A Streamlined Surgical Approach to Laparoscopic Sacrocolpopexy for Post-Hysterectomy Vault Prolapse

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Abstract

Objective: To describe a streamlined laparoscopic sacrocolpopexy (LSCP) surgical technique in women with post-hysterectomy vault prolapse and to evaluate the functional outcomes, complication rates, and surgical morbidity within our centre.

Methods: We retrospectively reviewed the charts of 180 patients scheduled for LSCP between November 2002 and May 2013 in a tertiary care centre. Patients were followed-up at six weeks, six months, and yearly after surgery. We reviewed patient demographics, preoperative and postoperative symptoms, and perioperative variables. Objective success of the surgery was defined as having a less than stage 2 vault prolapse, and subjective success was defined as the absence of bulge or prolapse symptoms. Success and complication rates were calculated.

Results: Of the 180 patients who underwent surgery, 144 patients underwent the procedure as planned and had at least six months of follow-up. At the last follow-up visit, 133 of these 144 patients (92.4%) were free of prolapse symptoms. Several bladder and bowel symptoms showed significant improvement. Anatomical success of vault support was achieved in 140 of 144 patients (97.2%), and 119 patients (82.6%) had no prolapse beyond the hymen. Early complications (within the first 6 weeks) occurred in 8.3% of 162 patients with limited outcome data, and late complications (after 6 weeks) occurred in 11.5% of the 144 patients with long-term data. There were no cystotomies or mesh exposures.

Conclusion: At an average of 32 months, this cohort of patients had low prolapse recurrence rates and no reports of cystotomy or mesh erosion. The abridged LSCP technique, as practised in our institution, is safe and effective in the surgical management of post-hysterectomy vault prolapse.

Key Words: Laparoscopic sacrocolpopexy, LSCP, mesh, outcomes, post-hysterectomy, prolapse

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Résumé

Objectif : Décrire une technique chirurgicale simplifiée pour la tenue d'une sacrocolpopexie laparoscopique (SCPL) chez des femmes présentant un prolapsus post-hystérectomie du dôme vaginal et évaluer les issues fonctionnelles, les taux de complication et la morbidité chirurgicale au sein de notre centre.

Méthodes : Nous avons mené une analyse rétrospective des dossiers de 180 patientes qui devaient subir une SCPL entre novembre 2002 et mai 2013 au sein d'un centre de soins tertiaires. Les patientes ont bénéficié d'un suivi à six semaines et à six mois; par la suite, un suivi annuel a été mis en œuvre. Nous avons analysé les caractéristiques démographiques des patientes, les symptômes préopératoires et postopératoires, ainsi que des variables périopératoires. La réussite objective de la chirurgie a été définie comme la constatation subséquente d'un prolapsus du dôme vaginal d'un stade inférieur à 2, tandis que la réussite subjective de cette intervention a été définie comme l'absence de bombement ou de symptômes associés au prolapsus. Les taux de réussite et de complication ont été calculés.

Résultats : Parmi les 180 patientes qui ont subi la chirurgie, 144 ont subi l'intervention telle que planifiée et ont bénéficié d'un suivi d'au moins six mois. Au moment de la dernière consultation de suivi, 133 de ces 144 patientes (92,4 %) ne connaissaient aucun symptôme associé au prolapsus. Plusieurs symptômes vésicaux et intestinaux ont connu une atténuation significative. Une réussite anatomique quant au soutien du dôme a été obtenue chez 140 des 144 patientes (97,2 %); de plus, 119 patientes (82.6 %) ne présentaient plus de prolapsus au-delà de l'hymen. Des complications précoces (au cours des six premières semaines) se sont manifestées chez 8,3 % des 162 patientes pour lesquelles nous ne disposions que de données limitées quant aux issues, tandis que des complications tardives (après six semaines) se sont manifestées chez 11,5 % des 144 patientes pour lesquelles nous disposions de données à long terme. Aucun cas de cystotomie ou d'exposition du treillis n'a été constaté.

Conclusion : À une moyenne de 32 mois, cette cohorte de patientes présentaient de faibles taux de récurrence du prolapsus et aucun cas de cystotomie ou d'érosion du treillis n'avait été signalé. La technique SCPL simplifiée, telle que pratiquée au sein de notre établissement, est sûre et efficace pour la prise en charge chirurgicale du prolapsus post-hystérectomie du dôme vaginal.

