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Cystocele and rectocele repair with native tissue layers: definition of the technique

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ABSTRACT

Objectives: To investigate the outcomes of central cystocele and rectocele repair using natural tissue layers. To describe a novel technique (Dogan technique).

Material and methods: This is a retrospective cohort study. Between January 2021 and January 2023, patients who had central cystocele and rectocele higher than stage1 were included in the study. The Pelvic Organ Prolapse Quantification (POP-Q) score was used to determine the degree of the prolapsus. All cystocele and rectocele repair surgeries were performed by the same physician. The patients' voiding habits were assessed using ICIQ-SF and OAB-V8. Sexual function results were assessed with FSFI questionnaire before and after the operation. Transperineal ultrasonography was performed to examine mobility of the anterior and posterior compartments.

Results: Total of 36 patients were diagnosed with grade 2 and above central cystocele (19, 52%) and rectocele (n = 17, 48%). After the operation the anatomical cure of anterior and posterior compartments was achieved for all patients in the two-years follow-up. According to voiding habits before the surgery, there were symptoms of stress urinary incontinence (SUI),urge urinary incontinence (URGE), both SUI and URGE, and no incontinence at the patients; 7 (36.8%), 14 (73.7%), 5 (26.3%), 3 (15.7%) respectively. Of those URGE patients (n = 5/14, 35.7%) incontinence symptoms were mixed-type. After the cystocele operation, significant improvement was seen in their voiding problems according to the ICIQ-SF and OAB-V8 questionnaires ($p < 0.05$). As well as significant improvement was found in sexual function according to the FSFI questionnaire ($p < 0.05$).

Conclusions: We showed that strengthening the anterior and/or posterior compartments with native tissue improves urge and voiding dysfunctions via a novel technique (Dogan technique) without removing the vagina tissue.

Keywords: cystocele; rectocele; SIU; URGE; hammock theory; POP-Q

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INTRODUCTION

Pelvic Organ Prolapse (POP) is a common condition that affects up to 50% of women in the reproductive age group, and it significantly reduces their quality of life [1]. There are three types of POP: apical, anterior and posterior vaginal prolapse. Cystocele is the most common anterior vaginal prolapse classified into three types: apical, medial and paravaginal. The central cystocele is a midline defect in the pubocervical fascia. According to the International Continence Society (ICS) definition, cystocele refers to the anterior vaginal wall and the bladder base prolapse into the vaginal lumen. The bladder has shifted from its usual position and the front wall of the vagina has become loose both front to back and side to side. Weakening of the pubocervical fascia between the bladder and vagina, specifically in the lateral and central regions leads to cystocele [2]. Natural tissue or mesh can use to repair. Although the use of natural tissue may lead to higher failure rates, risk of complications such as erosion, infection, delay wound healing, de novo dyspareunia, and chronic pain may occur when mesh is used [3]. FDA recommend natural tissue repair than using the transvaginal mesh due to higher complication rates in cystocele

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repair. The main issue with natural tissue repair is that the tissue being repaired is already damaged, which can lead to it being prolapsed. This puts natural tissue at a disadvantage compared to mesh. As a result, new techniques are needed to help natural tissue form a layer similar to mesh.

Anterior colporrhaphy is the traditional methods joining the lateral tissues in to the midline in order to restore normal anatomy and strengthen the weakness [4]. There is a 30–70% recurrence rate due to differences in surgical techniques [5]. Recent studies showed that cystocele repairs with bladder neck suspension have 24% of recurrence rate and of those 15.5% suffered from SUI after the surgery [6].

A rectocele is a condition where the anterior rectal wall herniates into the posterior vaginal wall. The incidence and pathogenesis of rectocele are still unclear, but it is commonly associated with obstructive defecation. Surgical treatment option may be needed for patients with defecation and sexual dysfunction. There are three approaches defined for rectocele repair, transanal, transperineal and ab-dominal approaches respectively. Colorectal surgeons preferred abdominal approaches however gynecologists preferred transvaginal route [7].

In this study, we define a new technique for using natural tissue for central cystocele and rectocele repair and assessed the effectiveness on voiding and sexual functions.

