

Combined anterior transobturator mesh with four straps and laparoscopic sacrocolpopexy in the treatment of pelvic organ prolapsus: our early experience in two cases

Pelvik organ prolapsı tedavisinde dört kollu transobturator anterior vajinal meş uygulaması ve laparoskopik sakrokolpopeksinin kombinasyonu: İki olguda erken deneyimlerimiz

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Abstract

Female pelvic floor instability provokes urinary incontinence, genito-urinary and rectal prolapsus, and sexual dysfunction. Both vaginal and abdominal methods to treat pelvic organ prolapsus (POP) have been developing. Abdominal interventions became less invasive and less morbid with the use of laparoscopy. In this report, two cases of POP treated with a combined application of vaginal mesh by transobturator approach and laparoscopic sacrocolpopexy in the same operational session were presented. Case 1, a 77 year old woman, was diagnosed with stage III cystocele and stage III collum uteri rest prolapsus. The patient had a history of abdominal subtotal hysterectomy and left ooforectomy for a large uterine myoma 30 years ago. Case 2, a 67-year-old woman, was diagnosed with stage III cystocele and vaginal vault prolapse. The patient had a history of total abdominal hysterectomy plus bilateral salpingoophorectomy operation 16 years ago.

Key words: Abdominal sacrocolpopexy; cystocele; laparoscopy; surgical technique; vaginal mesh.

Özet

Kadında pelvik taban stabilitesinin bozulması üriner inkontinans, genito-üriner ve rektal prolapsus, ve cinsel fonksiyon bozukluğuna yol açar. Pelvik organ prolapsı (POP) tedavisinde kullanılan abdominal ve vajinal yöntemlerde son yıllarda gelişmeler yaşanmıştır. Abdominal girişimler laparoskopinin uygulanması ile minimal invazif ve daha az morbid hale gelmiştir. Bu yazıda, iki hastada aynı seansta gerçekleştirilen transobturator yolla vajinal meş tatbiki ve laparoskopik sakrokolpopeksi uygulaması ile POP onarımı sunulmuştur. İlk olgu olan 77 yaşındaki bayan hastanın, evre III sistoseli ve evre III collum uteri resti prolapsı mevcuttu. Hastanın 30 yıl önce myoma uteri nedeniyle abdominal subtotal histerektomi ve sağ oofektomi öyküsü vardı. İkinci olgu olan 67 yaşındaki bayan hastanın, evre III sistoseli ve vajinal kaf prolapsı mevcut idi. Hasta 16 yıl önce myoma uteri nedeniyle total abdominal histerektomi ve bilateral salpingoofektomi operasyonu geçirmişti.

Anahtar sözcükler: Abdominal sakrokolpopeksi; cerrahi teknik; laparoskopi; sistosel; vajinal meş.

Submitted (Geliş tarihi): 30.10.2009

Accepted after revision (Düzeltilme sonrası kabul tarihi): 23.01.2010

Pelvic organ prolapse (POP) in woman ensues from the weakness of muscle and connective tissue supporting pelvic organs. POP can appear clinically as urethrocele, cystocele, uterine and vaginal dome prolapse, enterocele, and rectocele. The incidence in old women is reported to be as high as %39.8.^[1] Pelvic floor instability causes genitourinary and rectal prolapse, voiding, and sexual disorders.^[2] Although it does not cause serious morbidity and mortality, it affects the quality of life. Several risk factors causing POP were described; vaginal delivery and past

hysterectomy are among the leading ones. Risk of development of POP is not only related to older age and obesity, but also to situations that increase intraabdominal pressure like chronic coughing and constipation, and to pelvic floor denervation.^[3-5]

Two methods, vaginal and abdominal, have been used for the POP treatment in recent years. The selection of the surgical method depends on the grade of the defect, patient's status, and surgeon's experience. Abdominal interventions became less invasive and morbid with the use of laparoscopy and robotic assisted

laparoscopy. Vaginal interventions using total anterior and posterior meshes have been widely used.^[6,7] There is controversy on which method has the best results. The longer duration of the abdominal method and its higher rate of complications are the major drawbacks of the technique. However, the fascia in the old is weak and recurrence rate is high with vaginal repair, therefore in old patients with higher grade cystocele, repair with abdominal method is suggested.^[8]

In this study two case of four straps vaginal mesh emplacement via transobturator route and fixation of anterior/posterior vaginal vault with two meshes with laparoscopic abdominal sacrocolpopexy (LASC) procedure were presented.

