Tension-Free Vaginal Tape Procedure for the Treatment of Stress Urinary Incontinence: The First Experience in Thailand

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Abstract

Objective: Tension-free vaginal tape (TVT) is gaining popularity as an effective treatment for genuine stress urinary incontinence. To better understand this procedure including its results, a retrospective study was carried out to determine surgical technique, effectiveness, safety and early results of this new continence procedure.

Material and Method: From January 1999 to July 2000, twenty female patients with the mean age of 52 years old underwent the TVT procedure. All of them were done by a small incision at mid urethra and a special instrument was used to apply a polypropylene mesh supporting the urethra. Urethral catheter was used as urinary drainage which was removed the next day. Operative time, post-operative course, voiding patterns and residual urine were recorded.

Results: Mean operative time was 32 minutes (range 15-45 minutes). Up to 10 months, all of the patients were subjectively cured. There was no significant per- and post-operative complication including blood loss, wound infection and severe pain. Four patients (20%) had marked residual urine (>100 ml) and needed clean intermittent catheterization for the mean of 0.7 week.

Conclusion: Although the follow-up period was short, the TVT procedure seems to be a safe and effective method for the treatment of stress urinary incontinence.

Key word : Tension-free Vaginal Tape, Stress Urinary Incontinence, Surgery

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Stress urinary incontinence (SUI) is a common problem among women. Many modalities have been introduced to treat this disabling problem[1]. Surgery is the most effective treatment accepted among urologists[2]. Most surgical treatments such as pubovaginal sling, Burch colposuspension or laparoscopic bladder neck suspension need hospital stay and anesthesiological procedures. Therefore, some minimal, surgical techniques have been introduced as the treatment of stress urinary incontinence. Tension free vaginal tape (TVT) is one minimal, invasive treatment for SUI was introduced by Ulmsten et al in 1995[3] and has become popular among Scandinavian urologists[3]. This technique was accepted as the treatment of SUI caused from hypermobility of the proximal urethra (type II)[4]. This is the first report of this technique in Thailand.

MATERIAL AND METHOD

From January 1999 to July 2000, twenty female patients with the mean age of 52 years (range 41-63) were enrolled in this study. All patients complained of urinary leakage during coughing, sneezing or lifting for the mean time of 2.5 years (range 1-3.5). Physical examinations included vaginal examination and Marshall stress test in both the supine and upright position. Urodynamic study was done and all cases who had detrusor instability were excluded from this study. The patients who had valsalva leak point pressure below 60 cm H_2O due to intrinsic sphincter deficiency were excluded. The patients who had abnormal urine examination were also excluded from this study. The operative time, early and long-term complication and voiding pattern were evaluated. The results of operation were evaluated by the improvement of incontinence, complications and time for recovering after operation. The mean time for follow-up was 10 months. (range 6-18)

Surgical technique

The procedure can be done under local anesthesia but we did it under spinal anesthesia due to the early experience. The patient was put in the lithotomy position and a sagital incision on the anterior vaginal wall was made behind the external meatus of the urethra. The vaginal wall was thus divided, and dissection paraurethrally up to the urogenital diaphragm was performed with scissors. The bladder was emptied using a Foley's catheter, after which a guide made of steel was introduced into the catheter. (Fig. 1) Using the catheter, the bladder neck was dislocated laterally and a special instrument (Fig. 2) was introduced on the opposite side. (Fig. 3) After that, the tip of the special instrument was guided up to and through one of two previously made abdominal incisons- 1 cm in length- in the skin above the symphysis. (Fig. 4) Cystoscopy was performed to ensure that no bladder perforation had

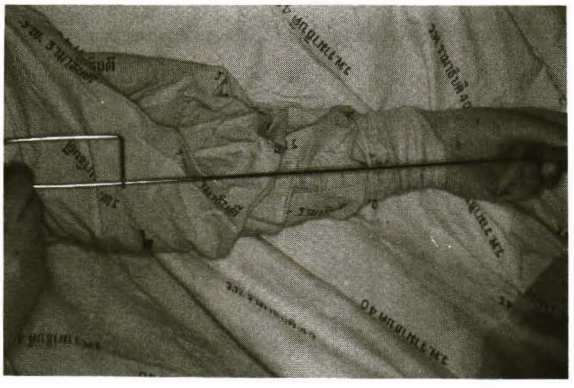

Fig. 1. Shows a special guide wire used for dislocating the bladder neck.