MATERIAL AND METHODS

This is a retrospective cohort study. Between January 2021 and January 2023, a total of 186 patients were diagnosed cystocele or rectocele in our clinic. Of those 36 patients diagnosed with grade 2 and above central cystocele and rectocele according to POP-Q score were included in the study. After the operations all patients have followed-up for 2 years. The clinical research ethics committee approval was taken (Approval No: E-12483425-299-38574). All cystocele and rectocele repair surgeries were performed by same physician. In order the minimize the bias on the results, grade 1 cystocele and rectocele patients, patients who had different surgical approaches and who operated by different surgeons were excluded from the study. Patients who had menopause, BMI greater than 30, sigmoidocele and/or enterocele, received pelvic radiotherapy. Moreover, hysterectomy, stage 2 or higher apical vaginal prolapse were also excluded from the study.

We excluded patients with hysterectomy and apical prolapse to minimize the impact on the pelvic floor, as apical prolapse and hysterectomy are influenced by a variety of factors, including the type of hysterectomy. These patients will be the focus of our next study. SUI and/or urge incontinence was not considered an exclusion criterion. No patient was withdrawn from the study during the follow-up period.

Demographic details, medical and obstetric history, gynecologic and ultrasound examinations were collected. The degree of prolapse in patients was determined by using the POP-Q scoring system [8]. The diagnosis of SUI was confirmed through a clinical examination. The cough-stress test was done in both supine and standing positions on a full bladder at least 300 mL. The Q-type test was conducted using maximum valsalva or cough. A change of 30° was considered clinically significant. On the other hand, urge incontinence was diagnosed based on medical history and anamnesis. Validated versions of the OAB-V8, ICIQ, FSFI questionnaires were used to assess voiding habits and sexual functions [9–11]. Pelvic floor ultrasonography was performed using the 2018 GE Voluson E8, according to the method described by Shek and Dietz [12]. During pelvic floor ultrasonography, patients were positioned in the dorsolithotomy position with an empty bladder and rectum. Their hips were flexed and slightly abducted, and this position was maintained throughout the procedure. The posterior inferior of the symphysis pubis was used as the reference point for imaging the bladder, ureterovesical junction and urethra with maximum valsalva. Measurements as follows; bladder neck descent, urethral rotation angle, rectovesical angle, pubourethral distance, cystocele and rectum descent, uterine descent, and urethral and detrusor thickness were collected. Valsalva was performed for at least 6 seconds to prevent levator coactivation. Cystocele and rectocele descent of at least 10 and 15 mm respectively, below the pubic symphysis, and uterine descent of more than 15 mm at maximum valsalva were considered abnormal [12, 13]. All cystocele and rectocele operations were performed using the same technique in patients who had no contraindications for vaginal operation (n = 19 and n = 17, respectively).

Surgical Technique: The patient with empty bladder was placed in the dorsolithotomy position. A vertical incision was made from 2 cm below the urethra, along the prolapsed bladder surface, up to 2 cm above the cervix. Vaginal lambdas were created on both the right and left sides until the bladder was mobilized (Fig. 1). After releasing the bilateral lambda areas, the right-side vaginal mucosa was deepithelialized using electrocoagulation at 80 watts (Fig. 2). To avoid injury with electrocoagulation, a surgical sponge was placed between the bladder and the right vaginal wall. Then deepithelialized vaginal tissue was used to create a natural mesh laid over the bladder to provide support for the vesicovaginal fascia. The deepithelialized area was then covered by suturing the vaginal wall (Tab. 1, Fig 3). Same procedures were performed in rectocele repair (Tab. 1, Fig. 4)

The primary outcome measures were to establish the anatomical cure assessing at postoperative follow-up visits. Anatomical cure was defined as stage I and lower

