

Transvaginal Cystocele Repair Using Tension-free Polypropylene Mesh (Tension-free Vaginal Tape)

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Urinary incontinence is one of the most common diseases, 25% of women between 18 and 80 years suffer from it. Urinary incontinence can be described as accidently loss of small amounts of urine. The solution involves a surgical procedure, such as sling procedures and bladder neck suspension procedures. The methods of surgical interventions have evolved due to a minimum period of hospitalization (sling, TVT), or performing laparoscopic surgery instead of the classical Burch surgery. Studies revealed that the most effective interventions are those which restore the urethra by retro pubic urethropexy, pubovaginal sling and synthetic mid-urethral slings. This type of surgery has currently the highest success rate (85-90% on 5 years after surgery), and the lowest relapse rate. In our study we obtained the same success rate for the TVT procedure.

Keywords: urinary incontinence, tension-free vaginal tape (TVT), laparoscopic surgery

Currently there are more than 25% of women aged between 18-80 years who suffer from urinary incontinence. In reality the number of women who are suffering from urinary incontinence is much higher because many of them are reluctant to seek medical attention considering it as a disability, a natural consequence of childbirth. Urinary incontinence is defined as accidently loss of small amounts of urine, which exits the bladder through the urethra during activities or the urge to urinate that cannot be mastered by one's own will.

The International Continence Society (I.C.S.) classifies the urinary incontinence, based on etiology, into stress urinary incontinence, urge urinary incontinence and mixed urinary incontinence. Stress urinary incontinence is the leaking of small amounts of urine during activities. There is a simple stress urinary incontinence when occurs sometimes during a workout (fitness). The moderate stress urinary incontinence occurs during physical activities such as: standing up from a sitting position, laughing, sneezing, coughing, etc. Stress urinary incontinence is considered severe when uncontrolled leakage of urine from the bladder is becoming permanent. It is very important the appreciation of the patient for the seriousness of this medical problem [1-3].

Surgical solutions, such as sling procedures and bladder neck suspension procedures that are frequently chosen as a first method of treatment. The methods of surgical interventions have evolved due to a minimum period of hospitalization (sling, TVT), or performing laparoscopic surgery instead of the classical surgery (Burch) [4, 5]. They

offer variable favorable results, so that 70-90% of patients do not lose urine during the first year after surgery. These results, however, alters every passing year from the surgery [6-8].

Many studies have shown that polypropylene is a well-tolerated synthetic material by the body, with little exposure of the patient to infection and vaginal or urethral erosion. Because they are expensive materials, many surgeons have long been used autologous grafts harvested from the rectus fascia and fascia late. They have the advantage of not being rejected by the body, so there is a lower rate of erosion and a possible infection can be treated with antibiotics. But the implant procedure leads to a longer hospitalization time; after the surgical procedure, there might be unaesthetic scars and therefore this procedure is not easily accepted, especially by young women [9, 10].

Experimental part

Material and method

In the present prospective study, we have introduced a number of 66 patients with stress urinary incontinence, cystocele or other forms of genital prolapse, which is the consequence of the change, in all cases, of the angle of the urethra beside the bladder neck. The patients were operated in Timisoara County Emergency Clinical Hospital – the Department of Obstetrics and Gynecology in the year 2017. In these patients, we placed, through a surgical procedure, in the *hammock* position, a mesh with two fixation arms using inside-out and outside-in trans-obturator sling.

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Sub-urethral tape (TVT) are in a continuous change, and, in terms of its composition, there were used, over time, a great variety of materials. According to Einhoernings's theory, the mechanism of action of these tapes is different compared to the traditional sub-urethral sling operations which consisted in bladder neck needle suspension with sub-urethral slings (fig. 1). Literature indicates that the tape is not a risk factor and improves significantly the ability to treat detrusor instability [11-13].



Fig. 1. Sub-urethral tape (TVT) used in our studied group of patients

The TVT procedure was introduced by Ulmsteen in 1995 and the IVS procedure was introduced by Petros (intravaginal slingplasty) in 2002 [14, 15]. The polypropylene tapes used in the TVT are monofilament. Their size is about 40 cm long and 1 cm wide. By fitting such polypropylene prosthesis or tapes there are created curable pubourethral neoligament, due to the deposition of collagen which forms an artificial neoligament according to Petros' theory [16-18]. The tapes activate the fibroblasts that are creating collagen deposition and forming therefore neoligaments. Anus lifters and endopelvic fascia are not perforated during the procedure. The device used to implant a polypropylene tape is passing through the anterior recess of the ischiorectal fossa that extend above the perineal membrane (the terminal branches of the pudendal nerve is under the perineal aponeurosis) limited by the anal sphincter muscles and medial side of the obturator internal muscles [9, 19].

For the statistical calculus we used the Microsoft Excel software.

Results and discussions

In order to have a complete picture of our sample we made some statistical calculus and we plotted the outgoing results.

The age distribution is presented in table 1 and plotted in figure 2.

There was a peak incidence (28 patients) in the 61 up to 70 year old **age group** (42.42%). The mean age of the patients that were operated was 62.73 years old, and the extreme ages of our patients were 42 and 78 years old.

