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Case Report

Trans-vaginal mesh surgery for management of recurrent pelvic organ prolapse following abdominal sacrocolpopexy

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ABSTRACT

Objective: To evaluate the outcome of transvaginal mesh surgery as a management of recurrent pelvic organ prolapse, in patients previously treated with sacrocolpopexy.**Case report:** A series of three patients who developed recurrent pelvic organ prolapse more than 9 years after sacrocolpopexy. A 50-year-old and two 77-year-old patients who presented with recurrent pelvic organ prolapse at 9, 15 and 17 years, respectively after the primary abdominal sacrocolpopexy were managed by transvaginal mesh surgery.**Conclusion:** Management of recurrent pelvic organ prolapse using transvaginal mesh would be an option for patients treated previously by sacrocolpopexy.© 2018 Taiwan Association of Obstetrics & Gynecology. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Abdominal sacrocolpopexy, employing retroperitoneal interposition of a suspensory synthetic autologous or allograft prosthesis between the vaginal vault and the sacral promontory, was first described by Lane in 1962 [1]. This method has proven to be superior to other surgical techniques in terms of restoration of the normal vaginal axis and maintenance of vaginal capacity [2,3]. Consistent cure rate of 90–95% have been reported on vaginal cuff and uterus prolapse depending on the success rate definition of the study conducted [2–5].

Reoperation rate for recurrent prolapse following abdominal sacrocolpopexy was 4.4% (0–18%) at 6 months to 3 years follow up [6]. Very few articles have described the management of recurrent

vault prolapse after abdominal sacrocolpopexy. In this report, we attempt to describe the feasibility of managing the recurrent vault prolapse via the vaginal route following abdominal sacrocolpopexy.

Material and methods

Case 1

A 50-year-old patient para 3 had total abdominal hysterectomy, Burch's colposuspension and sacrocolpopexy 9 years ago due to leiomyoma, stress urinary incontinence and POP-Q (pelvic organ prolapse-Q) stage IV. She presented with bulging vaginal mass, bearing-down sensation, urinary hesitancy, incomplete emptying and dyschezia for the past three years. She refused the use of pessary and opted for definitive surgical treatment. The patient is a laborer with history of chronic cough and she's on estrogen vaginal cream after the hysterectomy. Pad test was 4.3 g with normal urine analysis. Physical examination revealed a body mass index (BMI) of 21.3 and POP-Q measurements of points Aa +3, Ba +5, C +4, Bp +3,

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total vaginal length (TVL) 9 cm, perineal body (Pb) 1.5 cm, and genital hiatus (Gh) 4.5 cm. Urodynamic study showed urodynamic stress incontinence (USI). Secondary surgery was Prolift Anterior & Posterior with tension free vaginal tape (TVT). Operation time was 68 min with blood loss of 200 ml and no intra-operative or post-operative complications. Patient continued Kegel exercises post-operatively. Although she was on anti-muscarinic medication at 5 months postoperatively due to overactive bladder symptoms, urodynamic study at 6th months after the surgery showed absence of detrusor overactivity and optimal residual urine of 21 ml. At 7 year follow up, the patient was still satisfied and had no complaints. Examination, including urogenital distress inventory six (UDI-6), incontinence impact questionnaire (IIQ-7), pelvic organ prolapse distress inventory (POPDI-6), and pelvic organ prolapse/urinary incontinence sexual questionnaire (PISQ-12) [7–10], revealed POP-Q stage 0, normal UDS and pad test of 0.4 g. Subjective evaluation at 1 year post-OP was: UDI-6: 9, IIQ-7: 8, POPDI-6: 9, and PISQ-12: 22.

Case 2

A 77 year-old woman, para 5 who had undergone total abdominal hysterectomy with sacrocolpopexy 15 years ago due to pelvic organ prolapse POP-Q stage IV and TVT 14 years prior due to stress urinary incontinence. She came presenting of protruding mass through the vagina, nocturia, recurrent urinary tract infection, stress urinary incontinence and overactive bladder for two years. She refused pessary treatment after detailed counseling. She is a retired barber, with history of chronic cough and constipation. The patient was on estrogen vaginal cream for 15 years. Pad test was >100 g with normal urine analysis. Physical examination revealed a body mass index (BMI) of 29.8 3 and POP-Q measurements of points Aa +2, Ba +10, C +5, Bp +5, TVL 11 cm, Pb 2 cm, and Gh 5 cm. Urodynamic study showed a combination of detrusor overactivity and bladder outlet obstruction. Secondary prolapse surgery was sacrospinous fixation, Perigee and posterior colporrhaphy. Operation time was 47 min with blood loss of 20 ml and no intra-operative or postoperative complications occurred. At 2-year follow-up, the patient had no complaints. Examination revealed POP-Q stage 0, bladder hypersensitivity on UDS and pad test of 0.2 g. Subjective evaluation at 1 year post-OP was: UDI-6: 11, IIQ-7: 14, POPDI-6:8, PISQ-12: NA.