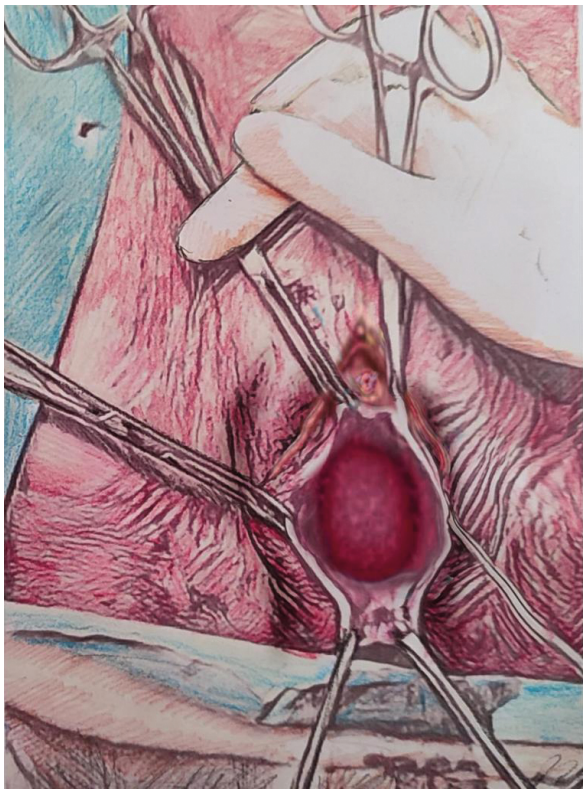

Figure 1. The procedure involves moving the bladder and creating bilateral lambdas

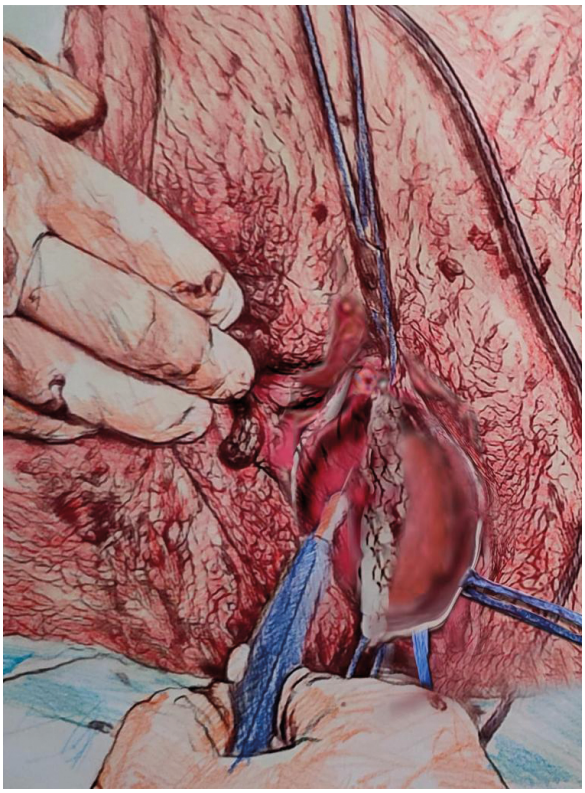

Figure 2. Deepithelialization of right lambda area, using 80w coagulation mode

Table 1. Ten steps of the surgical technique

Steps	Definition
1.	Empty the bladder
2.	Give dorsolithotomy position to the patient
3.	Vertical incision: 2 cm below the urethra along the prolapsed bladder surface, up to 2 cm above the cervix
4.	Create vaginal lambdas
5.	Mobilize the bladder
6.	Complete coverage of mobilized bladder surface achieved by deepithelialization of right lambda area, using 80 w coagulation mode
7.	A surgical sponge is placed between the lambda and bladder to prevent bladder damage from electrocautery
8.	The deepitelized area is thoroughly cleaned with a surgical sponge and natural tissue mesh area is prepared
9.	This area without epithelialized is placed on the opposite side of the bladder and secured at the exact corners to the intact vesico-vaginal fascia points on that side, thus ensuring the continuity of the fascia with the natural tissue
10.	The left lambda is then sutured to the vaginal border with the right lambda's deepithelialized area

cystocele and rectocele according the anterior and posterior compartments. POP-Q scoring system was used to assess the extent of the disease. Secondary outcome measures included OAB-V8, ICIQ-SF and FSFI scores, as well as pelvic floor ultrasound measurements. The statistical analyses were performed using the IBM SPSS Statistics27package program.

RESULTS

A total of 36 patients were diagnosed with grade 2 and above central cystocele (19, 52%) and rectocele (n = 17, 48%). Demographic details were revealed in Table 2. Mean age, gravida, parity, vaginal birth and BMI were 40 years old, 4, 3, 3, 25.3, respectively.

