International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Rathore T et al. Int J Reprod Contracept Obstet Gynecol. 2026 May;15(5):1674-1677
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/ 10.18203/2320-1770.ijrcog20261266

Original Research Article

Impact of previous caesarean section on outcomes of non-descent vaginal hysterectomy: a prospective comparative study

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Received: 04 March 2026
Accepted: 04 April 2026

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ABSTRACT

Background: With rising caesarean section rates, an increasing number of women undergoing hysterectomy have a scarred uterus. Previous lower segment caesarean section (LSCS) is often considered a relative limitation for non-descent vaginal hysterectomy (NDVH) due to concerns regarding adhesions and bladder injury. This study aimed to prospectively compare perioperative outcomes of NDVH in women with and without prior LSCS.
Methods: This prospective comparative observational study was conducted at a tertiary care centre from February 2024 to January 2025. Fifty women undergoing NDVH for benign indications were enrolled and divided into two groups: group A included women with previous lower segment caesarean section (LSCS) (n=10), and group B included women with no prior surgery (n=40). Operative time, estimated blood loss, intraoperative and postoperative complications, and conversion rates were compared. Statistical analysis was performed using the Mann–Whitney U test and Fisher's exact test, with $p<0.05$ considered statistically significant.
Results: Baseline demographic parameters were comparable between the two groups. Mean operative time was 43±6 minutes in LSCS group versus 49±7 minutes in control group (p=0.08). Mean blood loss was 85±20 ml versus 120±25 ml (p=0.06). Conversion rate was 10% versus 5% (p=0.52). One case in previous LSCS group required conversion due to dense anterior abdominal adhesions and positive Sheth's sign, while two cases in no prior surgery group were converted due to large transverse diameter of uterus. No bladder or bowel injury occurred in either group. Prophylactic salpingectomy was feasible in the majority of cases in both groups.
Conclusions: In this prospective cohort, previous LSCS was not associated with increased perioperative morbidity during NDVH. Larger studies are required to confirm these findings.

Keywords: Non-descent vaginal hysterectomy, Caesarean section, Vaginal hysterectomy, Surgical outcomes

INTRODUCTION

Vaginal hysterectomy is widely regarded as the preferred route for hysterectomy in women with benign gynecological conditions owing to lower perioperative morbidity, faster recovery, and reduced healthcare costs compared with abdominal or laparoscopic approaches. Several guidelines recommend the vaginal route whenever feasible, irrespective of previous abdominal surgery.[1-3]

With rising caesarean section rates globally, an increasing proportion of women presenting for hysterectomy have a scarred uterus. Traditionally, previous caesarean section has been considered a relative contraindication to non-descent vaginal hysterectomy due to concerns regarding pelvic adhesions, altered anatomy, and increased risk of bladder injury.[4,5] However, recent evidence suggests that previous caesarean delivery alone does not significantly increase perioperative complications during vaginal hysterectomy when appropriate patient selection and surgical expertise are ensured.[6-9]

Most studies evaluating non-descent vaginal hysterectomy (NDVH) in women with previous caesarean section are

retrospective and lack a direct comparison with women without prior surgery.[7-10] Prospective comparative data assessing outcomes between scarred and non-scarred uteri remain limited. The present study was undertaken to prospectively compare NDVH outcomes in women with and without previous lower segment caesarean section (LSCS).

METHODS

Study design and setting

This prospective comparative observational study was conducted in the Department of Obstetrics and Gynaecology, Sant Parmanand Hospital, Delhi, from February 2024 to January 2025.

Study population

Fifty women undergoing NDVH for benign gynecological indications were included. Participants were divided into two groups - group A: previous LSCS (n=10), and group B: no prior surgery (n=40).

Surgical technique

All procedures were performed by a single senior surgeon experienced in non-descent vaginal hysterectomy, using a standardized surgical technique. Bladder dissection and uterine morcellation steps were uniform across cases to minimize inter-operator variability.

Inclusion criteria

Women undergoing NDVH for benign gynecological indications with a uterine size ≤14 weeks and adequate uterine mobility were included.

Exclusion criteria

Women with suspected malignancy, pelvic organ prolapse, severe endometriosis, or uterine size >14 weeks were excluded.

Outcome measures

Primary outcomes included operative time, estimated blood loss, intraoperative and postoperative complications, and conversion rates. Feasibility of prophylactic salpingectomy was also assessed.

