication for non-descent vaginal hysterectomy. The aim of the study was to determine the role, feasibility and safety of non-descent vaginal hysterectomy in women with previous caesarean section scar. The objectives of the present study were to determine: -

- a) Duration of surgery and conversion or supplementation with General anaesthesia.
- b) Operative Blood loss requiring blood transfusion.
- c) Intra op and post op complications in form of:
 - Intra operative conversion to laparotomy or Laparoscopic assisted completion for technical difficulty
 - Intra operative Injury to bladder, intestine, rectum or ureters
 - Post-operative laparotomy or laparoscopy for hemorrhagic complication or other complication.
 - Post-operative febrile morbidity, wound infection
 - Prolong hospital stay

METHODS

This was a prospective observational study carried out in tertiary and Zonal level hospitals from Jun 2012 to May 2017.

A total of 72 cases were studied

Inclusion criteria

- Previous pelvic surgery– one, two or three caesarean sections
- Uterine size less than 14 weeks
- Benign uterine condition like fibroid uterus or DUB
- Absence of any degree of utero vaginal prolapse

Exclusion criteria

- Presence of adnexal mass–large ovarian cyst/ endometriosis
- Uterine size greater than 14 weeks

- Uterine malignancies
- Absence of uterine mobility

Seventy-two patients requiring hysterectomy for benign conditions and who had a history of previous caesarean section were selected for the study. They all underwent routine preoperative investigations to rule out any co-morbidity. They also underwent ultrasound pelvis to rule out any other pelvic pathology and for confirmation of uterine size and site of fibroids if any.

Surgical Technique

All were done under spinal anesthesia except cases requiring laparoscopy or ineffective SA where GA was supplemented or converted. Examination under anaesthesia was done to confirm extent of mobility, size of uterus, absence of adnexal mass and degree of descent. The Para cervical tissues were infiltrated with 1:200,000 adrenaline or normal saline where adrenaline was contraindicated. A transverse incision was given on the vesicouterine junction and the bladder pushed up by blunt dissection placing pressure mostly on cervix.

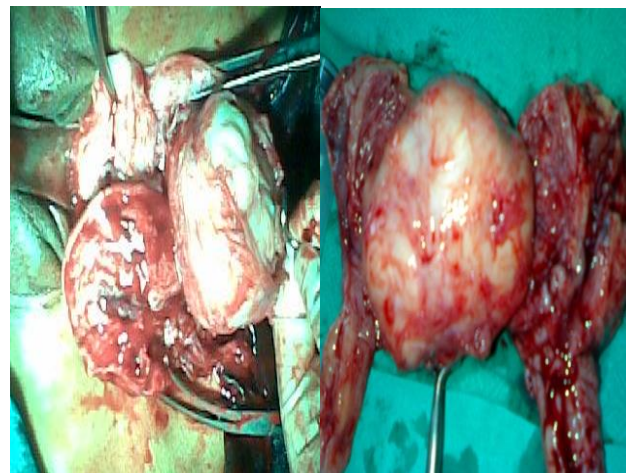


Figure 1: Cases of NDVH with large myomas being managed with bisection and Myomectomy.

Wherever the bladder was found densely adherent to the anterior wall of uterus, cervix or difficulty encountered in separating, either sharp dissection or posterior/lateral approach through unilateral or bilateral window on broad ligaments were undertaken. In most cases, the adhesions were found to be less dense on both sides of the midline. A posterior incision was then given, and the POD opened. The first clamp included part of the uterosacrals and the Mackenrodt's ligament. The second clamp took the rest of the uterosacral ligament. Efforts were made to open anterior pouch before the uterine artery clamps were placed. However, wherever difficulty was encountered opening of anterior pouch were undertaken subsequently. The third clamp was placed over the uterine artery along with the cut edge of the anterior and posterior peritoneum.

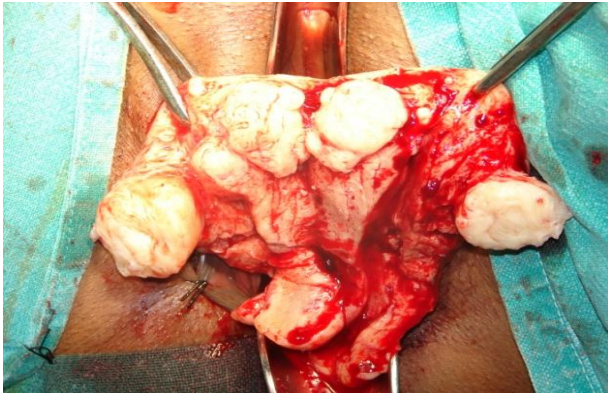


Figure 2: Case of previous 1 LSCS with multiple myomas managed with NDVH.