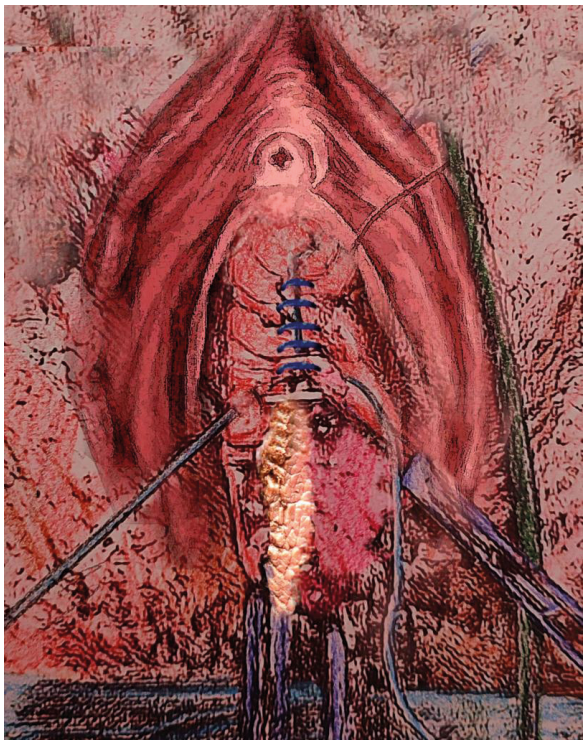

Figure 3. Suturing the left side of the lambda to the right side of the deepitelization border

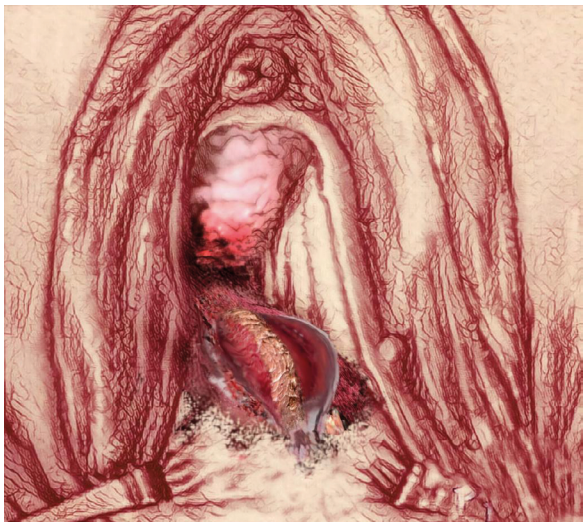

Figure 4. Deepithelialization area in rectocele repair

After the operation the anatomical cure of anterior and posterior compartments were achieved for all patients in the two-years follow-up. Comparison of preoperative and postoperative prolapse stages in cystocele and rectocele patients, SIU and URGE comparison results were given at Table 2. In cysteocele and rectocele group, apical stage, cystocele and rectocele stages were significantly improved after the surgery ($p < 0.05$). In cystocele group after the operation, there are significant improvements in SIU and URGE ($p > 0.05$).

Pelvic floor ultrasonography measurements in cystocele group according to voiding habits before the surgery, there were symptoms of stress urinary incontinence (SUI), urge urinary incontinence (URGE), both SUI and URGE, and no incontinence at the patients 7 (36.8%), 14 (73.7%), 5 (26.3%),

Table 2. Demographic details in cystocele repair surgery patients

	Cystocele repair surgery patients				Rectocele repair surgery patients			
	n = 19				n = 17			
Parameter	**Mean**	**Standard deviation**	**Median**	**Min–max**	**Mean**	**Standard deviation**	**Median**	**Min–max**
Age [years]	40.47	2.91	41.0	35.0–45.0	40.76	2.33	40.0	37.0–45.0
Gravida [n]	3.84	1.46	3.0	2.0–7.0	3.29	1.05	3.0	2.0–5.0
Parity [n]	2.89	0.99	3.0	2.0–5.0	2.94	0.90	3.0	2.0–5.0
Vaginal birth	2.74	0.87	3.0	2.0–5.0	3.27	0.97	3.0	1.0–5.0
BMI [kg/m^2]	25.31	2.34	24.8	22.4–30.1	24.46	0.42	24.4	21.0–30.4
	n		**%**		**n**		**%**	
Tobacco use								
No	13		68.4		12		70.6	
Yes	6		31.6		5		29.4	
Sexual activity								
Yes	19		100.0		17		100.0	
Previous cystocele operation								
No	15		78.9		12		70.6	
Yes	4		21.1		5		29.4	