Statistical analysis

As no prior institutional data were available for precise calculation, a convenience sample of 50 patients during the study period was included. Continuous variables were analysed using the Mann–Whitney U test, and categorical variables using Fisher's exact test. A p value <0.05 was considered statistically significant. Ethical approval for the study was obtained from the Institutional Ethics Committee of Sant Parmanand Hospital, Delhi, and written informed consent was obtained from all participants.

RESULTS

Baseline demographic characteristics, including age and parity, were comparable between the two groups, with no statistically significant differences (Figures 1 and 2).

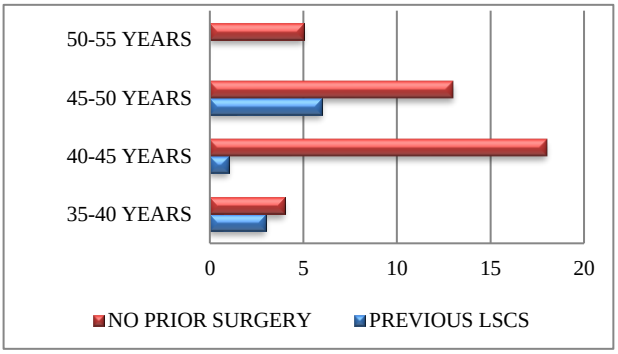

Figure 1: Age distribution of study participants in both groups.

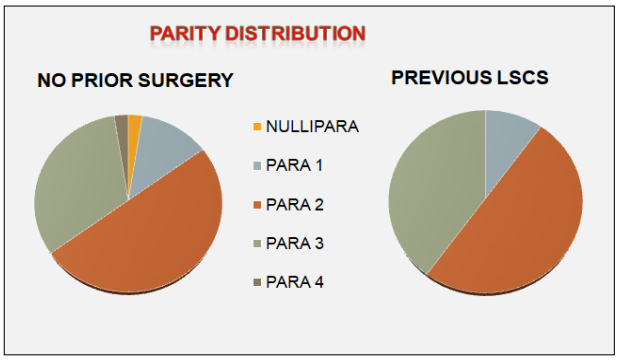

Figure 2: Parity distribution of study participants in both groups.

Table 1: Operative parameters comparison between groups.

Parameters	Previous LSCS (group A, n=10)	No prior surgery (group B, n=40)	P value
Mean uterine size (in weeks of gestation)	10±2	10±2	0.91
Mean operative time (in minutes)	43±6	49±7	0.08
Mean blood loss (in ml)	85±20	120±25	0.06

Mean operative time and blood loss were numerically lower in the LSCS group; however, the differences did not reach statistical significance (Table 1).

Intraoperative and postoperative complications were minimal and comparable in both groups. No bladder or bowel injuries were encountered (Table 2). One patient in group A required conversion to laparoscopic-assisted vaginal hysterectomy due to dense adhesions and a positive Sheth's sign (Figure 4). Two patients in group B required conversion to laparotomy due to a large fibroid uterus with increased transverse uterine diameter (Figure 5).

Prophylactic salpingectomy was feasible in the majority of cases in both groups. In a few cases, salpingectomy could not be performed due to high and inaccessible fallopian tubes.

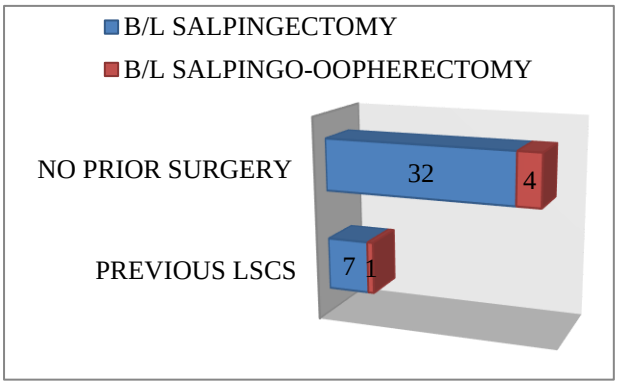

Figure 3: Feasibility of prophylactic salpingectomy.

Table 2: Complication rates.

