EVALUATION OF TREATMENT SUCCESS IN PATIENTS WHO UNDERWENT TRANSOBTURATOR TAPE SURGERY

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SUMMARY

Aim: *Transobturator tape (TOT), a minimal invasive surgery for patients with urinary incontinence, is also frequently applied in addition to other gynecologic surgeries. Previous studies report a cure rate of 80-92% with TOT. In this study, we aimed to evaluate treatment success in patients to whom TOT was applied in our clinics.*
Materials and methods: *Patients to whom TOT was applied in our clinics between January 2009 and April 2013 were retrospectively evaluated. Follow up records were investigated to find out our TOT success rate and other urogynecologic problems that developed during follow up. Presence of ongoing urinary incontinence was accepted as TOT failure.*
Results: *107 cases to whom TOT was applied and with accessible data were included. Median age of the cases was 59 (26-84). 72% (n=77) of these were in menopause, 91.6% (n=98) were multiparous and 59.8% (n=64) had simultaneous gynecologic surgeries. Most frequent additional operation was vaginal hysterectomy (n=42, 39.3%). Median postoperative follow up duration was 2.4 years (0.5-4years). 13.1% (n=14) of the cases had ongoing urinary incontinence during follow up. Our TOT success rate was 87.9%. This rate was 87.5% in cases with and 88.4% in cases without a simultaneous surgery (p>0.05); 85.7% in postmenopausal and 93.3% in premenopausal cases (p>0.05). During follow up, cystocele developed in 8.4% and cuff prolapsus developed in 11.2% of the cases.*
Conclusions: *Cure rate of TOT cases in our clinics is in accordance with the numbers in the literature. TOT success rate is not affected from the menopausal status or the application of any other simultaneous gynecologic surgery.*

Key words: *postoperative complications, transobturator tape, urinary incontinence*

Journal of Turkish Society of Obstetrics and Gynecology, (J Turk Soc Obstet Gynecol), *2014; Vol: 11, Issue: Pages:*

TRANSOBTURATOR TAPE UYGULANAN OLGULARDA TEDAVİ BAŞARISININ DEĞERLENDİRİLMESİ

ÖZET

Amaç: *Üriner inkontinans tedavisinde minimal invaziv bir cerrahi yöntem olan transobturator tape (TOT), diğer jinekolojik cerrahilere ek olarak da sıklıkla uygulanmaktadır. Geçmiş çalışmalarda TOT ile %80-92 arasında değişen kür oranları bildirilmiştir. Bu çalışmada, kliniğimizde TOT uygulanan olgularda tedavi başarısının değerlendirilmesi amaçlandı.*
Gereç ve yöntemler: *Ocak 2009-Nisan 2013 tarihleri arasında kliniğimizde TOT uygulanan olgular retrospektif olarak incelendi. Olguların takip kontrollerine ait kayıtlar incelenerek TOT başarısı ve takipte gelişen diğer ürojinekolojik problemler değerlendirildi. Devam eden idrar kaçırma şikâyetinin olması TOT başarısızlığı olarak değerlendirildi.*
Bulgular: *TOT uygulanan ve verilerine ulaşılabilen 107 olgu çalışmaya dahil edildi. Olguların ortanca yaşı 59 (26-84) idi. %72'si (n=77) menopozda, %91.6'sı (n=98) multipar ve %59.8'ine (n=64) TOT ile eş zamanlı başka operasyonlar uygulanmıştı. En sık yapılan eş zamanlı operasyon vajinal histerektomi idi (n = 42, % 39.3). Olguların*

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Received: 10 October 2013, revised: 30 December 2013, accepted: 06 January 2014, online publication: 08 Janura 2014

 DOI ID:10.5505/tjod.2014.73693

ortalama postoperatif takip süresi 2.4 yıl (0.5 - 4 yıl) idi. Takip süresinde olguların % 12.1'inde (n=14) devam eden idrar kaçırma şikayetinin olduğu gözlendi. TOT başarı oranımız % 87.9 olarak hesaplandı. Bu oran ek operasyon uygulanan olgularda % 87.5, ek operasyon uygulanmayanlarda % 88.4 (p>0.05); menopozda olan olgularda % 85.7, menopoz öncesi operasyon uygulananlarda ise %93.3 (p>0.05) saptandı. Yine, takipte olguların % 8.4'ünde sistosel, % 11.2'sinde kaf prolapsusu geliştiği saptandı.

