

The effect of stress incontinence and pelvic organ prolapse surgery on sexual function and quality of life

✉ Keziban Doğan¹, ✉ Mustafa Yasin Öztoprak², ✉ Mustafa Cengiz Dura¹, ✉ İlke Özer Aslan³

¹Clinic of Obstetrics and Gynecology, University of Health Sciences Turkey, Bakırköy Dr. Sadi Konuk Training and Research Hospital, İstanbul, Turkey

²Clinic of Obstetrics and Gynecology, Karaman Training and Research Hospital, Konya, Turkey

³Department of Obstetrics and Gynecology, Tekirdağ Namık Kemal University Faculty of Medicine, Tekirdağ, Turkey

Abstract

Objective: The objective of this study was to evaluate the sexual function and quality of life in female patients diagnosed with stress urinary incontinence (SUI) and pelvic organ prolapse (POP) after undergoing transobturator tape (TOT) or TOT with POP surgery and perineoplasty.

Material and Methods: This prospective study population (n=86) consisted of sexually active women who had been diagnosed with SUI. Forty-six patients diagnosed with SUI with no POP (group 1) underwent TOT procedure only. Forty patients had a diagnosis of stage 2 and higher POP, based on POP quantification system with SUI (group 2). The second group was randomized as TOT-POP surgery (n=20) and TOT-POP surgery with perineoplasty (n=20). Prior to and six months after the surgical procedure, all female participants underwent assessment using the validated Urinary Distress Pre-Operative Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7), and Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ).

Results: Post-operative IIQ-7 and UDI-6 scores were significantly lower for all three groups compared to the preoperative period, while a significant increase was observed in PISQ scores ($p < 0.01$). The dissimilarity in preoperative and postoperative IIQ-7 and UDI-6 scores exhibited comparable results across the groups, whereas the variance in PISQ scores was notably greater in the TOT + POP surgery + perineoplasty group ($p = 0.03$).

Conclusion: Women with SUI or SUI with POP have better quality of life and sexual dysfunction after surgery. Perineoplasty may enhance sexual life in patients with perineal defect and vaginal enlargement. (J Turk Ger Gynecol Assoc 2024; 25: 96-101)

Keywords: Pelvic organ prolapsus, perineoplasty, quality of life, stress urinary incontinence, transobturator tape

Received: 05 July, 2023 **Accepted:** 28 January, 2024

Introduction

Currently, there exists an increasing recognition and fascination surrounding the notion that sexual well-being is an essential element of women's health. In addition, it is widely acknowledged that sexuality plays a significant role in determining one's overall quality of life (1). Several studies have demonstrated that pelvic floor disorders (PFDs), including symptomatic pelvic organ prolapse (POP) and stress urinary incontinence (SUI), have a negative impact on women's sexual well-being and overall quality of life (2-4).

The primary challenges encountered by women with PFDs in their sexual lives involve abstaining from sexual intercourse and experiencing sexual dysfunction. These dysfunctions commonly manifest as reduced libido, complaints of vaginal dryness, and dyspareunia (4,5). One frequently observed concern that affects the sexual function of females is perineal trauma, which arises from neurologic and vascular dysfunction of the perineal muscles. This type of dysfunction has the potential to compromise the muscular integrity following vaginal delivery and episiotomies conducted during the



Address for Correspondence: Mustafa Cengiz Dura
e.mail: cengizdura@gmail.com ORCID: orcid.org/0000-0003-4083-8556
DOI: [10.4274/jtgga.galenos.2024.2023-1-13](https://doi.org/10.4274/jtgga.galenos.2024.2023-1-13)



Copyright© 2024 The Author. Published by Galenos Publishing House on behalf of Turkish-German Gynecological Association. This is an open access article under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 (CC BY-NC-ND) International License.

process of labor (6,7). Perineoplasty is a surgical procedure designed to address perineal abnormalities, with a particular focus on those that occur following childbirth. The present procedure entails the restoration of the perineal musculature and the rectification of the anatomical anomaly situated within the perineal region (8,9).

