

Original Article**Abdominal Sacro-Colpopexy Surgery for Vaginal Vault Prolapse at Nobel Medical College Teaching Hospital****Munjal Yadav*, Gehanath Baral**

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Article Received: 20th November, 2024; Accepted: 28th December, 2024; Published: 31st December, 2024DOI: <https://doi.org/10.3126/jonmc.v13i2.74461>**Abstract****Background**

Post-hysterectomy vault prolapse is an uncommon late complication of hysterectomy. Women often experience restrictions in physical, emotional, and social functioning which decreases the overall quality of life. Vaginal vault prolapse can be treated by pelvic floor muscle training, pessary insertion, and surgery. Abdominal sacro-colpopexy is a procedure that surgically corrects vault prolapse using prolene mesh to lift and hold the vaginal vault in the correct anatomical position. The study aimed to determine the success rate and complications of abdominal sacro-colpopexy when performed by an experienced surgeon.

Materials and Methods

Observational descriptive study performed from June 2022 to December 2023 for 18 months at Nobel Medical College Teaching Hospital, Biratnagar, Nepal. All consecutive cases of vault prolapse surgeries were taken. Outcome measures were success rate and the potential complications post-operatively.


Results

The post-hysterectomy vault prolapse surgery was around 1% out of all gynecological surgeries. Most of them were asymptomatic in a median follow-up of 6 months. There were no complications of surgery. Almost all patients resolved their prolapse symptoms well, while none required further surgery.

Conclusion

Abdominal sacro-colpopexy is a safe and effective surgical method for post-hysterectomy vault prolapse.

Keywords: *Abdominal sacrocolpopexy, Hysteropexy, Sacrocolpopexy, Vault prolapse*

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Introduction

Vault Prolapse according to the International Urogynecological Association/ International Continence Society is defined as the descent of the apex of the vagina or vaginal vault after a hysterectomy. Vault Prolapse occurs due to either weakening of the supporting structures of the top of the vagina or when these supporting structures are not anchored properly at the time of initial surgery [1]. Risk factors for vault prolapse include age, parity, increased abdominal pressure, and connective tissue disorders [2].

Globally, the prevalence of pelvic organ prolapse (POP) is between 2.9% and 8% whereas in Nepalese women is 8% [3, 4]. Post-hysterectomy Vault prolapse (PHVP) is an uncommon late complication of hysterectomy with a reported incidence rate of 11.6% of hysterectomies performed for uterovaginal prolapse and 1.8% for other benign diseases [5]. Symptoms of PHVP are the vaginal bulge/protrusion and adjacent bladder, bowel-related symptoms, and sexual dysfunction [6]. The factors influencing the selection of surgical approach can include the degree of apical prolapse, surgeon's training, patient preference, comorbid conditions, coexisting pathologic processes, and additionally planned prolapse surgical procedures [7]. Abdominal sacrocolpopexy (ASC) is a procedure that surgically corrects POP by the use of mesh to hold the vagina in the correct anatomical position [8]. ASC is the gold standard procedure as it restores the anatomical alignment of pelvic organs.

This study aimed to determine the success rate and complications of ASC surgery when performed by an experienced surgeon. Limited published literature on this topic exists in Nepal's context, so the experience of ASC surgery at this center has been described.

Materials and Methods

An observational descriptive study has been performed between June 2022 and December 2023. Consecutive patients with vaginal vault prolapse treated with an abdominal sacrocolpopexy (ASC) surgery performed in the Department of Obstetrics and Gynaecology were taken.

Preoperative data were collected on age, parity, the indication of previous surgery, duration from previous surgery, symptoms associated with genital prolapse, and pre-existing symptoms of stress urinary incontinence, dyspareunia, or anal incontinence were noted. The degree of prolapse

was scored according to the Halfway Grading System as described by Baden and Walker[9]. All patients were preoperatively assessed and the prolapse was graded into one of three grades: grade 1 where the prolapse descended into the upper half of the vagina, grade 2 where the prolapse descended into the lower half of the vagina and into the introitus, and grade 3 where the prolapse descended past the introitus. All patients in the current study presented with grade 3 vaginal vault prolapse and were considered for surgery. (Figure 1)

Informed written consent was taken after explaining the purpose, risk, and benefit of the procedure.