***Sonuç:** Kliniğimizdeki TOT vakalarındaki kür oranı literatürdeki rakamlarla uyumludur. TOT başarısı hastanın menopozal durumundan ya da eş zamanlı başka bir jinekolojik cerrahi yapılmasından etkilenmemektedir.*

Anahtar kelimeler: *postoperatif komplikasyon, transobturator tape, üriner inkontinans*

Türk Jinekoloji ve Obstetrik Derneği Dergisi, (J Turk Soc Obstet Gynecol), *2014; Cilt: 11, Sayı: Sayfa:*

INTRODUCTION

Stress urinary incontinence (SUI) is one of the most frequently met problems in the gynecology outpatient clinics effecting 4-35% of women[1]. Successful treatment of this condition which adversely affects the quality of life of a woman besides being a health problem is very important for the patient. Patients may be ashamed of telling this condition to the doctor and may frequently postpone admitting to the doctor. Although conservative methods like vaginal pessaries and pelvic floor exercises may be applied for the treatment of this condition, these methods have a low success rate. In case of failure of these methods, several surgical treatments may be applied. In the recent years, with the growing use of minimally invasive surgeries which have a high success rate and which can be easily applied, patients with a complaint of incontinence are benefitting from this treatment.

Transobturator tape (TOT) surgery, which was first reported in the literature as a minimally invasive surgery, involves the placement of a sling material under the urethra with a transobturator approach[2]. The placed sling material mimics the function of the pubourethral ligament which is normally found here and supports the urethra like a hammock. Recently objective and subjective cure rates in the treatment of SUI within 6.5 years of follow up was reported to be 89% and 83% by Heinonen et al.[3]. Similar numbers were reported in different studies in the literature that evaluated the TOT success rates within different follow up periods[4,5].

In this study, we aimed to evaluate the treatment success in cases that had undergone TOT surgery for the treatment of stress and mixed urinary incontinence.

MATERIALS AND METHODS

In this study cases that were diagnosed to have stress incontinence or mixed incontinence in our clinics with history and physical examination and that had undergone TOT operation between January 2009 and April 2013 were retrospectively evaluated. Cases in which the postoperative follow up information could not be reached were excluded from the study.

Cases were evaluated in terms of clinical and demographic properties including age, gravidity, parity, menopausal status, systemic disease and body mass index (BMI) at the time of surgery and the other surgeries that were applied simultaneously with the TOT surgery. Presence or absence of urinary incontinence in the follow up visits at the first and third month after surgery, and also the presence of a urogynecological problem like cystocele, cuff prolapse in the follow up visits were determined from the patient records. For patients that received anticholinergic treatment after the surgery, only the findings determined prior to the initiation of the drug were investigated in the context of the study. In this way, the success of only the TOT surgery for treatment of urinary incontinence was evaluated in the study. Presence of ongoing urinary incontinence was accepted as "TOT failure".

Data were analyzed by using the SPSS 15 software. Whether TOT success rate differs between cases that are postmenopausal or not, that have or have not undergone vaginal hysterectomy and with a BMI that is ≤30 kg /m^2 or >30 kg/m^2 was evaluated by using chi-square test. Whether there is a difference in the BMI of the patients that had ongoing urinary incontinence during follow up was evaluated by Man-Whitney U test. $P<0.05$ was considered as statistically significant.