The surgical repair of POP is commonly linked to enhancements in sexual dysfunction and dyspareunia rates, despite the presence of variations in the anatomical presentation of the prolapsed vagina and the surgical interventions employed (10,11). The effects of surgical intervention on female sexual function in cases of SUI demonstrate a certain degree of variability. However, the majority of women report either no change or improvement in sexual function following the implementation of various urinary incontinence procedures (12-16).

Following a vaginal delivery, certain women may experience vaginal enlargement and deformity as a result of severe perineal tears, inadequately repaired episiotomy procedures, or diminished pelvic support (17). Despite its frequent application and relatively low complication rate, there is currently a lack of consensus on the standard surgical approach and indications for perineoplasty (18-20). Furthermore, the current body of literature exhibits a dearth of studies investigating the effects of perineoplasty surgery on female sexual function. There has been a scarcity of research focused solely on investigating the effects of perineoplasty, a surgical intervention designed to address perineal trauma arising from vaginal childbirth, on the sexual functioning of women (21,22).

The primary aim of this study was to evaluate the sexual functioning and quality of life in women suffering from SUI and POP following transobturator tape (TOT) surgery, as well as TOT combined with POP surgery and/or perineoplasty. The secondary objective was to conduct a comparative analysis of these procedures to examine potential disparities in sexual function and quality of life assessments.

Material and Methods

A prospective cohort study was undertaken at our tertiary university referral hospital from February 2020 to December 2021. Approval for the research was obtained from both the University of Health Sciences Turkey, Bakırköy Dr. Sadi Konuk Training and Research Hospital Institutional Review Board and Local Ethics Committee of the study site (approval number: 2020-04-16, date: 17.02.2020). The study included individual participants who provided informed consent. The study recruited a total of 86 sexually active women who had been diagnosed with SUI through urodynamic examination. The recruitment process was non-randomized and took place at an outpatient clinic. Among them, 46 patients diagnosed with

SUI with no POP underwent a TOT procedure only (group 1) and 40 had a diagnosis of stage 2 and higher POP, based on the pelvic organ prolapse quantification (POP-Q) system (23), with SUI. This group (n=40) was randomized; one half (n=20) underwent TOT-POP surgery (group 2), while the other half (n=20) underwent TOT-POP surgery with perineoplasty (group 3). The surgeries we performed within the scope of POP surgery were lateral suspension, sacrohysteropexy, sacrocolpopexy, sacrouterine plication, with abdominal hysterectomy or not, and colporrhaphy anterior-posterior, high MacCall, and sacrospinous fixation with vaginal hysterectomy or not. We did not use transvaginal mesh except in TOT for POP surgery.

Women who had previously undergone POP or incontinence surgery, previously been diagnosed with sexual dysfunction, received hormone replacement therapy, and/or used drugs that could affect sexual function, such as antidepressants, antipsychotics, and beta-blockers, were excluded from the study. During the preoperative evaluation, the patients' ages, body mass indexes (BMI), educational status, number of births, delivery types, menopausal status, and medical history were recorded. A detailed physical examination was performed, including transvaginal examination, stress test, and POP evaluations based on the POP-Q system (23). Transvaginal ultrasound was also performed to measure urethral length and to detect pelvic pathologies. A filling cystometry and pressure flow study were conducted in all patients in accordance with good urodynamic practice of the International Continence Association (24), and all women completed the validated version of Urinary Distress Pre-Operative Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7), and the Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ) prior to the surgery (25,26). They were re-evaluated at least six months postoperatively by UDI-6, IIQ-7, and PISQ questionnaires, and stress test. A vaginal examination was performed to assess the complications, and transvaginal ultrasonography was performed to evaluate mesh location and the ratio between the mesh-urethra distance and the urethral length in order to optimally perform midurethral mesh placement during surgery.

Statistical analysis

The statistical analysis was conducted using the NCSS 2007 program (Kaysville, Utah, USA). The study data was analyzed using descriptive statistical techniques such as mean, standard deviation, median, frequency, percentage, minimum, and maximum. Shapiro-Wilk and graphical analysis assessed quantitative data for normal distribution. Quantitative variables with non-normal distribution were compared using Mann-Whitney U test. Kruskal-Wallis and Dunn-Bonferroni tests were used to compare more than two groups of non-normal quantitative data. Comparing qualitative data used the

Pearson's chi-square and Fisher-Freeman-Halton exact tests. Statistical significance was set at $p < 0.05$.