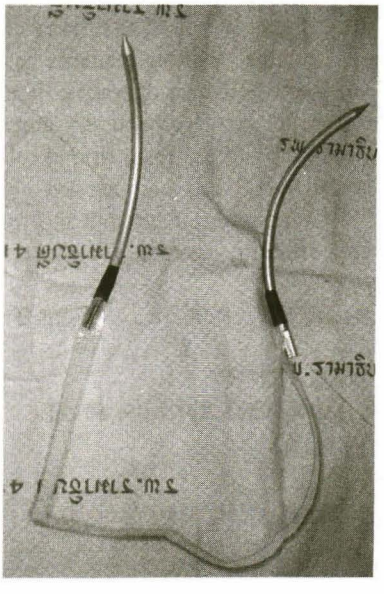

Fig. 2. Shows a special instrument (TVT set), a polypropylene mesh and special introducer are noted.

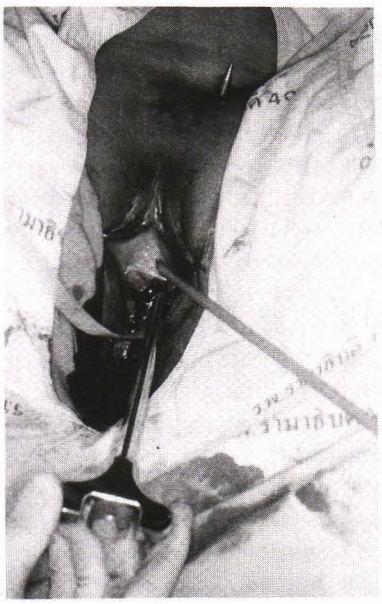

Fig. 3. Shows the technique to introduce TVT set.

Fig. 5. Shows optimal position of polypropylene mesh.

Fig. 4. Shows small skin incisions at pubic area.

occurred. The band was placed snugly under the urethra, but lifting was not permitted. When the band was introduced it was surrounded by a plastic sheath, which was removed after the band had been placed in an optional position. (Fig. 5) Finally, abdominal ends of the band were cut, after which the wounds were closed and Foley's catheter was left in the urethra for urinary drainage. The urethral catheter was removed the day following operation. If unable to void, clean intermittent catheterization was used[3].

RESULTS

The mean operative time was 32 minutes (range 15-45 minutes) with minimal bleeding. No immediate and long-term complications were noted. Sixteen patients (80%) could void the day following operation. Four patients (20%) had residual urine of more than 100 ml and clean intermittent catheterization was used for the mean of 0.7 week (range 0.3-1.4). Up to the last follow-up all of the patients (100%) were continent after the operation. No detrusor instability was found after operation.

DISCUSSION

Stress urinary incontinence (SUI) is a common problem among adult females and causes hygienic problems[1]. It causes loss of urethral support (urethral hypermobility or type II SUI) and impairment of urethral function (intrinsic sphincter deficiency or type III SUI)[2]. Conservative treatment was introduced for treatment of this problem in 1948 but had a very low success rate[5]. Surgical treatment gave a higher success rate with long-term results[2]. Conventional surgery used among urologists include Burch colposuspension, pubovaginal sling, Stamey's operation and laparoscopic bladder neck suspension[2]. All of these procedures need a hospital stay of 3-7 days and also anesthesiological