Age group	Number of patients	%
41-50 years	8	12.12%
51-60 years	24	36.36%
61-70 years	28	42.42%
71-80 years	6	9.09%

Table 1
THE AGE
DISTRIBUTION

A number of factors are associated with the development of SUI. Therefore: childbirth - it is possible that during a vaginal delivery structures that make up the pelvic floor may become taut and tense when overworked; after birth they will not recover completely, giving a lower support of reproductive organs, urinary tract.

Because one of the major causes is the presence of childbirth we grouped our patients based on the following criteria, patients who didn't have children (nulliparous), patients who had one birth (primiparous) and patients who had at least two births (multiparous). It is noticed the fact that the multiparous patients (65.15%) are predominant. This distributions are presented in table 2 and plotted in figure 3.

Parity	Number of patients	%
Nulliparous	4	6.06%
Primiparous	19	28.79%
Multiparous	43	65.15%

Table 2
PATIENT'S
DISTRIBUTION
DEPENDING ON
THE PARITY

We also, wanted to observe the medical records of our patients and their medical history. As their obstetrical history, their history of gynecologic surgery (ACG), their hormonal status, their urogenital symptoms, their sexual activity and their body mass index (BMI). In the first class we have only 62 patients because 4 patients did not give birth. All of the patients from our sample suffered at list one surgery. Menopause, along with the diminished expression of estrogen receptors induce a rapid weakening of the pelvic floor fascia. So, the pelvic floor fascia loses their strength and elasticity, this symptoms often are occurring or exacerbating along with the menopause. 62 patients (93.94%) had undergone natural menopause. Regarding the patients distribution according to their urogenital symptoms on the doctor's visit we can say that the predominant problem consists in the presence of pelvic pain (49.46%). Another known risk factor is the presence of obesity. In the presence of obesity the pressure on the pelvic floor increases with every extra kilogram of body

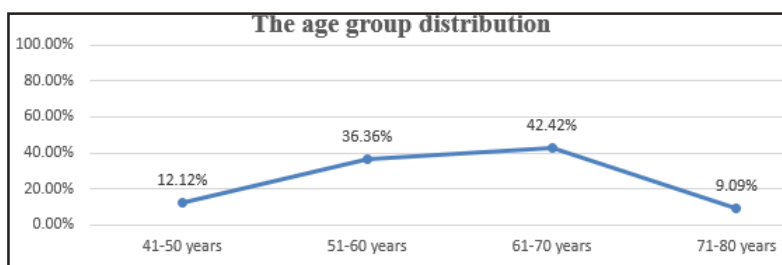


Fig. 2. The plot of the age group distribution

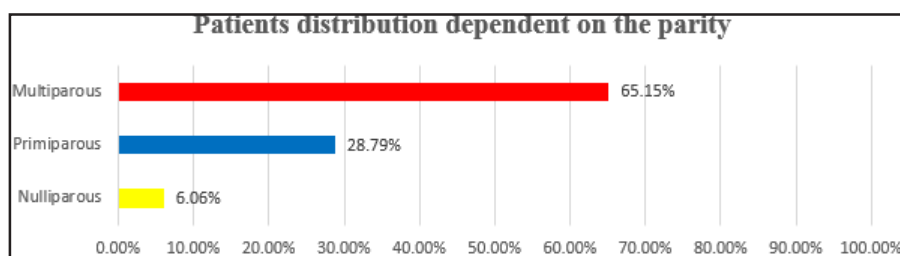


Fig. 3. The plot of the distribution depending on the parity

Medical problems		Number of patients	%
Obstetrical history	Caesarean section	8	12.90%
	Vaginal delivery	54	87.10%
History of gynecologic surgery	Vaginal hysterectomy	22	33.33%
	Anterior colpoperineorrhaphy	9	13.64%
	Posterior colpoperineorrhaphy	6	9.09%
	Burch colposuspension	3	4.55%
	Another surgery	26	39.39%
Hormonal status	Natural menopause	62	93.94%
	Induced menopause	4	6.06%
Urogenital symptoms	Lower urinary tract symptoms	29	31.18%
	Pelvic pain	46	49.46%
	Dyspareunia	18	19.35%
Sexual activity	Sexual active	26	39.39%
	Sexual inactive	40	60.61%
Body mass index (BMI)	Underweight, BMI ≤18.5	2	3.03%
	Normal weight, BMI 18.5-24.9	24	36.36%
	Overweight, BMI 25-29.9	36	54.55%
	Obese, BMI ≥30.4	4	6.06%

Table 3
THE MEDICAL HISTORY OF OUR PATIENTS

mass. Studies show that overweight women are more than twice as likely to have a risk to develop SUI compared to normal weight women or underweight women [20]. All the data are presented in table 3.

In the studied group 54 patients (34.61%) were suffering from diseases such as diabetes mellitus (12 patients), noninsulin-dependent diabetes (11 patients), hypertension (44 patients), hypothyroidism (6 patients), and renal disease (3 patients). In the gynecological section we offer special attention to patients who have chronic renal insufficiency in the family and who have a undergoing dialysis program [4].

Conclusions

Surgery remains the treatment with the best cure rate and the lowest relapse rate. Although, over the years, many methods have been devised to correct stress urinary incontinence, studies show now that the most effective interventions are those which restore the urethra by retropubic urethropexy, pubovaginal sling and synthetic mid-urethral slings. This type of surgery has currently the highest success rate (85-90% on 5 years after surgery), and the lowest relapse rate. As well, the medical reports which come from our study reveal the same success rate for the TVT medical procedure.

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