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Should the visceral peritoneum be closed over mesh in abdominal sacrocolpopexy?

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ABSTRACT

Introduction and hypothesis: Peritonisation of mesh during Abdominal sacrocolpopexy is generally advocated to prevent adhesions to the viscera; however, randomized clinical trials are lacking. In this study; we aimed to investigate whether the mesh peritonisation is clinically significant or not.
Material method: Thirty-four patients who were operated for the reason of pelvic organ prolapse were included in the study. Patients were divided into two groups by retrospective scanning from the files and surgical reports. Group 1 patients consisted of those who underwent peritonisation and group 2 patients consisted of those who did not in abdominal sacrocolpopexy.
Results: Operative time and the amount of blood lost were statistically less in the group 2. Postoperative pain and analgesic drug requirements were obviously higher in the group 1. Postoperative De novo dyspareunia and urinary urgency were higher in the group 1. There were no statistical differences between the groups in terms of other complications.
Conclusion: We noticed that there was no difference between the patients who were peritonized and those who were not in terms of postoperative complications.

Introduction

Pelvic organ prolapse (POP) is considered to be the vaginal herniation of the pelvic organs. Indeed, the International Continence Society (ICS) has described this as a downward displacement of the female reproductive organs during the valsalva maneuver [1]. POP is a very important situation that affects women and the incidence of POP at stage 2 and above was determined as 51% according to the ICS stage system [2]. The surgical approach to POP depends on multiple independent variables. POP treatment is aimed to provide the following parameters; eliminate complaints, repair the anatomy, protect or improve the functions, prevent new problems related to other compartments and protect the quality of life in the long term. If pelvic organ prolapse is left untreated, it may reduce the quality of a woman's social and sexual life. Abdominal sacrocolpopexy (ASC) can be done for those who with advanced prolapse, who are concerned about normal sexual activity, requiring second abdominal access such as abdominal paravaginal repair, with significant vaginal wall scars, with unsuccessful vaginal repair and large apical facial defects. ASC, proposed by Lane in 1962, is an abdominal procedure that fixes the vaginal apex to the anterior longitudinal ligament of sacrum with mesh/graft. It is the most commonly used method of treatment and it's specified as the gold standard [3]. After introducing the surgical technique by the Lane, various changes were made on the surgical technique. One major difference is the attachment of the visceral peritoneum over the mesh. Although there are no comparative studies, most authors recommend graft peritonisation to prevent bowel complications and adhesions [4]. On the other hand; Elneil and colleagues found that the mesh not covered by the peritoneum was not related to bowel complications and have reported that sacrocolpopexy is safe without peritonisation [5]. These results are interesting, but they are not strong enough to chance practice. Given the low incidence of bowel-mesh injury, a large randomized trial would be required to provide definitive answers. Therefore, many surgical techniques have evolved over the time, but satisfactory correction stil remains a challenge. In this study; we aimed to investigate whether the mesh peritonisation is clinically significant or not. Primary outcomes were whether there would be a difference between postoperative complications. Secondary outcomes were there would be a difference between operative parameters.

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Material method

Thirty-four patients who were operated for the reason of pelvic organ prolapse were included in the study at the Deparment of Obstetrics and Gynecology, Erzincan University, Turkey between 2013 and 2017. This retrospective study included 34 women who participated in follow-up for at least 3 years. The study was approved by the ethics committee. All patients were evaluated preoperatively by a standard history taking, pelvic examination and urodynamic examination. Standard history taking consisted of menopause and hormone replacement therapy status, previous hysterectomy and pelvic reconstructive surgery, age, parity, body mass index (BMI), urinary (urinary urgency, stress urinary incontinence, voiding dysfunction), bowel (constipation, fecal incontinence) and sexual (sexual activity, dyspareunia) symptoms. Patients were divided into two groups by retrospective scanning from the files and surgical reports. Group 1 patients consisted of those who underwent peritonisation and group 2 patients consisted of those who did not in abdominal sacrocolpopexy. Both groups were evaluated for age, BMI, smoking, parity, menopausal status, hormone replacement therapy, previous hysterectomy, previous pelvic surgery, POP-Q classification, preoparative and postoperative voiding dysfunction, constipation, fetal incontinence, sexual inactivity, dyspareunia, mesh erosion, ureteral obstruction, ileus, bladder, ureter and bowel injuries, smoking, concomitant hysterectomy, operative time, estimated blood loss, aware of prolapse, patient satisfaction, severe pelvic pain (A visual analog scale (VAS) with a range of 0–10, with higher score denoting severe pelvic pain, was used to gauge pelvic pain, 7 and over scores rated as severe pelvic pain), wound infection, febril morbidity, deep vein thrombosis, de novo stress incontinence, constipation, dyspareunia, fecal incontinance, retroperitoneal hematoma, vault abscess.