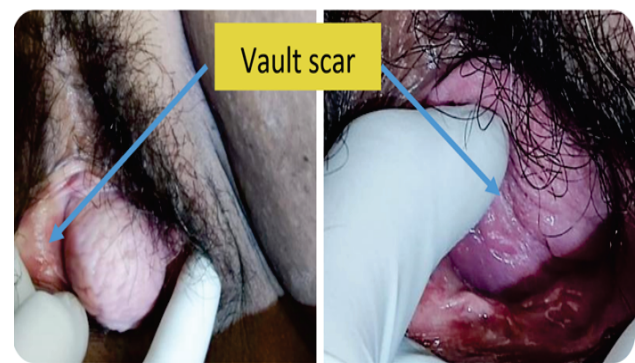


Figure 1: Vault prolapse with vault scar shown by arrow.

Surgical technique: At the beginning of the surgery, a Y-shaped mesh was prepared with the upper main limb and lower two anterior and posterior limbs. (Figure 2)

All procedures were performed using a lower median incision. The bowel was packed off, vault was lifted up on either side of its lateral aspect by using Allis tissue forceps.

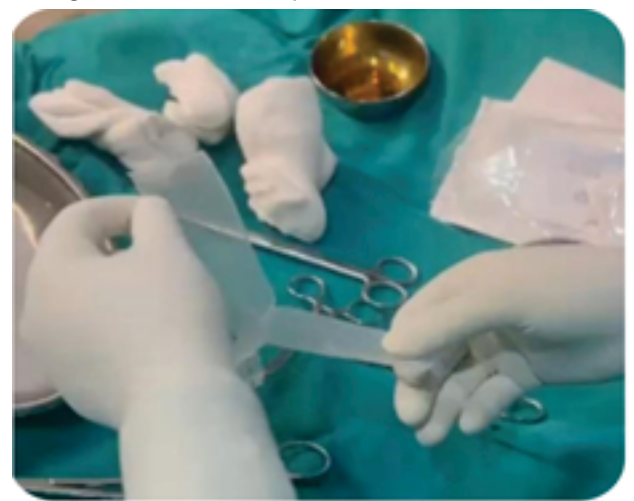


Figure 2: Prolene mesh folded longitudinally, stitched with Prolene 2-0 transversely at the middle, and split at the folded edge of one-half to make a y-shaped limb at one end.



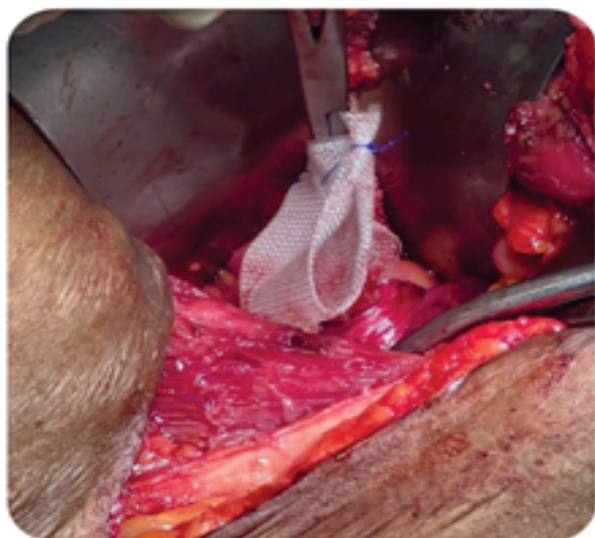


Figure 3: The folded upper end of the Prolene mesh is to be stitched to the anterior longitudinal ligament of the sacral vertebra.