3 (15.7%) respectively. Of those URGE patients (n = 5/14, 35.7%) incontinence symptoms were mixed-type. After the cystocele operation, significant improvement was seen in their voiding problems according to the ICIQ-SF and OAB-V8 questionnaires ($p < 0.05$). As well as significant improvement was found in sexual function according to the FSFI questionnaire ($p < 0.05$). Comparison of pelvic floor ultrasonography measurements in cystocele and rectocele groups were demonstrated at Table 3. All patients were found to have achieved stage1 or lower in the postoperative period ($p > 0.05$). The anatomical cure rate of the anterior and posterior compartments was significant in the 2-year follow-up period ($p > 0.05$, 100%). No recurrence of cystocele and rectocele was observed after the surgery.

It was observed that all subjective measures and their sub-domains showed significant improvement after the surgery, as stated in Table 3. Prior to the cystocele operation, 7 out of the patients had stress urinary incontinence, while 14 had urge incontinence in the postoperative period. Only one patient continued to have stress urinary incontinence after the operation. For the patient who reported persistent complaints of stress urinary incontinence, exercise was recommended, and her complaints regressed over time. After the cystocele operation, 85.7% of patients reported success in treating stress urinary incontinence ($p > 0.05$), while all patients with urge incontinence symptoms experienced a 100% success rate ($p > 0.05$) Additionally, women who underwent the operation reported significant improvements in their voiding habits according to the OAB-V8 and ICIQ-SF questionnaires ($p > 0.05$) (Tab. 3). The operation was performed on sexually active women, and all patients reported significant improvements in their FSFI scores ($p > 0.05$) (Tab. 3).

Postoperative transperineal ultrasound measurements showed a significant decrease in cystocele descent and uterine descent compared to the preoperative period (cystocele descent: 34.6 ± 5.5 vs 6.21 ± 1.1; $p < 0.001$; uterine descent: 11.1 ± 1.8 vs 7.4 ± 1.5; $p < 0.001$). Bladder neck descent, pubourethral distance, and detrusor thickness also showed improvement (31.8 ± 3.8 vs 15.8 ± 5; $p = 0.018$; 13.8 ± 1.3 vs 7.1 ± 2.4; $p = 0.017$; 8.1 ± 3.7 vs 4.7 ± 1.3; $p = 0.012$) (Tab. 3). The improvement was significant in patients with urge incontinence for bladder neck descent and detrusor thickness ($p > 0.05$). However, the results were not significant because the preoperative bladder neck descent value was below the cut-off 25 mm value in the patient group with urge incontinence (16.3 ± 2.5 vs 14.4 ± 2; $p = 0.003$; 8.3 ± 0.7 vs 4.78 ± 0.6; $p = 0.007$). Furthermore, significant improvement in rectocele descent was observed in the group of patients who underwent rectocele operation (33.1 ± 4.8 vs 6.4 ± 1.4; $p < 0.001$).

DISCUSSION

Although many surgical techniques have been described for cystocele and rectocele repair surgeries, natural tissue repairing techniques have recently increased due to mesh complications. In this study, we describe a new approach to repair cystocele and rectocele using natural tissue. We present the results of our new technique and demonstrated its effectiveness on sexual and voiding functions.