Case 3

The patient is a 59 year old, para 2 with previous history of total abdominal hysterectomy, sacrocolpopexy and Burch's colposuspension 17 years ago due to pelvic organ prolapse POP-Q stage IV and stress urinary incontinence. She presented with complaints of bulging mass protruding through the vagina associated with lower urinary tract symptoms of stress urinary incontinence, frequency and urgency. Symptoms started 5 years after hysterectomy and increased in severity 2 years prior that made her seek management. She was counseled for conservative management with pessary and estrogen vaginal cream, however, the patient insisted for surgical correction. Pad test was 0.3 g with normal urine analysis. Physical examination revealed a body mass index (BMI) of 23.3 and POP-Q measurements of points Aa +2, Ba +4, C +5, Bp +4, total vaginal length (TVL) 11 cm, perineal body (Pb) 2 cm, and genital hiatus (Gh) 5 cm. Urodynamic study was normal. Secondary prolapse surgery was sacrospinous fixation, Perigee and posterior colporrhaphy. Operation time was 49 min with blood loss of 50 ml. No intra-operative or postoperative complications occurred during this operation. At 4-year follow-up, there were no symptoms of prolapse. Examination, including revealed POP-Q stage 0, normal UD

and pad test of 0.5 g. Subjective evaluation at 1 year post-OP was: UDI-6: 9 IIQ-7: 9 POPDI-6:7 PISQ-12: NA.

Results

Demographic data of all patients involved were listed in Table 1. After thorough preoperative evaluation and counseling, all of them underwent pelvic reconstructive surgery with trans-vaginal mesh implantation utilizing either Perigee with sacrospinous fixation and posterior colporrhaphy or Prolift Total. The first case had a concomitant tension free vaginal tape inserted for stress urinary incontinence. Pre-/intraoperative and postoperative documentation of the prolapse compartments according to ICS POP-Q system are as presented in Table 1. The surgery and postoperative course for the ladies were uneventful. They were compliant to the post-operative follow-up instructions and continue doing Kegel exercises post operatively.

Discussion

Management of recurrent pelvic organ prolapse remains as a major challenge. Multiple options exist for surgical management of recurrent pelvic prolapse including transvaginal native tissue repairs (colporrhaphy, sacrospinous ligament fixation, uterosacral ligament suspension, iliococcygeus suspension); sacrocolpopexy with mesh performed abdominally or laparoscopically and trans-vaginal mesh (TVM) repairs. Unfortunately, there are very few studies providing high-level evidence regarding the optimal surgical approach, as highlighted by the recent Cochrane review of surgical management of recurrent POP [5].

While native tissue options for recurrent prolapse do exist, consensus among pelvic reconstructive surgery experts seems to favor the use of some interpositional graft [11].

Randomized trials of native tissue versus mesh showed that anatomical cure is higher for mesh procedures [12].

Either open laparotomy or laparoscopic approach, sacrocolpopexy related complications are inherently and inevitably associated with abdominal surgery including bowel obstruction, visceral injury, wound complications, pulmonary embolism and deep vein thrombosis [13,14]. A recent study suggested an alarming increase of failure rate following abdominal sacrocolpopexy over long term follow up of seven years [6]. In our cases, the three patients experienced recurrent POP after the primary surgery with sacrocolpopexy. Advantages of the vaginal approach are, usually less time consuming than the abdominal approaches, faster recovery and less cost [15].

In our cases, considering patients' age, medical condition, sexual activity, daily activities, needs as well as the experience of surgeons and surgical efficacy, an anterior transvaginal mesh and apical suspension with sacrospinous ligament fixation (SSLF) or trans-vaginal mesh total pelvic floor repair were preferred. The surgical tunneling plan from a transvaginal approach is clear-cut and completely isolated from distorted plan of previous abdominal surgery. Moreover, transvaginal surgery required shorter operating time and resulted in faster postoperative recovery, hence more suitable for older population of patients who are more likely to experience recurrent prolapse. We believe that pelvic reconstructive surgeries using trans-vaginal mesh anterior, sacrospinous fixation and posterior colporrhaphy or using total vaginal mesh are suitable options for management of recurrent pelvic organ prolapse after sacrocolpopexy avoiding the risk of repeated abdominal surgery. None of the three patients had encountered any transvaginal mesh related complication to date. All the patients' anatomical and subjective measures (questionnaire) yielded satisfactory outcome.

Table 1
Characteristics of the Operation.