Results

This study included 86 women with a mean age of 54 ± 8 years, ranging from 40-72 years. TOT was used in 53.4% ($n=46$), TOT + POP surgery in 23.2% ($n=20$), and TOT + POP surgery + perineoplasty in 23.2% ($n=20$) of the study participants.

Bladder injury occurred in 1 (1.3%) during the operation. De novo urgency and recurrent SUI developed in 15.1% ($n=13$), while mesh erosion was observed in 2 (2.3%) in the late period. The urethra length of the cases ranged from 30 to 54 mm with a mean of 38 ± 5.1 mm, the distance between the mesh and distal urethra was between 12 and 30 mm (mean; 19.2 ± 3.7 mm), and the ratio of the mesh-urethra distance and urethral length ranged from 0.3 to 0.8 (mean; 0.5 ± 0.1).

The demographic characteristics of the cases are shown in Table 1, 2. Operation type did not differ by age, BMI, education, parity, or delivery type ($p > 0.05$). However, in the assessment of menopausal status, surgical menopause was more prevalent in the TOT + POP surgery group ($p=0.03$). Late complications, subjective operation satisfaction, postoperative stress test ratio, preoperative doing regular Kegels exercise, urethra lengths, and mesh urethra/urethra length ratio did not differ by operation type ($p > 0.05$). As shown in Table 3, when the

pre- and postoperative six-month IIQ-7, UDI-6, and PISQ scores were compared by operation type, no significant difference was found ($p > 0.05$). However, when comparing the preoperative IIQ-7 and UDI-6 scores with the postoperative IIQ-7 and UDI-6 scores for all three groups, a significant decrease was detected, while a significant increase was found in the PISQ scores ($p < 0.01$). When the difference in the scores of IIQ-7 and UDI-6 was evaluated, there was no significant difference between the groups ($p=0.11$ and $p=0.14$ respectively). However, when the difference in scores of PISQ was evaluated, it was significantly increased in group 3 ($p=0.03$). No significant difference was observed between the ratio of mesh-urethra distance and urethral length according to the operation satisfaction levels of the study participants ($p=0.18$). Furthermore, there was no significant difference between the distribution of satisfaction levels with the operation according to urinary incontinence during sexual intercourse ($p=0.08$). No significant difference was observed between the distribution of the satisfaction levels of the operation according to the participants experiencing negative feelings such as fear, embarrassment, disgust, or guilt during sexual intercourse ($p=0.20$), as shown in Table 4.

Discussion

An improvement in postoperative quality of life and sexual life across all three groups undergoing surgery for SUI and

Table 1. Characteristics of the study groups

		TOT (n=46)	TOT + POP surgery (n=20)	TOT + POP surgery + perineoplasty (n=20)	P
Age (years)	Median (min.-max.)	52 (41-72)	56 (40-70)	55 (45-72)	0.21
BMI (kg/m ²)	Median (min.-max.)	31.2 (21-47.6)	30.7 (22-43.9)	31.2 (22.9-41.7)	0.71
Education status	Literate	8 (17%)	2 (10%)	4 (20%)	
	Primary school	26 (57%)	14 (70%)	12 (60%)	
	Middle school	4 (9%)	2 (10%)	3 (15%)	
	High school	8 (17%)	2 (10%)	1 (5%)	0.62
Parity	Median (min.-max.)	3 (1-8)	3 (2-7)	3 (2-9)	0.17
	1 birth	2 (4%)	0 (0%)	0 (0%)	
	2 births	18 (39%)	4 (20%)	4 (20%)	
	3 births	12 (26%)	11 (55%)	8 (40%)	
	≥4 births	14 (30%)	5 (25%)	8 (40%)	0.24
Delivery type	Vaginal	42 (91%)	15 (75%)	17 (85%)	
	Abdominal	2 (4%)	0 (0%)	0 (0%)	
	Vaginal + abdominal	2 (4%)	5 (25%)	3 (15%)	0.10
Menopausal status	Premenopause	9 (20%)	1 (5%)	3 (15%)	
	Menopause	28 (61%)	13 (65%)	17 (85%)	
	Surgical menopause	5 (11%)	6 (30%)	0 (0%)	
	Perimenopause	4 (9%)	0 (0%)	0 (0%)	0.03

