

Evaluation of Mini Sling Complications and the Results of One Year-Treatment

Mini Sling Komplikasyonları ve Bir Yıllık Tedavi Sonuçlarının Değerlendirilmesi

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ABSTRACT Objective: The aim of the study is to evaluate the complications and the results of one year treatment in patients subjected to mini sling operations due to stress urinary incontinence. **Material and Methods:** In this retrospective study, 48 patients subjected to mini sling operation due to stress urinary incontinence at Private Cizre Surgical Medical Center and Private Cizre Botan Hospital between 17th of August 2012 and 12th of October 2013. **Results:** In our study, the average age of the cases was 43.48±7.28 years, the parity was 7.04±2.24, and the average operation time was 7.21±1.34 minutes. The negative cough stress test rate after mini sling was 91.7% at the 6th week, 89.6% at 1st year. In 1 of the cases (2.1%) vaginal sulcus perforation as intraoperative complication, in 3 of the cases (6.3%), postoperative inguinal pain and in 3 of the cases (6.3%) de novo urge incontinence has been observed. No mesh erosion has been observed in any of the cases. **Conclusion:** Mini sling operations are minimally invasive; the short term results are comparable with traditional sling operations and the rate of complications is lower. Further studies are required for the determination of long-term success rates.

Key Words: Urinary incontinence, stress; treatment outcome; suburethral slings

ÖZET Amaç: Stres üriner inkontinans nedeniyle mini sling operasyonu yapılan hastaların komplikasyonları ve bir yıllık tedavi sonuçlarının değerlendirilmesidir. **Gereç ve Yöntemler:** Bu çalışmada 17 Ağustos 2012-12 Ekim 2013 tarihleri arasında Özel Cizre Cerrahi Tıp Merkezi ve Özel Cizre Botan Hospital'de stres üriner inkontinans nedeniyle mini-sling operasyonu yapılan 48 hasta retrospektif olarak değerlendirilmiştir. **Bulgular:** Çalışmamızda değerlendirilen olguların yaş ortalamaları 43,48±7,28 yıl, pariteleri 7,04±2,24, ortalama operasyon süresi 7,21±1,34 dakikadır. Olguların mini sling sonrası negatif öksürük stres testi oranı 6. haftada %91,7, 1. yılda %89,6'dır. Olguların 1 (%2,1)'inde intraoperatif komplikasyon olarak vajinal sulkus perforasyonu, 3 (%6,3)'ünde postop kasık ağrısı ve 3 (%6,3)'ünde de novo urge inkontinans görülmüştür. Olguların hiçbirinde mesh erozyonu ortaya çıkmamıştır. **Sonuç:** Mini sling operasyonları minimal invaziv, kısa dönem sonuçları geleneksel sling operasyonları ile kıyaslanabilir düzeyde iken komplikasyon oranları da daha düşüktür. Uzun dönem başarı oranlarının belirlenmesi için daha ileri çalışmalarına gerek vardır.

Anahtar Kelimeler: Üriner inkontinans, stres; tedavi sonucu; subüretal slingler

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Stress urinary incontinence is supposed to affect 4-35% of adult women and to have negative effects on the quality of life of these affected women.¹ In the last century, more than 100 surgical treatment methods have been proposed and the success rates of these techniques vary between 73 and 96%.² Proposed for the first time in 1996, the utilization of tension-free vaginal tape (TVT) in stress urinary incontinence (SUI) treat-

ment has been a breakthrough in this area.³ In 2001, the transobturator tape (TOT) has been developed by Delorme et al.⁴ In the following years, focus has been made on less invasive and more efficient techniques. In 2006, mini sling operations have started with the utilization of TVT-Secur and the short term success rates of this first mini sling procedure have been observed to be 10% lower than traditional sling operations.^{5,6} MiniArc® mini sling material developed later has presented short term success rates similar to traditional slings.^{7,8} Due to the prevention of blind dissection of retro pubic and inguinal, mini slings provide equal efficiency to standard midurethral slings together with decreased peri-operative morbidity incidence.^{9,10}

The aim of this study is to evaluate the complications and the results of one year treatment in patients subjected to mini sling operations due to stress urinary incontinence.

MATERIAL AND METHODS

In this retrospective study, 48 patients subjected to mini sling operation due to stress urinary incontinence at Private Cizre Surgical Medical Center and Private Cizre Botan Hospital between 17th of August 2012 and 12th of October 2013. All the patients have been subjected to gynecological examination in lithotomic position before operation. After checking that the bladder was filled at >200 mL by ultrasound, cough stress test has been performed. After informing the patients with positive cough stress test (CST) about the operation, their approval has been obtained. All the operations have been performed by the same surgeon under spinal anesthesia conditions in operations room. After emptying the bladder of the patients using foley probe in lithotomic position, a 1.5 cm vertical cut 1.5 cm under external urethral meatus has been performed. The vaginal epithelium has been dissected from the sub urethral area using scalpel, from the ascendant branch of the ischiopubic bone laterally to the obturator protecting the endopelvic fault. To reduce at the minimum the tissue damage, excessive traction has been prevented, and the utilization of cautery has been limited, aggressive posterior wall defect repair has been avoided in pa-

tients with vaginal posterior wall defect to reduce the damage that may develop associated to physical pressure during advanced coitus and dissection has not been performed. Mesh extremities have been installed using trocar at each side of obturator internus muscle. After establishing a 1-2 mm space between mesh and urethra, an incision of 0.5 cm maximum using tissue scissors of the damaged vaginal mucosa by holding with clamps has been performed and the incision has been sutured after restoration. A povidon iodine roller tampon has been placed in the vagina and a 18F foley probe has been installed in the bladder. Foley probe and vaginal tampon have been removed at the first post-operative day. The patients have been evaluated at the 6th week and at the 12th month following the operation. The patients with genital organ prolapse, other medical conditions and other incontinence types (Urge, Mixed, Overflow and functional incontinence) were excluded.