Case report

Case 1

A 77-year-old married woman, with the complaints of extruding mass through vagina and urinary incontinence for 5 years was referred to the urology outpatient clinic. Medical history revealed gravida/para 2/2, abdominal subtotal hysterectomy and left ooforectomy for a large uterine myoma 30 years ago. Vaginal examination showed stage III cystocele [Pelvic Organ Prolapse Quantification (POP-Q) system] and stage III uterine collum, and grade I rectal prolapse. Reducing the prolapse manually provoked urinary incontinence. LASC and polyvinylidene fluoride (PVDF) four straps mesh transvaginally were placed at the same session. Operative time for PVDF mesh placement and LASC were 55 min and 100 min, respectively. Blood loss was less than 100 cc, patient was discharged with urinary catheter removal at the second post-operative day. Pelvic prolapse and urinary incontinence were not observed one month and three months later on the follow-up.

Case 2

A 67-year-old woman, with the complaints of extruding mass through the vagina and urinary incontinence for 3 years was referred to the urology outpatient clinic. Medical history revealed gravida/para 5/2, abdominal total hysterectomy and bilateral salpingoophorectomy 16 years ago. Vaginal examination showed stage III cystocele and vaginal vault prolapse.

LASC and PVDF four straps mesh were applied simultaneously. Operative durations for PVDF mesh placement and lapar LASC were 65 min and 115 min, respectively. Blood loss was less than 100 cc. The pa-

tient was discharged after urinary catheter removal at the second post-operative day. Patient examination at the follow-up periods revealed no incontinence and recurrence of prolapse.

Surgical technique

The patient was laid on the table in dorsal lithotomy position. After necessary preparation, a 18 French urethral catheter was inserted. Anterior vaginal wall was mobilized with the assistance of vaginal retractor, and bladder was freed. In order to prevent excessive hemorrhage into the anterior vaginal wall and to distal part of the bladder, 2 cc. lidocaine containing 0.0125 mg/mL epinefrine solution was injected submucosally at the level of mid urethra. A vertical incision beginning from the vaginal mucosa underlying mid-urethra and ending near the fornix was made. With paraurethral and paravesical dissection, sufficient place was obtained. A 100% monofilament PVDF four straps mesh (DynaMesh®-PR4, Aachen, Germany) was inserted to support the anterior vaginal wall (Fig. 1). Between upper two straps and lower two straps of the mesh there is the middle part that supports vaginal anterior wall. First skin incision 5 mm in length is made at the proximal edge of the obturator foramen, at the level of the clitoris. Second cutaneous incision is made 1 cm lateral and 2 cm below the first incision at the posterolateral edge of the obturator foramen. Mesh straps were passed through the proximal and distal divisions of obturator fossae and picked out through the skin (Fig. 2a). Bladder neck and proximal urethra were suspended without tension (Fig. 2b, 2c). Anterior vaginal wall redundancy was excised and the aperture sutured (Fig. 2d).

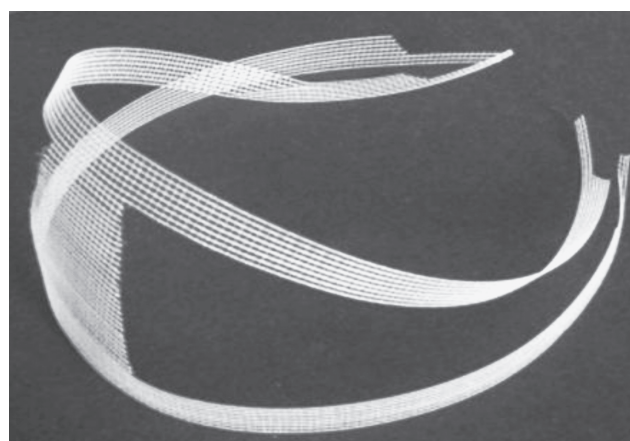


Figure 1 PVDF four straps vaginal mesh (DynaMesh®-PR4).

Laparoscopic intervention was performed at the same session. Trendelenburg position was set following pneumoperitoneum at supine semilithotomy position. Open (Hasson) technique was used for the transperitoneal insertion of 12 mm trocar. A 5 mm and a 10 mm trocars were inserted 5 cm caudally from the optic trocar, the first on the right, the second on the left side of the rectus muscle edges. A fourth 5 mm trocar is placed 3 cm cranial and medial to the right iliac crest (Fig. 3). After the exploration of pelvic organs, the second assistant pushed upward the uterine collum/vaginal vault to normal position with the aid of his two fingers placed into the vagina. Sacrum was identified and the overlying peritoneum was elevated. Sacral promontorium was dissected and incised, the peritoneum medial to the right ureter was dissected. Dissection continued between vagina and bladder anteriorly, between vagina and rectum posteriorly. Two propylene meshes with 2x10 cm in size were attached to anterior and posterior vaginal surfaces with four 2/0 non-absorbable sutures, the tails of the meshes were fixed to anterior vertebral ligament at the sacral promontorium with 2/0 n/a sutures. Mesh fixation was assured with smooth traction. Peritoneum was then closed with 3/0 absorbable sutures.