procedures. Tension free vaginal tape has been used for treating stress urinary incontinence in Sweden since 1995[3]. Due to its non-invasiveness and not requiring hospital stay, it has become more popular among Scandinavian urologists[6]. The technique of the operation is based on experimental and clinical studies of the mechanisms supposed to achieve closure and opening of the urethra and bladder neck. The two most important elements are fixation of the urethra to the pubourethral ligaments and fixation to the suburethral vaginal wall on which the urethra is placed. Normally, the vaginal wall is not firmly attached to the proximal urethra and bladder neck. The aim of the operation is to fix the urethra upward to the pubourethral ligament. The fixation of the urethra can be done by using a sling introduced through a vaginal incision behind the pubic symphysis to and through the pyramidalis muscle using a special instrument[3]. A special polypropylene net is used as sling material[3]. Due to the special technique used, an immediate adhesion of the sling to surrounding tissue is achieved. No lifting of the urethra and bladder neck is permitted accordinging to the theory of this operation. Lifting of the sling or placing a too tight sling against the urethra can cause urinary retention[7]. This procedure can be done as an office procedure under local anesthesia. The result of this operation can be confirmed by a urodynamic test showing increase of intraurethral pressure[7]. Many series have reported a high success rate (80-100%) with few complications which included a small number transient urinary retention[8,9]. More than 90 per cent of the patients could pass urine *via* the urethra within 24 hours after the operation. One study with up to 3 years follow-up showed 86 per cent continence and 11 per cent improvement[10]. This present study also showed a high success rate after 10 months follow-up (100%). Because of the early experience of this procedure, it was done under spinal anesthesia with an overnight stay in the hospital.

SUMMARY

The tension-free vaginal tape procedure is relatively simple, safe and effective as treatment of type II stress urinary incontinence.

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การผ่าตัด tension-free vaginal tape เพื่อการรักษาภาวะไอจามปัสสาวะเล็ด : ประสบการณ์ครั้งแรกในประเทศไทย

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วัตถุประสงค์: การผ่าตัด tension-free vaginal tape เพื่อการรักษาภาวะไอ จาม ปัสสาวะเล็ดเป็นการผ่าตัดที่เริ่มเป็นที่นิยมในต่างประเทศเพราะสามารถทำได้โดยที่ผู้ป่วยไม่ต้องนอนโรงพยาบาล การผ่าตัดนี้ได้นำมาใช้ครั้งแรกในประเทศไทยที่หน่วยศัลยศาสตร์ระบบปัสสาวะ โรงพยาบาลรามาธิบดี การศึกษาครั้งนี้จึงเป็นการรายงานประสบการณ์ครั้งแรกในประเทศไทย

วัสดุและวิธีการ: ตั้งแต่เดือนมกราคม 2542 ถึงกรกฎาคม 2543 มีผู้ป่วยหญิงที่มีปัญหา ไอ จามปัสสาวะเล็ดมารักษาด้วยการผ่าตัด tension-free vaginal tape จำนวน 20 คน อายุเฉลี่ย 52 ปี ทุกคนได้รับการผ่าตัดด้วยวิธีเดียวกัน ลงแผลผ่าตัดที่ช่องคลอดด้านหน้าตรงกลางหลอดปัสสาวะ ใช้เครื่องมือที่ออกแบบมาเป็นพิเศษเพื่อวางแถบ polypropylene ประคองหลอดปัสสาวะไว้ ใส่สายสวนปัสสาวะไว้ 1 วัน ศึกษาถึงระยะเวลาการผ่าตัด หลังผ่าตัด การถ่ายปัสสาวะ ติดตามผู้ป่วยเฉลี่ย 10 เดือน (6-18 เดือน)

ผลการศึกษา: ระยะเวลาเฉลี่ยที่ใช้ในการผ่าตัด 32 นาที (15-45 นาที) ไม่พบปัญหาแทรกซ้อนจากการผ่าตัด ผู้ป่วย 4 ราย (ร้อยละ 20) ปัสสาวะเองได้ไม่หมดต้องสวนปัสสาวะต่อเป็นระยะเวลาเฉลี่ย 0.7 สัปดาห์ ส่วนที่เหลืออาการดีกลั้นปัสสาวะได้ เมื่อติดตามผลการรักษาโดยเฉลี่ย 10 เดือน ผู้ป่วยทุกราย (ร้อยละ 100) กลั้นปัสสาวะได้ไม่มีปัสสาวะเล็ดราดเลย

สรุป: การผ่าตัด tension-free vaginal tape เป็นการผ่าตัดที่ปลอดภัยและได้ผลดี นับเป็นอีกหนึ่งทางเลือกในการรักษาผู้ป่วยไอ จาม ปัสสาวะเล็ด

คำสำคัญ : ไอ จาม ปัสสาวะเล็ด, การผ่าตัด

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