

COMPARISON OF TRANS-OBTURATOR TAPE (TOT) AND TVT USING PERINEAL ULTRASOUND

Hypothesis / aims of study

In the first description of TOT¹, the tape is positioned horizontally through the obturator foramen, the extremities of the tape are at the level of the urethral meatus. The first results using this technique demonstrate good cure rate of stress incontinence in patients with type 1 incontinence but poor results in type 2 incontinence (low urethral closure pressure). Certain studies have shown that TVT can give very satisfactory results even in these cases. Few authors² proposed an oblique pathway to the tape so that the level of fascial perforation is the same as TVT, the extremities of the tape are at the level of the clitoris. The positioning of the tape needs a larger sub-urethral and vaginal dissection. It is thought that this large dissection might be responsible of migration of the tape close to bladder neck.

We suggest to study the morphology, the position and the direction of the tape in two groups of patients having either TVT or TOT procedure for stress incontinence, using perineal ultrasound.

Study design, materials and methods

Thirty-two patients, 16 TVT and 16 TOT, were explored post-operatively with a vaginal ultrasound probe, 5 MHz, positioned under the urethral meatus. The tape is visualised in the sagittal and frontal planes at rest, maximum retaining and valsalva. The angle between the two limbs of the tape is measured as well as the distance tape-bladder neck and the width of the tape. In one patient with TOT, it was possible to record the micturition.

Results and interpretation of results

The general aspect of the tape at rest is like an open V, similar in both groups. During straining, the urethra is flattened on the tape which becomes round. During maximum retaining, the V closes by traction on the limbs at the point where the tape crosses the levator ani muscle. This shows that the tape might have a dynamic effect during stress by reflexe contraction of levator ani.

The mean angle formed by the hammock under the urethra at rest is 109.9°. In the TVT group it is 101.6° and 118.1° in the TOT group, this difference is statistically significant ($p=0.001$). The mean width of the tape is 6.7 mm (2.4-10.3). The mean distance tape-bladder neck is 14.8mm (8.2-25.7), 14.6mm for the TVT group and 15.6mm for the TOT group, the mean urethral length being 33.1 mm.

A dynamic study has been done in 6 patients. The mean angle is 122° at rest, 121 during straining and 117° during maximum retaining.

Video recording of micturition of the patient with TOT shows that the initiation of micturition is accompanied by a posterior movement of proximal urethra and a funnelling of the bladder neck. This is demonstrated by the opening of the urethro-vesical angle. The TOT tape being distant to the bladder neck does not hamper its opening mechanism.

Concluding message

The TOT tape has the same general aspect as TVT but the angle is slightly more open. Nevertheless, it remains sufficiently oblique and allows the tape to be put with light tension if needed in low pressure urethra. In spite of larger urethro-vaginal dissection in TOT, the tape does not migrate close to the bladder neck and remains at mid-urethra.

References

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