The pre-sacral retroperitoneal space was entered with care to avoid injury to the sacral venous plexus and the middle sacral vessels. The main limb of prolene mesh was sutured to the anterior longitudinal ligament above the sacral promontory and the two lower limbs were stitched anterior and posterior vaginal walls. (Figures 2 and 3) The mesh was covered with peritoneum to prevent mesh erosion. The gelatin surgical sponge was kept prophylactically beneath the mesh to stop capillary bleeding.

In the case of sacro-hysteropexy, one end of the mesh limb was sutured to the anterior longitudinal ligament above the sacral promontory whereas the other end was stitched to one-half of the anterior and posterior aspect of the cervix.

In this study, no obliteration of the pouch of Douglas was performed routinely according to the belief that the colpexy itself promotes obliteration of the Douglas pouch [10].

Each case was followed up after a week for suture removal and inquired about any new complaints; thereafter, every three months for six months by telephone. Because the same surgeon operated on all the patients, perioperative treatment was almost the same throughout. Considering an average of 7% rate of vaginal vault prolapse, around 25 cases would suffice for the study [11]. Statistical analysis was performed using descriptive statistics, and the results are displayed in tables and figure.

Results

The total reported hysterectomies were 1042 and 10 surgeries for vault prolapse. There were 10 abdominal sacrocolpexy for vault prolapse

and one case of uterine prolapse with hysteropexy. It was around 1% of total hysterectomies in a year in the Department. The mean age of the patients was 59 years (range 47-68) and the median parity was three. All patients were discharged on the third postoperative day. Three patients were smokers and two patients had a history of COPD but there were no intraoperative or postoperative complications on them.

Two-thirds of the cases had prior prolapse surgery and one-third had abdominal hysterectomies. (Table 1)

Table 1: Indications of previous surgeries (N=10)

Diagnosis	Frequency
UV Prolapse	6
AUB-L	1
Chronic PID	1
Not known	2

Six out of 10 cases had abdominal surgeries including one laparoscopic surgery. (Table 2)

Table 2: Route of previous surgeries (N=10)

Route	Frequency
Abdominal	5
Vaginal	4
Laparoscopic	1

Most of the previous surgeries were done around Biratnagar only. (Table 3)

Table 3: Place of previous surgeries

Place of past surgery	Frequency
Biratnagar	6
KTM	1
India	3

Most of the patients arrived hospital after five years of hysterectomies. (Table 4)

Table 4: Duration of previous surgeries

Duration in years	Frequency
<5	1
5-10	7
>10	2

The main presentation of the cases were past history of hysterectomy and vaginal fullness. (Figure 4)

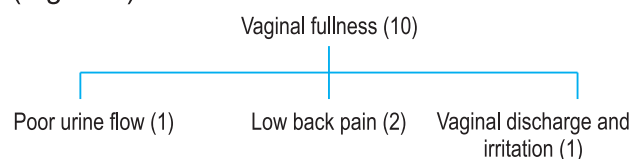


Figure 4: Presenting complaints of the cases



Besides three cases requiring blood transfusion, there were no other complications.

Discussion

A large study from Austria estimated the frequency of Post Hysterectomy Vault Prolapse (PHVP) requiring surgical repair to be between 6% and 8% [11]. However, it was only 1% in this study. The mean age of patients was 64 years and the median parity was 4 in a retrospective cohort study done on 41 patients in south koreawhereas the mean age in this study was 59 years and the median parity of 3 [12]. Women with no symptoms of prolapse after surgery were considered successful outcomes. In a study conducted in the Netherlands on 40 patients, 23 patients (57%) were satisfied with the result and had no complaints related to prolapse[13].If only vaginal 'protrusion' was considered, 34 patients were without prolapse symptoms (85%) whereas in the current study, almost all 9 out of 10 patients were satisfied with the results except one who had backache on a 3-month follow-up that was also relieved with medication and time by 6th month follow up. Mean patient satisfaction with the surgery was 100%. There were no serious postoperative complications except 3 patients requiring blood transfusion and all cases resulted in good vaginal function.