Bold values are statistically significant at $p < 0.05$. TOT: Transobtrator tape, POP: pelvic organ prolapsus, BMI: Body mass index, min.: Minimum, max.: Maximum

Table 2. Comparisons of data according to operation types

		TOT (n=46)	TOT + POP surgery (n=20)	TOT + POP surgery + perineoplasty (n=20)	P
Early and late complications	No	38 (83%)	16 (80%)	17 (85%)	0.56
	Yes	8 (17%)	4 (20%)	3 (15%)	
Subjective postoperative satisfaction	Good	32 (70%)	12 (60%)	15 (75%)	0.75
	Not bad	8 (17%)	6 (3%)	3 (15%)	
	Bad	6 (13%)	2 (10%)	2 (10%)	
Stress test at 6 months postoperatively	Negative	38 (83%)	19 (95%)	20 (100%)	0.07
	Positive	8 (17%)	1 (5%)	0 (0%)	
Preoperative doing regular Kegel exercise	Yes	38 (83%)	19 (95%)	18 (90%)	0.55
	No	8 (17%)	1 (5%)	2 (10%)	
Kegel exercise before operation (month)	N	40	17	18	0.63
	M (min.-max.)	6 (3-6)	6 (3-6)	6 (2-6)	
Urethral length	M (min.-max.)	39 (30-54)	37.5 (30-46)	38.5 (30-47)	0.60
Mesh urethra/urethral length		0.5 (0.3-0.7)	0.5 (0.3-0.8)	0.5 (0.4-0.8)	0.47

M, median, TOT: Transobturator tape, POP: Pelvic organ prolapsus, min.: Minimum, max.: Maximum

Table 3. Comparisons of the pre- and postoperative six-month IIQ-7, UDI-6, and PISQ scores according to operation types

	TOT (n=46) Median (min.-max.)	TOT + POP surgery (n=20) Median (min.-max.)	TOT + POP surgery + perineoplasty (n=20) Median (min.-max.)	P
Preoperative IIQ-7	9 (2-18)	7 (2-16)	12 (1-17)	0.08
Postoperative IIQ-7	1 (0-18)	3 (0-11)	0 (0-17)	0.48
	p=0.001	p=0.003	p=0.004	
Δ IIQ7	6.5 (-13-18)	4 (-6-14)	7 (-4-17)	0.11
Preoperative UDI-6	9 (3-15)	9 (2-11)	9.5 (4-16)	0.09
Postoperative UDI-6	3 (0-12)	4 (0-9)	4 (0-9)	0.5
	p=0.001	p=0.001	p=0.002	
Δ UDI-6	5 (-8-12)	5 (-3-8)	5.5 (-4-16)	0.14
Preoperative PISQ	27.5 (13-40)	27.5 (18-37)	22.5 (5-37)	0.13
Postoperative PISQ	32.5 (17-40)	30 (21-39)	34 (29-40)	0.10
	p=0.001	p=0.03	p=0.001	
Δ PISQ	-4 (-17-9)	-3.5 (-15-8)	-7 (-35-0)	0.03

Bold values are statistically significant at p<0.05. UDI-6: Urinary Distress Pre-Operative Inventory, IIQ-7: Incontinence Impact Questionnaire, PISQ: Pelvic Organ Prolapse Incontinence Sexual Questionnaire, min.: Minimum, max.: Maximum, TOT: Transobturator tape, POP: Pelvic organ prolapsus