Discussion

Within the last fifteen years many studies concerning choices of mesh usage and transvaginal or abdominal approaches in POP surgical restoration have been performed. Different insertion methods have been used increasingly in the treatment of POP. Mesh material selection affects the success of the operation. The ideal material should be cheap, strong, easy to apply, and without risk of infection or inflammation. There are synthetic and biological meshes. Synthetic ones that are polypropylene and polyglactin have been widely used.^[9] In our clinic, we successfully use self-cut polypropylene, polyvinylidene meshes as commercial kits. There are various surgical kits for this purpose in the market. Among them apogee,^[6] prolifit,^[10] perigee,^[11] are mostly used for anterior transobturator mesh (ATM). Beside successful results, major complications like mesh erosion, urethrovaginal fistula, infection, rejection, and dyspareunia are also reported.^[12]

Retrospective studies showed that the abdominal approach is more satisfying than the vaginal approach.^[13,14] Laparoscopic abdominal approach is a safe and effective procedure.^[15] In POP treatment, abdominal sacrocolpopexy is an effective procedure with well

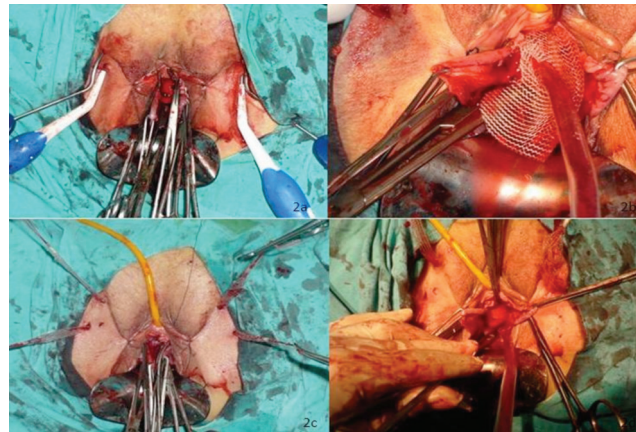


Figure 2

Application of the mesh. Mesh straps were passed through the proximal and distal divisions of obturator fossae and picked out through the skin (a); bladder neck and proximal urethra were suspended without tension (b, c); and anterior vaginal wall redundancy was excised and the aperture sutured (d).

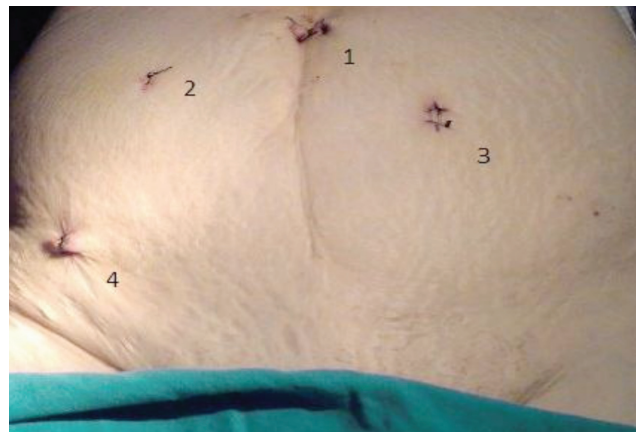


Figure 3

Port sites for laparoscopic sacrocolpopexy. (1) 12 mm cannula for camera, (2) 5 mm cannula, (3) 10 mm cannula, (4) 5 mm cannula.

known complications. In addition to open abdominal and transvaginal methods laparoscopic and robotic assisted laparoscopic techniques have been recently practiced more frequently. Switching to laparoscopic procedures assured a more precise vision and rendered the intervention less invasive.^[16] According to some authors, the acceptable complication rates and its short learning curve makes robotic assisted LASC an applicable technique.^[17]

Some authors suggest vaginal repair instead of abdominal because it is less invasive^[18] and ATM is a safe method to treat cystocele.^[19] The successful results of laparoscopic and robotic assisted laparoscopic

interventions offer a reliable transition from laparotomy to the minimal invasive choice.

The purpose in sacrocolpopexy is to fix the anterior and posterior vaginal wall to the sacral promontorium with a material that establishes suspension. Laparoscopic fixation has promising results, but there are unfavorable situations. In such situations vaginal repair should be preferred.

The use of both procedures at the same session has been recently preferred. Descargues et al.^[20] suggested that these two techniques must coexist, ideally without competing with each other but rather complementarily, as the overall rate of recurrence, requiring additional procedure does not exceed 2%.

In our two cases presented, this combined vaginal and laparoscopic technique displayed favourable outcomes both for the surgeon and for the patient. There are limitations of our study such as small number of patients, unavailability of urodynamic studies, and short period of follow-up. Randomized controlled studies recruiting larger number of patients with preoperative and postoperative urodynamic measurements and longer follow-up period are necessary to compare the short- and long-term results of the combined laparoscopic and vaginal repair.

Conflict of interest

No conflict of interest was declared by the authors.

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doi:10.5152/tud.2010.036