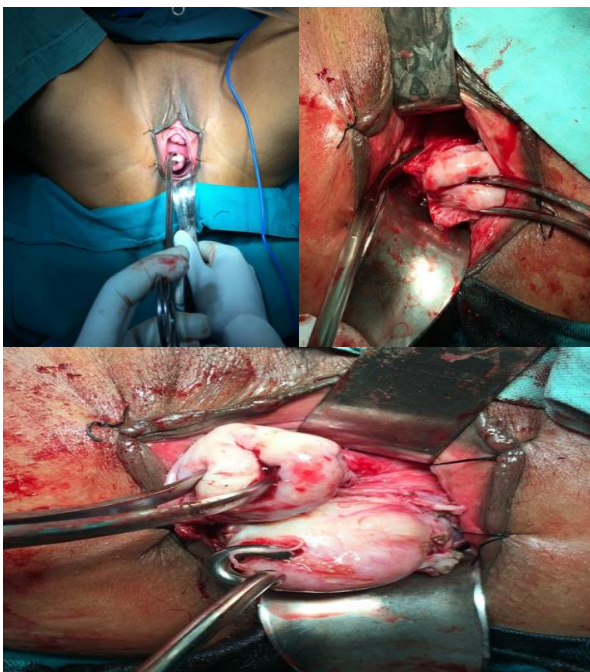


Figure 3: Previous 2 LSCS with false broad ligament fibroid being delivered using myoma screw myomectomy done to enhance operating space.

After the uterine arteries were clamped, depending on the size of the uterus and availability of lateral space, debulking of uterus by using various methods including bisection of uterus, myomectomy, morcellation by coring or wedge resection were done to address upper pedicles.

For bisection the cervix was held on either side and uterus cut sagittally using a knife keeping guard of bladder and rectum. The incision was further extended posteriorly followed by anteriorly till bisection was complete. One hemi- uterus was then pushed inside the pelvis to avail space to deal upper pedicles containing round ligament, fallopian tube, ovarian ligament or infundibulopelvic ligament where ovaries need to be removed. This was repeated on the other half of the uterus. Haemostasis was ensured.

The vault was then closed with continuous suture using No1/1-0 delayed absorbable suture.

All patients were managed postoperatively with IV fluid, prophylactic antibiotics, analgesics as per hospital protocol for major surgery and discharged on 3-5 days post op day depending on individual recovery. Followed up on monthly basis till 03 months.

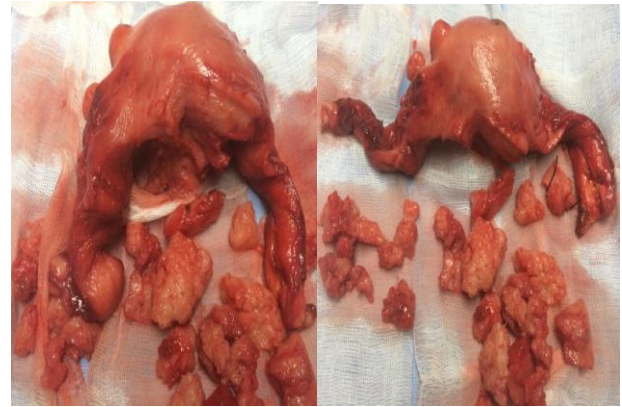


Figure 4: Previous 2 LSCS with 14 wks size uterus – bisection with morcellation done.

The following parameters were measured and recorded.

- a) Blood loss:
 - Measured blood in suction bottle
 - Counted soaked abdominal swab. 24cm X 24cm size swabs were used in all the surgeries. Estimated blood was 20ml if swab was half soaked and 40ml when completely soaked.
- b) Intra op and post op complications
 - Conversion to laparotomy (TAH) or Laparoscopic assisted completion.
 - Post-operative exploration/laparoscopy for hemorrhagic complication
 - Injury to bladder, intestine, rectum or ureters
 - Febrile morbidity – Temp more than 100.4F on two occasions six hrs. apart, after the first 24 hrs. of surgery.
 - Any other symptoms like post op tetanus, diarrhoea, ileus etc.
- c) Duration of surgery and conversion or supplementation with General anaesthesia
- d) Duration of hospital stay
- e) Any complication up to 03 months of follow up

RESULTS

The results were analysed using SPSS 18 and qualitative variables were presented as frequencies and percentages.