POP was observed. However, there was a notable significant difference in augmentation in sexual life score reported by the patients where perineoplasty was incorporated alongside TOT and POP surgery, in comparison to the remaining two groups. This suggests that the inclusion of perineoplasty alongside TOT and POP surgery in individuals with perineal defects can significantly enhance sexual quality of life at or after the six-month mark following surgery. Stress incontinence, POPs, and wide vagina association are common due to the similar etiology. Females experiencing the perception of a broad vaginal canal may express dissatisfaction with reduced friction

during sexual intercourse and a decline in sexual gratification. In TOT-treated SUI patients, quality of life and sexual life scores increased dramatically after the sixth postoperative month. Although a small proportion of earlier studies reported that sexual life worsened because of dyspareunia after SUI surgery, most found that sexual life scores improved or did not change (12,15,16,27,28). A meta-analysis of a secondary analysis of the Stress Incontinence Surgical treatment efficacy trial and trial of mid-urethral slings found that women who underwent anti-incontinence surgery had improved sexual function from baseline to 24 months post-surgery. Although surgical

Table 4. The relationship of subjective postoperative satisfaction with incontinence and negative emotional reactions during sexual intercourse and mesh urethra/urethral length ratio

Subjective postoperative satisfaction levels		Good (n=59)	Not bad (n=17)	Bad (n=10)	p
Mesh-urethra distance/urethral length	Median (min.-max.)	0.5 (0.3-0.8)	0.5 (0.4-0.6)	0.5 (0.3-0.7)	0.18
Are you incontinent of urine (leak urine) with sexual activity?	Always	12 (20%)	2 (12%)	0 (0%)	0.08
	Usually	14 (24%)	1 (6%)	1 (10%)	
	Sometimes	7 (12%)	2 (12%)	4 (40%)	
	Rarely	3 (5%)	0 (0%)	1 (10%)	
	No	23 (39%)	12 (70%)	4 (40%)	
When you have sex with your partner, do you have negative emotional reactions such as fear, disgust, shame or guilt?	Always	0 (0%)	0 (0%)	0 (0%)	0.20
	Usually	17 (29%)	3 (17%)	1 (10%)	
	Sometimes	20 (34%)	2 (12%)	6 (60%)	
	Rarely	6 (10%)	1 (6%)	0 (0%)	
	No	16 (27%)	11 (65%)	3 (30%)	

procedures vary, most improvement happens in the first 12 months and persists for 24 months (28).

As pelvic organs prolapse from different anatomical regions of the vagina, such as anterior, apical, posterior, or combined, surgical repair types (abdominal, vaginal, natural tissue, synthetic mesh) also vary. However, several studies have shown that surgical repair of POP results in improvement in sexual dysfunction and dyspareunia, similar to our study results (10,29-31). After anterior repairs, uterosacral suspensions, sacrospinous suspensions, and sacrocolpopexy, PISQ-12 scores increased in a 2020 systematic analysis of 67 research articles. However, the scores did not change after posterior repairs and surgeries in which transvaginal mesh and biological grafts were applied (32). Similarly, the results of the CARE study evaluating the effect of abdominal sacrocolpopexy on sexual function reported that mean PISQ scores increased one year after the surgery (11).

Perineoplasty may help women who suffer sexual dysfunctions after vaginal delivery (21). Perineoplasty can alleviate the sensation of a wide vagina with minimal complication rates and excellent patient satisfaction (22). Another study revealed that sexual satisfaction significantly increased in women with vaginal laxity six and 18 months after colpoperineoplasty (11,33). The findings of the present study revealed that adding perineoplasty to TOT and POP surgery appeared to improve the quality of sexual life much more in the sixth postoperative month, similar to the results of these earlier studies.

The low case count and PISQ-12's sexual dysfunction assessment may be limitations of this investigation. PISQ-12 measures sexual function well, but it does not examine partner-related issues and so sexual dysfunction cannot be

fully understood. The IUGA-revised Pelvic Organ Prolapse/Incontinence Sexual Questionnaire (PISQ-IR) in Turkish is not valid or accurate. The PISQ-IR questionnaire was unavailable for our investigation.

Conclusion

When women with a diagnosis of SUI and/or POP with SUI are treated with an appropriate surgical method, their quality of life increases, and their sexual dysfunctions improve.

Ethics Committee Approval: The study was approved by the University of Health Sciences Turkey, Bakırköy Dr. Sadi Konuk Training and Research Hospital Ethics Committee (approval number: approval number: 2020-04-16, date: 17.02.2020).