Outcomes	Previous LSCS (group A, n=10)	No prior surgery (group B, n=40)	P value
Completion rate	9 (90%)	38 (95%)	0.56
Conversion	1 case (10%)	2 cases (5%)	0.52
Severe morbidity	None	None	

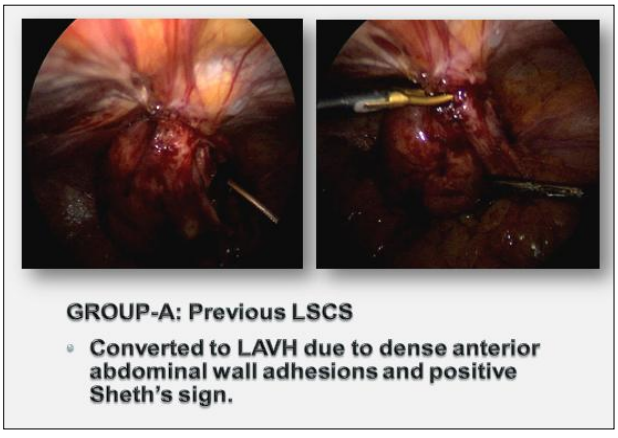

Figure 4: Intraoperative findings in converted case (group A).

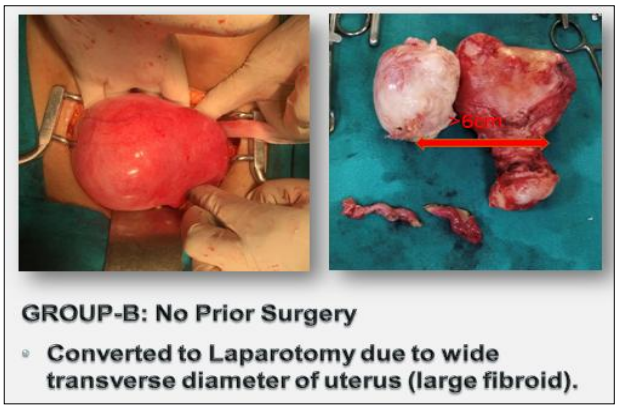

Figure 5: Intraoperative findings in converted case (group B).

DISCUSSION

The present study adds prospective comparative evidence to the limited literature evaluating the impact of previous caesarean section on NDVH outcomes. The findings of this study demonstrate that previous caesarean section does not independently influence NDVH outcomes. Operative parameters, complication rates, and conversion rates were comparable between women with and without previous LSCS.

Previous studies have reported comparable operative times between women with and without prior caesarean section.[6,7] In our study, operative time was slightly lower in the LSCS group. However, the difference was not statistically significant.

Previous studies have also demonstrated that blood loss during NDVH is not significantly influenced by prior caesarean section.[6] In the present study, the mean blood loss was 85+20 ml in the LSCS group compared to 120+25 ml in women with no prior surgery. However, this difference was not statistically significant, suggesting that previous LSCS may not independently influence intraoperative blood loss.

The absence of statistically significant difference suggests that previous LSCS may not independently contribute to operative difficulty when adequate uterine mobility is ensured.

Sheth reported conversion rates ranging from 3-12% in women with previous caesarean section.[5] Our conversion rate of 10% is comparable to published literature.

Bladder injury remains a theoretical concern in scarred uteri due to vesicouterine adhesions. However, no bladder injuries were encountered in our study, suggesting that prior caesarean section does not necessarily increase the risk of such complications when careful surgical technique is employed. These findings are consistent with previously published studies.[6,7] These findings are also in accordance with recommendations by the American College of

Obstetricians and Gynecologists, which support the vaginal route whenever feasible.[13]

With increasing caesarean section rates in India, safe vaginal surgical options remain essential to reduce morbidity and healthcare costs.

Unlike most previously published retrospective series, the present study provides prospective comparative data with a non-scarred control group and uniform surgical technique by a single experienced surgeon, thereby minimizing selection and operator bias. Such structured prospective data from Indian settings remain limited.

Limitations of this study include the relatively small sample size, unequal group distribution, lack of long-term follow up and single-centre design, which may limit generalizability. The study may be underpowered to detect small differences due to unequal group distribution and limited sample size in the LSCS cohort.

CONCLUSION

In this prospective cohort, previous caesarean section was not associated with increased perioperative morbidity. Large adequately powered studies are required to confirm these findings. With careful patient selection and surgical expertise, NDVH can be safely performed in women with previous LSCS, with outcomes comparable to those without prior surgery.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Rathore T, Bathla S, Jain S. Impact of previous caesarean section on outcomes of non-descent vaginal hysterectomy: a prospective comparative study. Int J Reprod Contracept Obstet Gynecol 2026;15:1674-7.