The salient features observed from the data obtained are enumerated in the succeeding paragraphs. The maximum number of patients were in the 40 to 49yrs age group (65.5%).

Table 1: Age wise distribution of cases (n=72).

Age Group	Frequency (%)
30-39	06 (8.6%)
40-49	47 (65.5%)
>49 Years	19 (25.8%)

There were 09 (12.5%) cases who have had one delivery, whereas the remaining 63 (87.5%) cases were multipara cases of which 43 cases (59.7%) had 2 caesarean sections without vaginal deliveries. The remaining 20 cases had vaginal delivery before or after caesarean delivery (VBAC).

Table 2: Parity wise distribution of cases (n=72).

Parity	Frequency (%)			
Primipara	09 (12.5%)			
Multipara	63 (87.5%)	Previous	VBAC	Vaginal
		2 LSCS		birth
				before
		43 (59.7%)	15 (20.8%)	LSCS 05 (6.9%)

The most common indication for undergoing vaginal hysterectomy was dysfunctional uterine bleeding which accounted for 43 %, followed by fibroid uterus which accounted for 30.5% of the cases. Maximum number of 42 cases (58.3%) was done with uterine size upto 8 weeks, followed by 15 (20.8%) cases with size of 8-10 wks. 6 (8.3%) of cases were having maximum size of uterus of 12-14 weeks. Only in 10 cases (13.8%), the uterus could be removed out in toto. In 28 cases (38.9 %), the uterus was bisected to facilitate clamping of the upper pedicles.

Table 3: Indications for Hysterectomy (n=72)

Indication	Frequency (%)
DUB	31 (43)
Fibroid Uterus	22 (30.5)
Adenomyosis	09 (12.5)
Endometrial Hyperplasia	10 (13.8)

Table 4: Case distribution according to uterine size.

Uterine Size	No of cases	Percentage
< 8 weeks	42	58.3
8-10 weeks	15	20.8
10-12 weeks	9	12.5
>12 weeks	6	8.3

Enucleation of myoma was done in 10 (13.8%) cases. Combination of techniques were undertaken in 16 (22.2%) Morcellation/wedge resection was done in 8(11.1%) cases. Only NDVH was done in 57 (79.2%)

cases, while NDVH with bilateral salpingo-oophorectomy was done in 09 (12.5%) cases.

Tension free vaginal tape for associated stress urinary incontinence was done in 06 (8.3%) cases. The longest operating time more than 120 min. were in 9 cases which included 02 bladder injury, 01 case of superficial rectal injury, 03 cases with 14 weeks size uterus with previous 2 LSCS, 02 cases requiring per operative diagnostic laparoscopy for confirmation of intraoperative haemorrhage.

Table 5: Surgical procedure/debulking undertaken.

Procedure	Frequency	%
Removal of Intact Uterus	10	13.8
Bisection	28	38.9
Myomectomy	10	13.8
Morcellation	8	11.1
Combination technique	16	22.2

Table 6: Adjuvant Procedures Done

Adjuvant Procedures	Frequency	%
NDVH Only	57	79.2
NDVH with BSO	09	12.5
NDVH with TVTO-O/TOT	06	8.3

The blood loss ranged from 40 to 240 ml with a mean loss of 100 ml. The average hospital stay was 04 days with the longest stay being 08 days. Two patients had bladder injury whilst separating the bladder, 01 had iatrogenic superficial rectal injury during posterior culdotomy. These were identified and repaired vaginally during the surgery. Eight patients had diarrhoea in the first forty-eight hours postop and were treated conservatively. Two cases required support of laparoscopy to exclude intraoperative haemorrhage.

Table 7: Duration of surgery.

Surgical time (Min)	Frequency	%
<60	24	33.4
60-90	30	41.7
90-120	12	16.6
>120	6	8.3

Table 8: Intraoperative blood loss.

Blood loss (ml)	Frequency	%
<100	28	38.8
100-150	35	52.7
>150	9	12.5

Four patients developed vault granuloma, which were cauterized under anaesthesia. They presented with persistent spotting even after one month of surgery. Only one patient had UTI and febrile morbidity, which

responded to antibiotics. None of the patients had to be converted to abdominal hysterectomy.

Table 9: Quality indicators.

Quality Indicators	Assessment
Avg Operation Time	58 Min
Avg Blood Loss	100 MI
Avg Hospital Stay	4 Days

Table 10: Operative injuries and post-operative complications.