Surgical techniques

All operations were performed by the same two experienced surgeons. Firstly, laparotomy was performed with a pfannenstiel incision. If there is an indication for hysterectomy, firtly it was performed after entry into the abdominal cavity. If the hysterectomy has been done before, the peritoneum was dissected away to provide a sufficiently broad area of at least 3×5 cm for attaching the mesh. Then, the peritoneum over the sacral promontory was incised vertically and loose areolar tissues were gently dissected to expose the anterior longitudinal ligament. The peritoneal incision was extended to the posterior cul-de-sac. ASC was carried out using polypropylene mesh in all patients. Two non-absorbable sutures were placed the sacral promontory and two delayed absorbable sutures were placed the anterior and posterior vaginal wall. The sutures were brought through the two pieces of mesh, tied down, and cut. The mesh was secured onto the sacral promontory and onto the vaginal vault. The appropriate length of the mesh was determined as one that avoids any tension on the mesh and vagina. After iodine povidone irrigation, reperitonealisation of the mesh was performed with interrupted 2-0 cat-gut chromic sutures in group 1 patients, but reperitonisation was not performed in the group 2 patients. Then, the abdomen was closed in the usual manner. Patients were followed up at 1, 3, 6, and 12 months after surgery, and annually thereafter.

Statistical analyzes

For discrete and continuous variables, descriptive statistics (mean, standard deviation, median, Range, and percentile) were given. In addition, the homogeneity of the variances, which is one of the prerequisites of parametric tests, was checked through Levene's test. The assumption of normality was tested via the Shapiro-Wilk test. To compare the differences between the two groups, the Student's *t* test was used when the parametric test prerequisites were fulfilled, and the Mann Whitney–U test was used when such prerequisites were not fulfilled. Chi-square test was used for determining the relationships between two discrete variables. When the expected sources were less than 20%, values were determined through the Monte Carlo Simulation Method in order to include such sources in analysis.The data were evaluated via SPPS 20 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). $p < .05$ and $p < .01$ were taken as significance levels.

Results

A total of 34 women underwent ASC operation. Mean age of 34 women was $45{,}93 \pm 10{,}98$ years and their median prolapse stage was 3 according to POP-Q, system in peritonisation group and these ratios were $48{,}85 \pm 7{,}54$ and stage 3 in without peritonisation group respectively. Table 1 shows preoperative and operative characteristics of the patients. In the absence of postoperative ≥grade II apical prolapse, anatomic success was accepted as 100%. Operative time and the amount of blood lost were statistically less in the group without peritonisation. Especially in an open surgery, closing the peritoneum is a relatively short step in the ASC procedure, but to avoid urinary complications, both ureters were visualized from the sacrum promonturium to the bladder base in peritonisation patients, and peritonisation was performed after the mesh was placed. On the other hand, ureter visualisation was not performed in the group 2, because the dissected peritoneum had

Table 1
Preoperative and operative Characteristics of the Study Population.

	with peritonisation (Group 1) n = 14	without peritonisation (Group 2) n = 20	p
Age (yrs,mean ± SD)	45,93 ± 10,98	48,85 ± 7,54	0,364
Parity (median, range)	2,5(5)	3(5)	0,257
Body mass index (kg/m^2, mean ± SD	27,5 ± 4,09	29,25 ± 4,14	0,232
Menoupause (n,%)	10 (38,5)	16 (61,5)	0,689
Hormone replacement therapy (n,%)	2 (28,6)	5 (71,4)	0,672
Smoking (n,%)	3 (50)	3 (50)	0,628
Prior hysterectomy (n,%)	2 (40)	3 (60)	0,954
Prior pelvic reconstruction (n,%)	2 (6,7)	1 (33,3)	0,555
Preoperative POP-Q stage (n,%)			
II	2 (28,6)	5 (71,4)	0,665
III	7(41,2)	10 (58,8)	
IV	5 (50)	5 (50)	
Concomitant hysterectomy	11 (39,3)	17 (60,7)	
Operative time (min) (mean ± SD)	108,36 ± 10,29	91,25 ± 9,53	0,001**
Estimated blood loss (mL)	210,21 ± 35,75	176,5 ± 40,38	0,016*