Studies on this topic are lacking due to the low prevalence of vaginal vault prolapse and the lack of application of standardization of the prolapse scoring system. Advancement of surgical techniques for hysterectomy may be responsible for decreasing rates of vault prolapse.

The success rates of abdominal sacrocolpopexy found in publications were different. (Table-6)

Table 5: Success rates of surgery

Author	Reference	Year	Frequency	Follow-up	Success rate %
Sung Yob Kim	12	2022	41	10 years	73.2%
Ingrid E.	14	2004	2178	Review (1966-2004 AD)	78-100%
Mayer	15	2004	47	2years	76% (objective), 94% (subjective)
Hilger	16	2003	69	13 years	74%
Geomini P.M.	13	2000	40	6 years	93%

Interpretation of these results is influenced by surgical techniques, expertise, surgical setup, application of standardized quantification prolapse score, number of patients, and duration of follow-up. Surgical management is a challenge because of its connection with other bowel and urinary complications and it often unmasks other problems after surgery like stress urinary inconti-

nence. Treatment of vault prolapse requires an individualized approach because the differences in the history and presentation of each patient are unique. Based on the experience of different authors, recommendations have been suggested in order to improve the long-term surgical outcome.

Because all surgical procedures and perioperative care were performed by the same surgeon under the same conditions in the present study, the impact of other potential factors was minimized. There were no postoperative complications such as fever, mesh complications, hernia, hematoma formation, wound dehiscence, wound infection, and repeat prolapse surgery. The peritonization of the Prolene mesh is frequently recommended to prevent intestinal adhesions by leaving no uncovered mesh, to prevent intestinal obstruction and mesh erosion. In a study on 40 patients in the Netherlands, two out of 40 experienced a transitory phase of subileus that resolved with conservative management requiring no further surgery [13]. Also in a Scandinavian study on 35 patients that underwent mesh peritonization during abdominal sacrocolpopexy, three patients developed intestinal obstruction requiring laparotomy [17]. In the current study, the mesh was covered with peritoneum, and no postoperative complications were encountered. Therefore, we prefer burying the mesh under the peritoneum.

A systematic review of observational studies-reported long-term success rates of 78-100%, but mesh erosion was found in 2–11% of cases [14]. Serious complications such as bowel injury, sacral myelitis, and severe bleeding have an estimated incidence of 2% (range 0–8%). A systematic review on sacral colpopexy included 5,639 patients from 52 studies with a mean follow-up of 26.5 months [18]. This group addressed studies including 39 sacral colpopexy by laparotomy, 10 by laparoscopic, and 3 sacrohysteropexy studies. The mean complication rate was 17.1% (range 0–52.2) which was managed expectantly (5.5%) and with pharmacologic intervention (5.8%). Pain (2.3%), mesh erosion (2.2%), visceral injury (1.7%), and wound complications (1.5%) were the most common complications. There were 31 cases of dehiscence in the sacral colpopexy group compared with seven and four in the traditional vaginal surgery and mesh kit groups, respectively. Pulmonary emboli and deep vein thrombosis cases were reported more commonly after sacral colpopexy.

Visceral injury and mesh erosion led to repeat



surgery (2.2%) in the sacral colpopexy group when compared to the vaginal mesh group. Although the laparoscopic approach in abdominal surgery is winning the ground, we cannot assure the vault suspension. A systematic review conducted by Maher et al found that ASC is significantly associated with a lower risk of awareness of prolapse, recurrent prolapse on examination, and repeat surgery for prolapse. The laparoscopic approach has been shown to have reduced blood loss when compared to the open approach [19]. The robotic approach with ASC is also associated with a faster learning curve with Geller et al reporting that after 20 cases, the overall time needed to perform the cases decreases dramatically [20]. The limitation of this study was the small sample size due to the rarity of this case in clinical practice nowadays.

Conclusion

The overall success of abdominal sacrocolpopexy surgery for Post-hysterectomy vault prolapse is high with low perioperative complications. Further research on recurrent vaginal vault prolapse along with the impact of this procedure on anatomic and functional outcomes is suggested.

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Conflict of interest: None

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