STATISTICAL ANALYSIS

When evaluating the results obtained in the study, IBM SPSS Statistics 22 (IBM SPSS, Turkey) software has been used for statistical analysis. When evaluating the data, defining statistics (average, standard deviation, frequency) have been used.

RESULTS

The study has been performed on 48 patients between 17th of August 2012 and 12th of October 2013. The ages of the cases vary between 30 and 57 year old and the average is 43.48 ± 7.28 years. The parity number of the cases varies between 3 and 12, the average is 7.04 ± 2.24 , the median is 7. The operation times vary between 6 and 10 min and the average is 7.21 ± 1.34 minutes. Distribution of study parameters of the women undergoing mini sling operations due to SUI were summarized (Table 1).

The preoperation CST result of all the 48 cases (100%) is positive. The CST at the postoperative 6th week was positive for 4 of the cases (8.3%), while the result was negative for 44 of them (91.7%). The CST at the postoperative 1st year was positive for 5 of the cases (10.4%), while the result was negative for 43 of them (89.6%).

Vaginal sulcus perforation has been observed as intraoperative complication in 1 (2.1%) of the cases, postoperative inguinal pain in 3 of the cases (6.3%) and de novo urge incontinence has been observed in 3 of the cases (6.3%). No mesh erosion has been observed in any of the cases.

DISCUSSION

Nowadays, less invasive and reliable methods are preferred in SUI treatment in women. Complications are not reduced to zero in methods used individually and the success is not hundred %.¹¹

In our study, the average age of the cases was 43.48 ± 7.28 years, the parity was 7.04 ± 2.24 , the average operation time was 7.21 ± 1.34 minutes. In the study of De Rider et al., the mean operation time was 11 ± 6 min, in the study of Moore et al. it was 7 ± 3.4 min and the results of both studies were similar to ours.^{7,12}

In the study of De Rider et al., the negative CST result was 91% at the 6th week and 85% at the 1st year; in the study of Moore et al., the negative CST result 93% at the 12th week and 91.4% at the 1st year; in the study of Calvo et al. the negative CST result was 90% at the 101st day.^{5,7,12} In our study, the negative CST result was 91.7% at the 6th week and 89.6% at the 1st year; the results of the three studies were similar.

Walsh et al. have analyzed 10 studies about mini sling and have indicated a 2.4% mesh erosion in 1178 cases.¹³ In a study performed by Taner et al. on 151 cases, this rate has been proposed as

4.6%.⁸ In a study on 61 cases of Moore et al., no mesh erosion has been reported.⁷ Similarly, in a series of De Rider et al. on 75 cases, no mesh erosion has been proposed.¹² In our study as well, no mesh erosion has developed in any cases.

De Rider et al. have reported postoperative inguinal pain in 4% of the 75 patients series subjected to mini sling.¹² Moore et al. did not report any postoperative inguinal pain in the 61 patient series.⁷ In our study, the postoperative inguinal pain rate was 6.6% and this result was similar to the result obtained by De Rider et al.

No intraoperative bladder and urethra wounding has been observed in our study. These two complications have not been reported in the literature.^{7,12} Moore et al. have reported intraoperative vaginal sulcus perforation in 1 (1,3%) while Taner et al. have reported it in 6 cases (3,9%) and the patients who developed vaginal sulcus perforation have been primarily sutured during the operation in these two studies.^{7,8} In the series of De Rider et al., no case of vaginal sulcus perforation has developed.¹² In our study, it has developed in 1 case (2.1%) and has been repaired by intraoperative primary suture.

In mini sling operations, iatrogenic artery injuries have been evaluated in 10 studies analyzed by Walsh et al.; internal pudental artery injury has developed in only one case and the necessity of radiological embolization to provide homeostasis has been reported.¹³ In our study, no iatrogenic artery injury has developed.

Taner et al. have reported de novo urge incontinence in patients subjected to mini sling in 10 cases (6.6%).⁸ De Rider et al. have reported this situation in 5 cases (9%).¹² In our study, de novo urge incontinence has been determined in 3 cases (6.3%). Our results are similar to those of Taner et al.

In conclusion, mini sling operations are minimal invasive operations used in SUI treatment and the short term results are comparable to traditional sling operations. Shorter operation times and less developed complications in patients subjected to mini sling are considered as advantages but further studies are required on this subject because long term success rates are not defined yet.

TABLE 1: Distribution of study parameters.

Parameters		n	%
Preoperation cough stress test	Positive	48	100
Cough stress test at the 6 th postop. week	Negative	44	91,7
Cough stress test at the 1 st postop. year	Negative	43	89,6
Vaginal sulcus perforation		1	2,1
Postoperation inguinal pain	Yes	3	6,3
Mesh erosion	No	48	100
De novo urge incontinence	Yes	3	6,3

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