

## THE LEVATOR MYORRAPHY FOR SUPERIOR VAGINAL SEGMENT SUSPENSION: ANATOMIC AND FUNCTIONAL IMPACT ON THE ANTERIOR SEGMENT

### Hypothesis / aims of study

The vaginal apex is a key factor in pelvic organ support and surgical correction of anterior and posterior vaginal wall defects is at risk if the apex is not adequately suspended. The aim of the study is to evaluate the outcome of the High Levator Myorrhaphy (HLM) procedure for the suspension of the vaginal vault, in terms of both anatomical correction and functional results, in particular the impact of this surgery on the anterior segment.

### Study design, materials and methods

Between February to April 2004, 34 female patients with Pelvic Organ Prolapse (POP) grade  $\geq 2$  were enrolled. The pre-operative work up included: history, clinical examination with vaginal profile using the Baden and Walker Halfway System, Q-Tip test for urethral hypermobility, conventional urodynamic studies and completion of questionnaires (King's Health Questionnaire, Wexner score for anal incontinence and constipation, and a Sexuality score).

All the patients underwent the HLM procedure [1] to suspend the vaginal vault, with or without concomitant surgical procedures to correct other prolapsed vaginal segments and/or stress urinary incontinence (SUI). All the patients were evaluated 3 and 6 months after surgery. The results were analyzed using three statistical tests: Fisher exact test, Wilcoxon test and the Chi squared test.

### Results

The mean age of the sample was 64 years (range 43-81), 31 patients were post-menopausal, median parity was 2 (range 1-5); 68% of the sample were sexually active.

Postoperative complications were as follows: peri-rectal haematoma in 3 patients (8.8%), perineal pain ( $> 6$  using a Visual Analogue Scale) in 14 patients (41.4%) which resolved after about 2 weeks of analgesic therapy.

Statistically significant correction of vaginal apex was demonstrated ( $p < 0.01$ ), without a negative anatomical impact on the anterior vaginal segment. The percentage of patients with voiding symptoms (slow stream, hesitancy, straining) and post micturition symptoms (feeling of incomplete emptying) was significantly reduced from 62% pre-operatively to 14% at 3 months and 28% at 6 months ( $p = 0.01$ ). Conversely there was no statistically significant variation in pre- and post-operative storage symptoms (daytime frequency, nocturia, urgency) (Fisher exact test;  $p = 0.05$ ).

Moreover analysis of pressure/flow study parameters (Blaivas and Groutz nomogram [2]) did not demonstrate any statistically significant differences between pre- and post-operative values (Wilcoxon test). However considering separately the group of patients moderately and severely obstructed pre-operatively (21%) there was a significant reduction at 6 months (7%) (Chi-square test; Table 1)

Quality of life (QOL) was significantly improved according to the King's Health Questionnaire both globally (mean sum of all the domains) and in the specific areas of limitations of everyday activities, physical-social limitations, personal relationships and emotions (Wilcoxon test;  $p < 0.05$  -Table 2). No statistically significant variations in sexuality (frequency of intercourse, libido, satisfaction during intercourse, dyspareunia) were observed. Regarding ano-rectal function, the Wexner score for incontinence was unaltered at 6 months whereas the Wexner score for constipation was significantly reduced (Wilcoxon test;  $p < 0.05$ ).

### Interpretation of results

High Levator Myorrhaphy anchoring the vaginal vault to the pubo-rectal muscle and recreating the so called "Vaginal Levator Attachment" [3] demonstrates the following characteristics: no significant intra- or post-operative complications; statistically significant correction of the

vaginal vault with no negative anatomical impact on the anterior segment; no variation in sexuality; no impact on fecal and gas continence; positive impact on constipation and QOL.

#### Concluding message

The High Levator Myorrhaphy is a safe and efficient choice for suspension of the vaginal apex which provides not only good anatomic but also functional correction. The increased quality of life observed is a further factor in favour of this alternative surgical option.

#### References

1. The levator myorrhaphy repair for vaginal vault prolapse. *Urology*, 2000; 56:50-54
2. Bladder outlet obstruction nomogram for women with lower urinary tract symptomatology. *Neurourol Urodyn* 2000; 19: 553
3. Structural support of the urethra as it relates to stress urinary incontinence: the Hammock hypothesis. *Am J Obstet and Gynecol*, 1994; 170: 1713-1720

**Table1- Pre- and post-op. urodynamic findings**

	baseline	3 months follow-up	P	6 months follow-up	P
<b>Mean maximum cystometric capacity (ml)</b>	410	385	N.S.	409	N.S.
<u>Mean first sensation of bladder filling (ml)</u>	168	103	N.S.*	178	N.S.*
<b>Obstruction**</b>	58%	45%	N.S.*	46%	N.S.*
<b>Mild obstructed</b>	36%	38%	N.S.	39	N.S.
<b>Moderate/severe obstructed</b>	22%	7%	<0,05°	7%	<0.05°
<b>Detrusor overactivity</b>	35%	24%	N.S.’	18%	N.S.’

\*Wilcoxon test - °Chi square test – ‘ Fisher’s exact test

\*\* according to Blaivas and Groutz nomogram

**Table 2 – Pre- and post-op. King’s Health Questionnaire**

	baseline	3 months follow-up	P	6 months follow-up	P
<b>General health perception</b>	17	17	N.S.	18	N.S.
<b>Limitations of everyday activities</b>	15	7	< 0.05	9	< 0.05
<b>Physical-social limitations</b>	13	6	< 0.05	7	< 0.05
<b>Personal relationships</b>	12	4	< 0.05	5	< 0.05
<b>Emotions</b>	17	9	< 0.05	9	< 0.05

<b>Sleep and energy</b>	14	10	0.05	12	N.S.
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