Informed Consent: The study included individual participants who provided informed consent.

Author Contributions: Surgical and Medical Practices: K.D., M.Y.Ö.; Concept: K.D., M.Y.Ö., M.C.D., İ.Ö.A.; Design: M.C.D., İ.Ö.A.; Data Collection or Processing: K.D., M.Y.Ö., M.C.D., İ.Ö.A.; Analysis or Interpretation: K.D., M.Y.Ö., M.C.D., İ.Ö.A.; Literature Search: K.D., M.Y.Ö., M.C.D., İ.Ö.A.; Writing: K.D., M.Y.Ö., M.C.D., İ.Ö.A.

Conflict of Interest: No conflict of interest is declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

- Lowenstein L, Pierce K, Pauls R. Urogynecology and sexual function research. How are we doing? *J Sex Med* 2009; 6: 199-204.
- Ugurlucan FG, Evruke I, Yasa C, Dural O, Yalcin O. Sexual functions and quality of life of women over 50 years with urinary incontinence, lower urinary tract symptoms and/or pelvic organ prolapse. *Int J Impot Res* 2020; 32: 535-43.
- Barber MD, Visco AG, Wyman JF, Fantl JA, Bump RC; Continence Program for Women Research Group. Sexual function in women with urinary incontinence and pelvic organ prolapse. *Obstet Gynecol* 2002; 99: 281-9.
- Handa VL, Cundiff G, Chang HH, Helzlsouer KJ. Female sexual function and pelvic floor disorders. *Obstet Gynecol* 2008; 111: 1045-52.
- Edenfield AL, Levin PJ, Dieter AA, Amundsen CL, Siddiqui NY. Sexual activity and vaginal topography in women with symptomatic pelvic floor disorders. *J Sex Med* 2015; 12: 416-23.
- Gommesen D, Nøhr E, Qvist N, Rasch V. Obstetric perineal tears, sexual function and dyspareunia among primiparous women 12 months postpartum: a prospective cohort study. *BMJ Open* 2019; 9: e032368.
- Glazener CM. Sexual function after childbirth: women's experiences, persistent morbidity and lack of professional recognition. *Br J Obstet Gynaecol* 1997; 104: 330-5.
- Goodman M, Fashler S, Miklos JR, Moore RD, Brotto LA. The sexual, psychological, and body image health of women undergoing elective vulvovaginal plastic/cosmetic procedures: A pilot study. *The American Journal of Cosmetic Surgery* 2011; 28: 219-26.
- Shaw D, Allen L, Chan C, Kives S, Popadiuk C, Robertson D, et al. Guideline No. 423: Female Genital Cosmetic Surgery and Procedures. *J Obstet Gynaecol Can* 2022; 44: 204-14.e1.
- Jha S, Gray T. A systematic review and meta-analysis of the impact of native tissue repair for pelvic organ prolapse on sexual function. *Int Urogynecol J* 2015; 26: 321-7.
- Antosh DD, Kim-Fine S, Meriwether KV, Kanter G, Dieter AA, Mamik MM, et al. Changes in sexual activity and function after pelvic organ prolapse surgery: a systematic review. *Obstet Gynecol* 2020; 136: 922-31.
- Kim DY, Choi JD. Change of sexual function after midurethral sling procedure for stress urinary incontinence. *Int J Urol* 2008; 15: 716-9.
- Jha S, Moran P, Greenham H, Ford C. Sexual function following surgery for urodynamic stress incontinence. *Int Urogynecol J Pelvic Floor Dysfunct* 2007; 18: 845-50.
- Filocamo MT, Serati M, Frumenzio E, Li Marzi V, Cattoni E, Champagne A, et al. The impact of mid-urethral slings for the treatment of urodynamic stress incontinence on female sexual function: a multicenter prospective study. *J Sex Med* 2011; 8: 2002-8.
- Arts-de Jong M, van Altena AM, Aalders CI, Dijkhuizen FP, van Balken MR. Improvement of sexual function after transobturator tape procedure in women with stress urinary incontinence. *Gynecol Surg* 2011; 8: 315-9.