According to ultrasonographic evaluation at cystocele and rectocele group, a statistically significant difference was found pre and postoperative findings (Tab. 3 and 4). Hung et al. [14] showed that 16.7% of 38 patients who underwent cystocele surgery using mesh needed SUI surgery after the operation. Duraisamy et al. [15] detected SUI in 10 of 44 patients who underwent cystocele surgery in the preoperative evaluation, and they found improvement in 9 of them (90%) in the 1-year follow-up. In this study, 7 of 19 patients (36.8%) were diagnosed with SUI preoperatively. In the postoperative follow-up, 6 (85.7%) of the 7 patients with SUI had resolution of SUI symptoms and none of the patients without SUI symptoms in the preoperative period had SUI symptoms in the postoperative period. These results demonstrated that creating strong support in the vesicovaginal fascia and performing anatomical correction with cystocele treatment had therapeutic and protective effects on SUI symptoms. According to the study by Sahin et al. [16], pelvic floor ultrasound can predict the success of surgery in patients with SUI. Similarly, this study showed that pelvic floor ultrasound supported the improvement of SUI symptoms with preoperative and postoperative evaluation. Bladder neck descent was determined as 25 mm, based on the cut off values in the study conducted by Ortiz et al. [17]. In this study, a significant difference was observed in bladder neck descent in the preoperative and postoperative periods (Tab. 4). These results showed that reconstructing the anatomy and strengthening the bladder base to support the vesicovaginal fascia with natural tissue had therapeutic effects on SUI symptoms. According to the ICIQ-SF evaluation questionnaire, subjective treatment success was achieved. It was statistically significant.

In a study by Szymanovski et al. [18], 88.62% of women with grade 2 or above cystocele experienced improvement in urge incontinence after cystocele operation, while 11.38% showed no regression. In our study 9 of 19 patients (47.3%) who underwent cystocele operation had urge symptoms in the preoperative period. The hammock theory proposed by Petros et al. [19] suggests that urge incontinence symptoms are relieved if the vesicovaginal fascia is supported . A detrusor thickness of 5 mm or more on pelvic floor ultrasound diagnoses urge incontinence [20]. The pelvic floor ultrasound data obtained from this study showed that the regression

Table 3. Comparison of pelvic floor ultrasonography measurements in cystocele and rectocele groups

Parameter	Preop		Postop		p
	$\bar{X}$ ± S.S.	Median	$\bar{X}$ ± S.S.	Median	
Cystocele descent	34.68 ± 5	35.0	6.21 ± 1.18	6.0	**p < 0.001**
Rectum descent	6.84 ± 1.8	7.0	7.00 ± 1.59	8.0	p = 0.405
Uterine descent	11.15 ± 1.8	12.0	7.42 ± 1.53	7.0	**p < 0.001**
Parameter	**SUI (n = 7)**		**URGE (n = 9)**		
Bladder neck descent					
Preop	31.86 ± 3.8	33.0	16.33 ± 2.5	16.0	**p < 0.001**
Postop	15.85 ± 5.0	14.0	14.44 ± 2.0	14.0	p = 0.915
p	**p = 0.018**		**p = 0.003**		
Pubourethral distance					
Preop	13.87 ± 1.34	14.0	6.44 ± 1.3	6.0	**p < 0.001**
Postop	7.14 ± 2.4	6.0	6.11 ± 1.26	6.0	p = 0.408
p	**p = 0.017**		p = 0.180		
Urethral thickness					
Preop	4.86 ± 0.6	5.	3.89 ± 0.6	4.0	**p = 0.013**
Postop	4.14 ± 0.3	4.0	4.00 ± 0.5	4.0	p = 0.534
p	p = 0.059		p = 0.564		
Detrusor thickness					
Preop	8.14 ± 3.7	8	8.33 ± .7	8	p = 0.956
Postop	4.71 ± 1.3	4	4.78 ± 0.6	5	p = 0.655
p	**p = 0.012**		**p = 0.007**		
Pelvic floor ultrasonography measurements in rectocele group					
Cystocele descent	6.52 ± 1.06	6	6.52 ± 0.9	6	p = 1.000
Rectum descent	33.17 ± 4.8	34	6.41 ± 1.4	6	**p < 0.001**
Uterine descent	7.17 ± 1.1	7	6.88 ± 1.3	6	p = 0.461
Comparison of preoperative and postoperative FSFI scores in cystocele group					
FSFI	12.08 ± 4.6	13.5	25.55 ± 1.3	25.3	**p < 0.001**
Desire	2.56 ± 0.6	2.4	3.76 ± 0.2	3.6	**p < 0.001**
Arousal	2.01 ± 0.9	2.4	3.92 ± 0.3	3.9	**p < 0.001**
Lubrication	2.02 ± 0.9	2.4	5.18 ± 0.2	5.1	**p < 0.001**
Orgasm	1.52 ± 0.7	1.6	4.09 ± 0.3	4.0	**p < 0.001**
Satisfaction	2.02 ± 0.9	2.4	3.68 ± 0.4	3.6	**p < 0.001**
Pain	1.96 ± 0.9	2.0	4.92 ± 0.3	4.8	**p < 0.001**
Comparison of preoperative and postoperative FSFI scores in rectocele group					
FSFI	17.47 ± 1.3	17.6	29.88 ± 1.2	29.6	**p < 0.001**
Desire	2.50 ± 0.5	2.4	5.11 ± 0.6	4.8	**p < 0.001**
Arousal	2.43 ± 0.5	2.4	5.14 ± 0.2	5.1	**p < 0.001**
Lubrication	3.19 ± 0.3	3.0	5.21 ± 0.2	5.1	**p < 0.001**
Orgasm	2.96 ± 0.2	2.8	3.97 ± 0.1	4.0	**p < 0.001**
Satisfaction	2.45 ± 0.42	2.4	5.11 ± 0.3	5.2	**p < 0.001**
Pain	3.92 ± 0.29	4.0	5.34 ± 0.3	5.2	**p < 0.001**
Comparison of preoperative and postoperative OAB and ICIQ-SF scores in cystocele group					
OAB	23.95 ± 23.9	29.0	7.74 ± 3.4	8.0	**p < 0.001**
ICIQ-SF	13.68 ± 6.5	17.0	2.47 ± 2.2	2.0	**p < 0.001**