	Primary prolapse surgery	Between 2nd surgery	Secondary prolapse surgery	Follow up
1	TAH + CPX + Burch POPQ stage IV +3 +8 +8; 4.5 1.5 9; +3 +3 +7 Age: 41 BMI: 24.4 (152, 56) Parous: 3 Worker Pre-OP UD: USI Pad: 12 g BL: 250 ml OT: 122 min Hospital stay: 7 day Surgical history: free Medical history: NA Risk factor: cough Post-OP POPQ stage 0 -3 -3 -8; 4 2 8; -3 -3 -	^a Recurrence noted at 5 year ^b Period: 9 year Post-OP UD: normal Pad: 1.5 g Medication: Intravaginal Estrogen cream	Prolift Anterior & Posterior + TVT POPQ stage III +3 +5 +4; 4.5 1.5 9; -1 +3 - Age: 50 BMI: 21.3 (162,56) Worker Pre-OP UD: USI Pad: 4.3 g BL: 200 ml OT: 68 min Hospital stay: 5 day Medical history: NA Risk factor: cough Post-OP POPQ stage 0 -3 -3 -9; 4 2 9; -3 -3 -	Subjective evaluation at 1 year post-OP UDI-6: 9 IIQ-7: 8 POPDI-6:9 PISQ-12:22 Post-OP UD at 1 year: normal Pad: 0.4 Post-OP: 7 year POPQ: stage 0 -2 -2 -8; 4 2 9; -2 -2 - Medication: Intravaginal Estrogen cream
2	CPX POPQ stage IV +1 +1 +8; 5 2 9; +3 +3 - Age: 62 BMI: 27.8 (154, 66) Parous: 5 Barber Pre-OP UD: BOO Pad: 0.2 g BL: 145 ml OT: 55 min Hospital stay: 7 day Surgical history: TAH Medical history: HT Risk factor: cough Post-OP POPQ stage 0 -3 -3 -9; 5 2 9; -3 -3 -	^a Recurrence noted at 4 year ^b Period: 15 year Post-OP UD: USI Pad: 9.4 Even: TVT Post-TVT UD: normal Pad: 0.4 Medication: Intravaginal Estrogen cream	Perigee+SSF+P POPQ stage IV +2 +10 +5; 5 2 11; +1 +5 - Age: 77 BMI: 29.8 (152,69) Retired Pre-OP UD: DOA, BOO Pad:>100 g BL: 20 ml OT: 47 min Hospital stay: 5 day Medical history: HT Risk factor: cough, Constipation Post-OP POPQ stage 0 -3 -3 -11; 5 2 11; -3 -3	Subjective evaluation at 1 year post-OP UDI-6: 11 IIQ-7: 14 POPDI-6:8 PISQ-12:NA Post-OP UD at 1 year: Bladder hypersensitivity Pad: 0.2 Post-OP: 2 year POPQ: stage 0 -3 -3 -11; 5 2 11; -3 -3 - Medication: Intravaginal Estrogen cream Tolterodine
3	TAH+CPX +Burch POPQ stage IV +2 +10 +10; 5 2 11; +2 +9 +9 Age: 42 BMI: 23.1 (152, 54) Parous: 2 Housewife Pre-OP UD: USI Pad: 5.6 g BL: 200 ml OT: 115 min Hospital stay: 7 day Surgical history: Breast Cancer Medical history: -free Risk factor: cough Post-OP POPQ stage 0 -3 -3 -10; 4 2 10; -3 -3 -	^a Failure noted at 5 year ^b Period: 17 year Post-OP UD: normal Pad: 0.6	Perigee+SSF+P POPQ stage III +2 +4 +5; 5 2 11; -1 +4 - Age: 59 BMI: 23.3 (152,54) Housewife Pre-OP UD: normal Pad: 0.3 g BL: 50 ml OT: 49 min Hospital stay: 3 day Surgical history: Breast Cancer Medical history: -free Risk factor: cough Post-OP POPQ stage 0 -3 -3 -11; 5 2 11; -3 -3 -	Subjective evaluation at 1 year post-OP UDI-6: 9 IIQ-7: 9 POPDI-6:7 PISQ-12:NA Post-OP UD at 1 year: normal Pad: 0.5 Post-OP: 4 year POPQ: stage 0 -2 -2 -8; 5 2 9; -2 -2 -

TAH, Total abdominal hysterectomy; CPX, colposacropexy; A, anterior colporrhaphy; P, posterior colporrhaphy; SSF, sacrospinous ligament fixation suspension; TVM, transvaginal mesh; BMI, body mass index; UD, urodynamics; BL, blood loss (ml); OT: operation time (min); DOA: Detrusor overactivity; BOO, bladder outlet obstruction; HT, hypertension; UDI-6, Urinary Distress Inventory (score 0–18); IIQ-7, Incontinence Impact Questionnaire (score 0–21); POPDI-6, Pelvic Organ Prolapse Distress Inventory 6 (score 0–24); PISQ-12, Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (score 0–48).

^a Failure defined as POPQ > stage I.

^b Period between CPX and TVM surgery.

In conclusion, secondary procedure for recurrent pelvic organ prolapse after sacrocolpopexy is an important issue. Transvaginal approach is a good option using SSLF and transvaginal mesh. Long-term follow-up is necessary to ensure the efficacy after pelvic mesh surgery.

Consent

Written informed consents were obtained from all three patients.

Financial disclaimer/Conflict of interest

All the authors do not have any disclosure.

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