Complications	Frequency
Bladder injury	02
Ureter injury	Nil
Bowel injury	01
Slipping of pedicle	Nil
Febrile morbidity	One
Assistance of laparoscopy	02
Secondary haemorrhage	Nil
UTI	One
Diarrhoea	08

DISCUSSION

The commonly opted route for hysterectomy by most gynaecologists is the abdominal route. Thomas G Stovall et al found that the abdominal route was the approach in 70% to 80% of hysterectomies and utero-vaginal prolapse was generally an indication for vaginal approach.¹² However, it is an undisputed fact that vaginal hysterectomy can easily be performed with adequate vaginal access and good uterine mobility. A partial descent can be obtained by ligating and cutting Mackenrodt's and uterosacral ligaments. The commonest reason for selecting an abdominal route for surgery is a previous pelvic surgery especially, a caesarean section. In present study we have found that up to 14 weeks size uterus with good mobility, NDVH can be done with minimal complications.

Most common indication of NDVH in present study was dysfunctional uterine bleeding (43%) and second most common indication was fibroid (30.5%). Shital Mehta et al, Bhadra B et al also reported DUB as a most common indication.^{13,14} Most common age group for non-descent vaginal hysterectomy was 40-49 years (65.5%). This was similar to studies of Bhadra B et al and Ray A et al.^{14,15}

Maximum number of cases were multiparous in present study (87.5%). The surgery is generally easier in a multiparous woman because of laxity of ligaments, uterine mobility and roomy vagina. This was true if there was a previous vaginal delivery in present study. However, the presence of only caesarean delivery in multiparous woman did not increase the laxity of ligaments or the roominess of the vagina. These findings are similar to the study by Unger JB et al of 35 patients

with previous caesarean section where presence of previous vaginal delivery improved the ease of doing an NDVH.¹⁶

Mean time for operation in this study was 58 minutes. Mean blood loss was 110 ml. No cases required blood transfusion. Operating time and blood loss were directly proportional to the size of uterus and presence of fibroid. Most of the patients were discharged within 4 days. The stay was shorter than the average stay of 5-7 days for abdominal hysterectomy in our hospital. Doucette RC et al and Magos A et al have reported an average hospital stay of 2-5 days.^{17,18} Nayana et al studied 10 cases of NDVH done in women with previous LSCS and had similar findings – mean duration of 50 mins with mean blood loss of 150 ml. The mean hospital stay in the study was 4 to 5 days.⁹

In 86 % cases, additional morcellation techniques were used. This is similar to 79.74% of Bhadra B et al.¹⁴ Different techniques like bisection, bisection with enucleation of myoma and wedge resection were used in this study. There was minimal blood loss in these procedures, once bilateral uterine vessels were ligated. Different morcellation techniques could be used safely to remove vaginally fibroids up to 16 weeks size– Gimbel H et al.¹⁹ We did not use Lash's method of coring in present study.²⁰ We had two bladder injury in the initial phases of present study, which was recognized and repaired vaginally. Mathevet P et al in a study of 3076 vaginal hysterectomies, found that the incidence of urinary and intestinal tract injuries was 1.7 and 0.5% respectively.²¹ Operative injuries during vaginal hysterectomy were relatively rare and could be easily recognized and treated during the initial surgery.

In present study, in five cases, we applied TVT-O/ TOT for stress urinary incontinence after doing NDVH. This was an added advantage. Operative time, blood loss, anaesthetic complications, chance of injury to bowel, bladder and ureter, bowel handling leading to paralytic ileus were minimal in present study. Shwarz R et al and Del Frat G et al in their study found that the merits of vaginal approach included shorter hospital stay, fast recovery, low cost, less thrombo-embolic phenomena, less mortality and morbidity.^{22,23}

In present study in 72 patients there was two bladder injuries due to dense adhesions and larger uterine size as compared to 03 bladder injuries by Sheth SS et al in a study of 200 patients with previous pelvic surgeries.²⁴

CONCLUSION

Thus, present study concludes that non-descent vaginal hysterectomy is feasible, safe and efficacious for moderately enlarged uterus up to 14 weeks in a patient with previous caesarean section. Vaginal hysterectomy in a patient with previous caesarean section and a uterine size less than 14 weeks is technically challenging and

may not increase the complication rates like conversion to laparotomy and increased blood loss. Standby operating laparoscopy provides added advantages to surgeon in cases of doubtful intra or postoperative haemostasis and to avoid laparotomy.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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