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INTRODUCTION

Open sacrocolpopexy, with the use of mesh, has long been considered a successful and safe surgical procedure and has become the standard of care in the management of women with post-hysterectomy vault prolapse.[1] However, in the last two decades, minimally invasive surgery has advanced dramatically; laparoscopic sacrocolpopexy (LSCP) provides the potential to combine the success rate of an abdominal approach with the faster recovery time and minimal morbidity associated with a minimally invasive technique.[2,3] Unfortunately, the time required to become proficient in the procedure, some technical difficulties in performing the procedure, and the frequent increase in operating time required by an unskilled surgeon have greatly limited its use.[4] While adhering to the basic principle of this procedure, many variations in surgical technique have been introduced; however, good quality data to support use of one technique over another are limited.[5]

Mesh erosion after sacrocolpopexy remains a problem, although generally it is less frequent than with vaginal mesh kits; the average rate for post-hysterectomy patients is 3% to 4%, and when a total hysterectomy or vaginal hysterectomy is performed concomitantly the rate can be up to 16% to 32%.[6]

Our tertiary care centre uses a surgical technique that avoids the dissection of the peritoneum or bladder from the vaginal wall and peritoneal covering of the mesh. Using this technique, it may be possible to reduce the incidence of cystotomy and mesh erosion or to eliminate these complications entirely and to shorten the surgical time.

We describe here our technique and examine the functional outcomes, complication rates, and surgical morbidity of LSCP at our centre, seeking to demonstrate that LSCP using our streamlined surgical technique is a useful alternative in the treatment of post-hysterectomy patients with vault prolapse.

METHODS

We reviewed the medical charts of all patients who underwent LSCP performed by a single surgeon (D.L.) between November 2002 and May 2013 at Mount Sinai Hospital or Women's College Hospital, Toronto, ON.

Before surgery, a standardized history was taken and physical examination was performed by a resident or fellow and the attending staff member in the urogynaecology clinic at Mount Sinai Hospital. This included demographic information (age, parity, BMI, smoking status, history of prolapse or incontinence surgery, route of previous hysterectomy, menopausal status, and previous use of pessary), questions regarding the presence of prolapse symptoms (vaginal bulge or lump), urinary symptoms (stress incontinence, urge incontinence, mixed incontinence, voiding dysfunction), and bowel symptoms (constipation, obstructed defecation, fecal incontinence, rectal prolapse).

Physical examination, with the patient in the lithotomy position, was performed by the attending staff member and included objective assessment of the pelvic organ prolapse in each compartment (anterior, apical, and posterior). Patients were asked to perform a Valsalva manoeuvre with maximal effort. The stage of prolapse in each compartment was classified using the simplified pelvic organ prolapse quantification examination described and validated by Swift et al.[7–9] Stage 0 to 1 defines prolapse 1 cm or more above the level of the hymen, stage 2 is at the hymen (± 1 cm), stage 3 is more than 1 cm beyond the level of the hymen but without complete vaginal vault eversion, and stage 4 is complete eversion of the vagina.

A cough stress test was carried out in all patients in the lying position with manual reduction of the prolapse and a full bladder at the end of urodynamic testing.

Urodynamic testing was performed in all patients to assess for any bladder symptoms and to identify "occult" stress incontinence. Urodynamic testing at our institution includes multichannel cystometry, urethral pressure profile, uroflowmetry, and measurement of the postvoidal residual.

Surgical Technique

Our standard protocol includes one preoperative dose of intravenous antibiotic and prophylaxis for deep vein thrombosis using subcutaneous low–molecular–weight heparin. All surgical procedures were performed by a single surgeon (D.L.) with the assistance of urogynaecology fellows in training.

A 0-degree 10-mm laparoscope is inserted at the umbilicus, and the patient is then placed in a steep Trendelenburg position. A left lower quadrant 12-mm port is placed and two 5-mm ports are then inserted, one in the right lower quadrant and the other in the left mid-abdomen. Later during the procedure, a 5-mm suprapubic port is placed. The sacral promontory is visualized and the peritoneum is elevated away from the sacrum and incised. Under direct vision, the extraperitoneal tissue is teased open with blunt dissection using laparoscopic scissors and the anterior longitudinal ligament of the spine is exposed at the promontory. Any central blood vessels on the promontory