RESULTS

107 cases that had undergone TOT operation in our clinics and the follow-up information of whom could be reached were included in the study. Median age of the patients was found to be 59 (26 - 84 years), 72% of these (n=77) were premenopausal and 91.6% (n=98) were multiparous (Table I). 59.8% (n=64) of the cases had undergone another surgery simultaneously with the TOT surgery (Table II). The most frequently performed simultaneous operation was vaginal hysterectomy (n=42, 39.3%).

Table I: *Clinical and demographic properties of cases to whom TOT was applied.*

Parameter	Cases that had undergone TOT (n = 107)
Age, median (minimum-maximum)	59 (26 - 84)
Body mass index, mean±Standard deviation	28,5 ± 3,7
Gravida, median (minimum-maximum)	3,7 (1 - 7)
Parity, median (minimum-maximum)	2,8 (1 - 6)
Rote of delivery, number (%)	
Normal	96 (89,7)
Cesarean	9 (8,4)
Normal + Cesarean	2 (1,9)
Menopausal cases, number (%)	77 (72)
Presence of systemic disease, number (%)	12 (11,2)
Hypertension	5 (4,7)
Diabetes	4 (3,7)
Asthma	3 (2,8)

Table II: *Operations that were applied at the same time with TOT and urogynecological problems that were seen in long term follow up.*

Simultaneous surgery, number (%)	**64 (59,8)**
Vaginal hysterectomy	42 (39,3)
Laparoscopic hysterectomy	7 (6,5)
Total abdominal hysterectomy	5 (4,7)
Anterior colporrhaphy	5 (4,7)
Posterior colporrhaphy	1 (0,9)
Hysteroscopy	3 (2,8)
Myomectomy	1 (0,9)
Long term complication, number (%)	**34 (31.8)**
Ongoing urinary incontinence	13 (12.1)
Cystocele	9 (8.4)
Vaginal cuff prolapse	12 (11.2)

When the findings in the follow-up visits of the cases were investigated, within a median follow up time of 2.4 years (0.5-4 years), 12.1% (n=13) of the cases were found to have ongoing urinary incontinence. Our TOT success rate in the treatment of stress incontinence was found to be 87.9%. This rate was 87.5% in cases that had a simultaneous surgery, 88.4% in those that did not have a simultaneous surgery (p>0.05), 85.7% in postmenopausal women and 93.3% in premenopausal women (p>0.05). It was found that 8.4% of the cases had developed cystocele and 11.2% of the cases had developed cuff prolapse during follow up. BMI values at the time of the operation of the cases that had and that did not have ongoing urinary incontinence were found to be similar (29.27 ± 2.98 kg/m^2 ve 28.44 ± 3.8 kg/m^2, respectively; p = 0.348) (Table III). In addition, there was no difference in terms of urinary incontinence in cases with a BMI ≤ 30 and > 30 (p=0.758) (Table III).

Table III: *Comparison of the clinical and demographic properties of the cases in whom transobturator surgery was successful and was unsuccessful.*

	Transobturator tape Successful (n=94) (87.9%)	Unsuccessful (n=13) (12.1%)	p
Age, median (minimum-maximum)	56 (26-84)	68 (40-84)	0.156
Gravida, median (minimum-maximum)	3.5 (1-7)	4 (2-5)	0.833
Parit, median (minimum-maximum)	3 (1-6)	3 (1-4)	0.885
Body mass index, mean±Sandard deviation	28.4 ± 3.7	29.3 ± 2.98	0.348
Multiparous cases, number (%)	86 (91.5)	12 (92.3)	1
Postmenopausal cases, number (%)	66 (70.2)	11 (84.6)	0.345
Presence of systemic disease, number (%) (HT/DM/Asthma)	9 (9.6)	11(84.6)	0.161
Simultaneous gynecologic surgery, number (%)	56 (59.6)	8 (61.5)	0.892
Vaginal hysterectomy	37 (39.4)	5 (38.5)	
Laparoscopic hysterectomy	7 (7.4)	-	
Total abdominal hysterectomy	4 (4.3)	1 (7.7)	
Other	8 (8.6)	2 (15.4)	
Postoperative urogynecologic problems			
Cystocele, number (%)	9 (9.6)	-	
Cuff prolapse, number (%)	12 (12.8)	-	

