

GYNEMESHTM VS GYNEMESHTM-TVT-O® FOR CURE OF ADVANCED PROLAPSE: COMPARISON AT SHORT FOLLOW-UP OF THEIR EFFECTS ON THE VOIDING PHASE.

Hypothesis / aims of study

The synthetic mesh GynemeshTM is available to augment surgery for pelvic organ prolapse of high grade. Our purpose was, using a mathematical model of micturition, to analyze the effects on voiding of that pelvic repair and to compare these changes with those occurring after cure of concomitant uro-genital prolapse and urinary incontinence with the association GynemeshTM-TVT-O®.

Study design, materials and methods

Seventy three consecutive women with uro-genital prolapse of grade III or more underwent a vaginal cure of their prolapse by the use of GynemeshTM; all except one were menopausal. Some of them (N=39) underwent simultaneous incontinence surgery with TVT-O® in case of previous (N = 23) or unmasked during surgery (N = 16) incontinence. Mean age in the only GynemeshTM group (N = 34) was 64.8 ± 8.8 years [48 - 82 years] and 67.0 ± 7.8 years [50 - 82 years] in the GynemeshTM-TVT-O® group; parity was respectively 2.1 and 1.9. Surgery was performed by one single surgeon. All patients had urodynamic study before and one month after surgery. Mathematical modelling of free uroflow curves was made using the VBN® model [1]. Criteria for modelling were a voided volume > 100 mL and a continuous flow curve.

Results

Only 59 women succeeded in analysable flow curves: 32 in the GynemeshTM group (**G**) and 27 in the GynemeshTM-TVT-O® group (**GTO**). Twenty six patients (respectively 14 in the **GTO** group and 12 in the **G** group) had previous pelvic surgery; among them 16 had previous hysterectomy (8 in each group).

Mean voiding parameters (initial V_{ini} and residual V_r volumes, maximum flow rate Q_{max}) are given in table I (statistical analysis: t-test):

Table I	G pre-op	G 1 month	p	GTO pre-op	GTO 1 month	p
V_{ini} mL	452±170	444±223	.97	407 ± 212	456± 229	.28
V_r mL	45±95	56±94	.73	65 ± 115	170 ± 194	.005
Q_{max} mL/s	22±10	18±11	.10	22 ± 11	15 ± 8	.001

While modelled analysis of the pre-operative curves was consistent in 53 patients with a urethral obstruction which could be either constrictive or compressive (no obstruction in 6 patients), an accurate fitting of the post-operative curves was only obtained with a urethral compression (UC). Assuming a compressive obstruction during the pre-op voidings led to easier comparison. The pre- and post-operative (1 month) values of UC are given in table II (statistical analysis: Wilcoxon test) and III (statistical analysis: t-test):

Table II	G pre-op	G 1 month	p	GTO pre-op	GTO 1 month	p
UC cm H ₂ O	21.2 ± 12.8	25.5 ± 13.0	.08	22.9 ± 13.3	33.0 ± 13.2	.016

Table III	G pre-op	GTO pre-op	p	G 1 month	GTO 1 month	p
UC cm H ₂ O	21.2 ± 12.8	22.9 ± 13.3	.43	25.5 ± 13.0	33.0 ± 13.2	.028

Before surgery, 8 patients in the **GTO** group and 3 in the **G** group had characteristic triangular flow curves related with an early fading of the detrusor excitation after the onset of the flow. After surgery, occurrence of that shape was observed in 17 patients in the **GTO** group and 3 in the **G** group.

Interpretation of results

The two sub-groups, **G** and **GTO**, had similar demographic and clinical characteristics; their behaviour before surgery was also similar as it appears on the voiding parameters and the modelled analysis of the free uroflow curves.

Significant changes in the voiding parameters, decreased maximum flow rate and increased residual volume are observed after concomitant cure of prolapse and urinary incontinence by the association GynemeshTM-TVT-O®. Modelled analysis brings to the fore the occurrence of a urethral compression. Such urethral compression had been already described after cure of incontinence with TVT-O® [2] and was of similar magnitude.

Abnormality of the flow pattern increases after surgery in the GynemeshTM-TVT-O® group and fading of detrusor excitation is more frequently observed. That result is worth to be studied in order to investigate a possible irritative role of the synthetic material related with the known early inflammatory process.

Concluding message

The voiding phase appears notably modified after concomitant cure of uro-genital prolapse and urinary incontinence with GynemeshTM and TVT-O®. The association of the 2 devices leads to a compressive urethral obstruction and to a fading of detrusor excitation which could be the cause of large residual volumes. Comparison with the cure of prolapse with only GynemeshTM allows to underline the role of the sub-urethral tape TVT-O® in the changes in the voiding process.

References

- 1- Neurourol. Urodyn. 2000, 19: 153-176.
- 2- Abstract #382 ICS Meeting Montréal. 2005.

FUNDING: No

HUMAN SUBJECTS: This study did not need ethical approval because It is a retrospective study but followed the Declaration of Helsinki Informed consent was obtained from the patients.