- Glass Clark SM, Huang Q, Sima AP, Siff LN. Effect of Surgery for Stress Incontinence on Female Sexual Function. *Obstet Gynecol* 2020; 135: 352-60.
- Millheiser LS, Pauls RN, Herbst SJ, Chen BH. Radiofrequency treatment of vaginal laxity after vaginal delivery: nonsurgical vaginal tightening. *J Sex Med* 2010; 7: 3088-95.
- Kanter G, Jeppson PC, McGuire BL, Rogers RG. Perineorrhaphy: commonly performed yet poorly understood. A survey of surgeons. *International. Int Urogynecol J* 2015; 26: 1797-801.
- Dobbeleir JM, Landuyt KV, Monstrey SJ. Aesthetic surgery of the female genitalia. *Semin Plast Surg* 2011; 25: 130-41.
- Furnas HJ, Canales FL. Vaginoplasty and Perineoplasty. *Plast Reconstr Surg Glob Open* 2017; 5: e1558.
- İnan C, Ağır MÇ, Sağır FG, Özer A, Özbek Ö, Dayanır H, et al. Assessment of the effects of perineoplasty on female sexual function. *Balkan Med J* 2015; 32: 260-5.
- Ulubay M, Keskin U, Fidan U, Ozturk M, Bodur S, Yilmaz A, et al. Safety, efficiency, and outcomes of perineoplasty: treatment of the sensation of a wide vagina. *Biomed Res Int* 2016; 2016: 2495105.
- Bump RC, Mattiasson A, Bø K, Brubaker LP, DeLancey JO, Klarskov P, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. *Am J Obstet Gynecol* 1996; 175: 10-7.
- Rosier PFWM, Schaefer W, Lose G, Goldman HB, Guralnick M, Eustice S, et al. International Continence Society Standard Good Urodynamic Practices and Terms 2015. Urodynamics, Uroflowmetry, Cystometry and Pressure-Flow Study in International Continence Society Annual Meeting. Montreal, Canada; 2015.
- Cam C, Sakalli M, Ay P, Cam M, Karateke. Validation of the short forms of the incontinence impact questionnaire (IIQ-7) and the urogenital distress inventory (UDI-6) in a Turkish population. *Neurourol Urodyn* 2007; 26: 129-33.
- Bilgic Celik D, Beji NK, Yalcin O. Turkish adaptation of the short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire (PISQ-12): a validation and reliability study. *Neurourol Urodyn* 2013; 32: 1068-73.
- Pauls RN, Silva WA, Rooney CM, Siddighi S, Kleeman SD, Dryfhout V, et al., Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* 2007; 197: 622.e1-7.
- Yeni E, Unal D, Verit A, Kafali H, Ciftci H, Gulum M. The effect of tension-free vaginal tape (TVT) procedure on sexual function in women with stress urinary incontinence. *Int Urogynecol J* 2003; 14: 390-4.
- Zhang Y, Song X, Kang J, Ma Y, Ma C, Zhu L. Sexual function after tension-free vaginal tape procedure in stress urinary incontinence patients. *Menopause* 2020; 27: 1143-7.
- Sarlos D, Brandner S, Kots L, Gygas N, Schaer G. Laparoscopic sacrocolpopexy for uterine and post-hysterectomy prolapse: anatomical results, quality of life and perioperative outcome-a prospective study with 101 cases. *Int Urogynecol J Pelvic Floor Dysfunct* 2008; 19: 1415-22.
- Maher CM, Feiner B, Baessler K, Glazener CM. Surgical management of pelvic organ prolapse in women: the updated summary version Cochrane review. *Int Urogynecol J* 2011; 22: 1445-57.
- Azar M, Noohi S, Radfar S, Radfar MH. Sexual function in women after surgery for pelvic organ prolapse. *Int Urogynecol J Pelvic Floor Dysfunct* 2008; 19: 53-7.
- Handa VL, Zyczynski HM, Brubaker L, Nygaard I, Janz NK, Richter HE, et al. Sexual function before and after sacrocolpopexy for pelvic organ prolapse. *Am J Obstet Gynecol* 2007; 197: 629.e1-6.