DISCUSSION

Midurethral sling surgeries (MUS's) in the treatment of stress urinary incontinence are accepted as almost the gold standard treatment option[6]. Although they were first introduced for the treatment of urethral hypermobility and non-complicated stress urinary incontinence, MUS's are now being applied in more complex cases of urinary incontinence like cases with mixed incontinence and cases that additionally have pelvic organ prolapse[6]. A recent study reported 75%

and 90% subjective and objective cure rates after one year of follow up in cases with mixed incontinence that had undergone TOT operation[7]. In our study, when SUI and mixed incontinence cases were evaluated together, cure rate was found to be 87.9%. This rate is accordance with the numbers in the literature about the TOT success rates.

After the TOT operation, several complications including vascular (eg. bleeding, hematoma), urologic (eg. bladder perforation, urinary retention), neurologic complications can be seen within short term after the operation. In our patients, none of the short term complications were seen.

As far as we know, there is only one study in the literature that investigates whether the efficacy of TOT operation for the treatment of urinary incontinence differs between the premenopausal and postmenopausal women. In this study which was reported in 2011 by Dursun et al. 45 premenopausal and 49 postmenopausal women to whom TOT was performed for the treatment of urinary incontinence were compared and it was concluded that TOT was more effective in premenopausal women[8]. In our study, although the TOT success rate in the premenopausal cases that had undergone TOT operation was higher than that of the postmenopausal cases, the difference was not statistically significant. Whether TOT success rate differs according to the menopausal status needs to be evaluated in studies with a higher number of cases.

Esin et al. evaluated whether BMI had an effect on TOT success rate[9] and they concluded that BMI does not affect TOT success rate. Similarly, in our study, we did not find any difference in the BMI values of the cases that did and did not have urinary incontinence during follow-up. In addition, TOT success rate was found to be similar in cases with a BMI ≤ 30 and those with a BMI > 30.

TOT, which is applied easily, can be performed simultaneously with other surgeries in cases that have other pelvic pathologies in addition to incontinence. One of the pelvic pathologies that frequently accompany urinary incontinence is pelvic organ prolapse[10]. It was demonstrated that the structure of the connective tissue in cases with pelvic organ prolapse may be different from that of normal women[11], and, this factor may contribute to the development of urinary incontinence in these cases. Vaginal hysterectomy performed for the treatment of pelvic organ prolapse in peri/postmenopausal women will not be adequate for treatment if the patient also has urinary incontinence. TOT, which is performed by a vaginal approach, does not necessitate an abdominal incision or routine cystoscopy due to its minimal risk of bladder injury can be frequently applied in these patients simultaneously with vaginal hysterectomy. Previous studies have demonstrated the efficacy and safety of MUS's in the treatment of SUI[12,13]. In this study, the most frequently applied operation in addition to TOT was vaginal hysterectomy. Our TOT success rate in cases that did or did not have additional surgery was found to be similar to the literature.

In the literature, high success and low complication rates are reported for TOT surgery which is one of the minimally invasive MUS surgeries used in the treatment of urinary incontinence that is a frequent problem among women significantly disturbing the quality of life. In our study, cure rates in cases with stress/mixed urinary incontinence that had undergone TOT operation was found to be similar with the numbers in the literature.

The most important limitations of our study are its retrospective nature and the low number of cases. Another limitation of our study was that we investigated SUI and MUI cases as a single group since we took into account the possible defects in the patient records, so, we were not able to give the results of these groups separately. Performance of further prospective studies with a larger number of cases and with a higher statistical power is needed.

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