Table 4. Comparison of preoperative and postoperative prolapse stages

Operation	Preop		Postop		p
	$\bar{X} \pm S.S.$	Median	$\bar{X} \pm S.S.$	Median	
Cystocele group					
Apical stage	1.00 ± 0	1	0.32 ± 0.4	0.0	**p < 0.001**
Cystocele stage	2.84 ± 0.3	3	0.79 ± 0.4	1.0	**p < 0.001**
Rectocele stage	1.00 ± 0	1.0	1.00 ± 0	1.0	p = 1.000
Rectocele group					
Apical stage	1.00 ± 0	1.0	0.88 ± 0.3	1.0	p = 0.157
Cystocele stage	1.00 ± 0	1.0	1.00 ± 0	1.0	p = 1.000
Rectocele stage	2.82 ± 0.3	3.0	0.47 ± 0.5	0.0	**p < 0.001**
Pelvıc floor ultrasonography measurements ın cystocele group					
Cystocele descent	34.68 ± 5	35.0	6.21 ± 1.18	6.0	**p < 0.001**
Rectum descent	6.84 ± 1.8	7.0	7.00 ± 1.59	8.0	p = 0.405
Uterine descent	11.15 ± 1.8	12.0	7.42 ± 1.53	7.0	**p < 0.001**
Cystocele group	**n**	**%**	**n**	**%**	
SUI					
No	12	63.2	18	94.7	**p < 0.001**
Yes	7	36.8	1	5.3	
URGE					
No	5	26.3	19	100.0	**p < 0.001**
Yes	14	73.7	–	–	

in detrusor thickness was correlated with an improvement of urge symptoms (Tab. 3). According to OAB-V8 evaluation questionnaire, subjective treatment success was achieved, and a statistically significant difference was found. In the postoperative period, it was observed that success rate of urge symptoms improvement was 100%. In anterior compartment prolapse, the anterior colporrhaphy procedure invented by Sim in 1866 has become routine in clinical practice. Many clinicians have argued that this method has a high surgical failure rate because it is performed by utilizing a damaged and weak tissue, and additional operations are needed [21–24]. Based on this idea, non-absorbable mesh started to be used in cystocele repair in 1990 [24]. A study comparing anterior colporrhaphy and non-absorbable mesh use in 6603 women showed that based on the 1-year evaluation, the degree of prolapse improved anatomically in 356 patients who underwent mesh use, but complications such as postoperative pain, bladder injury, and the need for additional surgery were more common, especially in the first 2 months [25]. A study has found 75% and 95% success rates in the 1-year follow-up after cystocele surgery without and with mesh, respectively. Mesh erosion was detected in 15% of the patients at the 6-week and the 10-week postoperative follow-up, and mesh excision was required [26].

