

ULTRASONOGRAPHIC EVALUATION OF URETHRAL MOBILITY AFTER TRANSOBTURATOR SUBURETHRAL TAPE SURGERY

Hypothesis / aims of study

After the success of tension-free transobturator suburethral tape (TOT) as an effective surgical procedure for the treatment of female urinary stress incontinence, we think that it's interesting to study anatomical changes on pelvic floor after operation to better understand the therapeutic mechanism.

Our study objective is to describe and to compare the urethral sliding variable on introital ultrasonography in continent and incontinent women after de surgical procedure.

Secondary aim of this study is to compare the score of International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF), to evaluate the impact of the surgical treatment

Study design, materials and methods

This was a single-centre, prospective, observational study. The study includes 54 women with diagnosis of stress urinary incontinence (SUI) according to the International Continence Society (ICS) definition. 54 patients underwent a transobturator suburethral tape surgery (TOT out-in), between November 2009 and October 2012.

The urethral sliding (is the difference between the distance urethra-bladder neck, at rest and under valsalva) is an ultrasonographic variable that can be used to distinguish between continent and incontinent women due to urethral hypermobility with high sensitivity and specificity. An sliding with a threshold of 8mm have a sensitivity of 92% and specificity of 79,6% for detecting SUI (1)

The inclusion criteria are women who underwent TOT procedure for hypermobility urethral SUI. All patients had urodynamically proved genuine stress incontinence and introital ultrasonography with sliding equal to or higher than 8mm.

The exclusion criteria are pelvic organ prolapse greater than stage 1 (according to Baden and Walker classification), medical history of surgical treatment of pelvic organ prolapse or surgical treatment of urinary incontinence.

The anatomic position and dynamic mobility of the urethra were evaluated with the patient in semi-supine position, with comfortable bladder volume (2) by a ultrasonography curved transducer positioned adjacent to the vaginal introitus, just underneath the external urethral orifice. A complete sagittal view of the bladder base, urethrovesical junction, uretra and whole pubic symphysis were scanned.

We measured sliding (urethral mobility) before and after six months of surgical procedure. We measured tape position (distance bladder neck - tape in a transverse axis of the pubic bone) after six months of surgical procedure.

All patients were evaluated before and six months after surgery using Spanish validated version of the International Consultation on Incontinence Questionnaire Short-form (ICIQ-SF).(3).

We consider continent (dry) patients with ICIQ-SF ≤ 3 after tape surgery, and incontinent (non-dry) patients with ICIQ-SF after surgery > 3 .

Measure variables are shown by their mean values plus their dispersion, expressed by standard deviation (SD). The clinical features were assessed statistically using Student's t-test and the Mann-Whitney U-test for nonparametric data. Statistical significance was considered achieved when $p < 0.05$.

Results

Table 1. Descriptive analysis

	Minimum	Maximum	Mean	Std Deviation (SD)
Age	39	78	56,29	9,782
ICIQ-SF before surgery	10	21	17,20	2,757
Sliding before surgery (mm)	8	24	13,79	4,259
Sliding after surgery (mm)	1	22	7,00	3,886
Distance bladder neck-tape (mm)	12	28	20,15	3,208
ICIQ - SF after surgery	0	15	2,19	3,645

Table 2: variables before and after surgery

	Before surgery	After surgery	Mean's difference	95% CI ^a	p ^b
ICIQ-SF	17,19 (SD 2,6)	2,19 (SD 3,7)	15,02	13,89 to 16,14	< 0,001
Urethral sliding (mm)	13,79 (SD 4,3)	7,00 (SD 3,9)	6,79	5,62 to 7,96	< 0,001

^a 95% confidence of the difference ^b Student's t-test

Table 3: urethral sliding after surgery

	Non-dry women ICIQ-SF >3	Dry women ICIQ-SF ≤ 3	p ^a
Urethral sliding mean (mm)	10,44 (SD 5,13)	6,31 (SD 3,24)	0,007

^a Mann-Whitney U-test, asymptotic significance

Interpretation of results

After the results in ICIQ-SF score, in our group of women with IUS, we can expect after transobturator suburethral tape surgery an improvement of quality of life .

Among 54 women of our study, 50 were subjectively cured (92,6%) , 45 have ICIQ-SF ≤3 (83,3%).

The mean were we find the tape was 20,15mm distance from bladder neck

The sliding of the bladder neck postoperatively decreased , so we can think that the transobturator suburethral tape stabilizes anatomically the urethra.

The sliding in non-dry women after surgery is statistically significantly less decreased compare to dry women.

In dry women (ICIQ-SF ≤3) the mean of sliding is 6,31mm (SD 3,241), so we can expect that the urethral sliding variable on introital ultrasonography could identify most of continent women after transobturator suburethral tape, but further investigation should be done to confirm this conclusions

Concluding message

Since clear anatomical changes are associated with stress incontinence and many operations (TOT, Tension-free vaginal tape) are stated to have anatomical objectives, introital ultrasonography can be considered a convenient, simple, low cost, and reliable method to assess anatomical reconstruction

References

1. Cassadó J, Pessarrodona A. Introital ultrasonography: a comparison of women with stress incontinence due to urethral hypermobility and continent women. BJU International 2006 Oct;98(4):822-8
2. Haylen BT et al. Transvaginal ultrasound in the assessment of bladder volumes in women. Preliminary report. Br J urol 1989, 63:149-51.
3. Espuña M, Rebollo P, Puig M. Validación española del International Consultation on Incontinence Questionnaire-Short Form. Med clin 2004; 122: 288-92

Disclosures

Funding: none **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** it's an observational study **Helsinki:** Yes **Informed Consent:** No