GYNEMESH™ VS GYNEMESH™-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 Gynemesh™ 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 Gynemesh™-TVT-O®.

Study design, materials and methods
Seventy three consecutive women with urogenital prolapse of grade III or more underwent a vaginal cure of their prolapse by the use of Gynemesh™; 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 Gynemesh™ group (N = 34) was 64.8 ± 8.8 years [48 - 82 years] and 67.0 ± 7.8 years [50 - 82 years] in the Gynemesh™-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 Gynemesh™ group (G) and 27 in the Gynemesh™-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>
<thead>
<tr>
<th></th>
<th>G pre-op</th>
<th>G 1 month</th>
<th>GTO pre-op</th>
<th>GTO 1 month</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>V ini mL</td>
<td>452±170</td>
<td>444±223</td>
<td>407 ± 212</td>
<td>456± 229</td>
<td>.28</td>
</tr>
<tr>
<td>V r mL</td>
<td>45±95</td>
<td>56±94</td>
<td>65 ± 115</td>
<td>170 ± 194</td>
<td>.005</td>
</tr>
<tr>
<td>Q max mL/s</td>
<td>22±10</td>
<td>18±11</td>
<td>22 ± 11</td>
<td>15 ± 8</td>
<td>.001</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th></th>
<th>G pre-op</th>
<th>G 1 month</th>
<th>GTO pre-op</th>
<th>GTO 1 month</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC cm H2O</td>
<td>21.2 ± 12.8</td>
<td>25.5 ± 13.0</td>
<td>22.9 ± 13.3</td>
<td>33.0 ± 13.2</td>
<td>.016</td>
</tr>
</tbody>
</table>

Table III shows 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 Gynemesh™-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 Gynemesh™-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 Gynemesh™ 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 Gynemesh™ allows to underline the role of the sub-urethral tape TVT-O® in the changes in the voiding process.

References
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.