Menefee et al. [27] found 53%, 53% and 86% success rates in cystocele repair using anterior colporrhaphy, porcine graft, and mesh, respectively. According to several studies using propylene mesh, less recurrence risk was reported in the mesh group. However, the need for additional operation due to mesh complications was observed more in the cystocele surgery group [28]. In this study there was a statistical difference in the evaluation of preoperative and postoperative POP-Q staging. The pelvic floor ultrasound findings showed regression of cystocele descent (Tab. 3). Furthermore, a statistically significant improvement in apical prolapse is an indication of successful anatomical reconstruction.

In a prospective multicenter study, cystocele recurrence was found in 76 (54.7%) of 139 women a year after anterior colporrhaphy operation [29]. The recurrence rate was thought to be high in this multicenter study due to differences in surgeons, surgical technique and suture material used. In this study, all patients were operated on by the same surgeon using the same technique and the same suture material. At the end of 2 years follow-up, no recurrent case was observed. Furthermore, four patients had previously surgery (anterior colporrhaphy). Because of the recurrence we performed a second operation for them. Vergeldt et al. [29] addressed the reason of recurrence was because of grade 3 and above cystocele stage and reported that recurrence decreased in those who used mesh (OR1.06 vs 3.47). In our study, only the patient's natural tissue was used to

repair and 84.2% of all patients were grade 3 cystoceles. Even though no recurrence was detected in the 2-years follow-up.

The most common complications of cystocele repair surgery due to using mesh are erosion, infection, retraction, pelvic pain, vaginal bleeding or discharge, dyspareunia and bladder outlet obstruction. In a study comparing postoperative mesh complications, cure rates were found in favor of mesh [25]. According to Sand et al.'s study, there was no significant difference in the recurrence of rectocele with or without mesh in posterior compartment repair [30]. However, there is no clear consensus in the literature regarding the recurrence of rectocele when porcine graft is used in posterior repair [31]. In this study, the patient's natural tissue was used in cystocele and rectocele repair and the success rate was found to be very high. Complications due to mesh such as erosion were not observed with using patient's natural tissue. When using 80 watts of energy, there is no tissue necrosis. The subcutaneous tissues are exposed to 80 watts for a very brief period using a knob-tipped cautery, which allows the submucosal tissues to remain undamaged. As a result, we have never experienced complications such as necrosis and related infections.

In a study of cystocele surgery using porcine grafts, researchers found that the procedure improved quality of life and sexual function in women [27]. It is extremely important to evaluate sexual dysfunctions in pelvic organ prolapse including cystocele and rectocele. According to many studies, significant changes in sexual satisfaction and improvement in FSFI scores were found after anterior colporrhaphy, but it was thought that the postoperative follow-up period effects this situation [32]. According to this study, it was observed that sexual desire, sexual arousal, lubrication and orgasm of all patients increased according to FSFI score evaluation and accordingly, postoperative patient satisfaction was higher.

The limitations of our study are it's a retrospective cohort study and sample size is relatively small. Single physician performing the surgeries are beneficial to prevent technical bias on the results, however patient's follow-up was also carried out by a single person may have led to biased results. In the future, it is necessary to carry out multicenter and long-term prospective studies.

To conclude, the new novel technique (Dogan technique) that implies the using native vaginal tissue as a natural layer following deepithelization showed significant anatomical success. This technique may be beneficial in patients with weak vaginal tissue and recurrent cases as vagina was not excised. Furthermore, we showed that the urge and voiding dysfunctions were improved following strengthening the anterior and/or posterior compartments with native tissue.

Article information and declarations

Data availability statement

Availabile.

Ethics statement

Approval No: E-12483425-299-38574 İstanbul Esenyurt University.

Author contributions

OD: material preparation,surgical operation,ultrasound, data collection and analysis; CG: the first draft of the manuscript; GG: data analysis, carried out statistics; MY: filling forms and article writing. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Conflict of interest

None.

Supplementary material

None.

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