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CAN THE LAPAROSCOPIC SACROCOLPOPEXY IMPROVE THE PREOPERATIVE URINARY DYSFUNCTION?:FUNCTIONAL OUTCOMES AND URODYNAMIC FINDINGS AFTER SURGERY FOR SEVERE PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

Pelvic organ prolapse (POP) is a condition that can impair a woman's quality of life. Because of distortion in the lower urinary tract, severe POP causes signs of functional alterations as detrusor overactivity (DO) (1), bladder outlet obstruction (BOO) (2), reduced maximum urine flow rates (Qmax) (3), and elevated postvoid residual volumes (PRV). A large series showed that abdominal sacrocolpopexy can improve functional outcomes. Laparoscopic procedures have been widely adopted for minimally invasive treatment of POP via the abdominal route. However functional outcome data on laparoscopic sacrocolpopexy (LSC) are lacking. The aim was to determine the impact LSC on bladder function.

Study design, materials and methods

This was a single-center prospective series of women who underwent LSC for symptomatic POP. The local ethics committee approved the study and patients signed an informed consent document. Adult women with symptomatic, stage III or IV, according to POP-Q, who opted for LSC were enrolled. All patients were preoperatively evaluated with history, clinical examination, and urodymamic testing. Diagnosis of urinary symptoms was made my means of clinical history according to the joint IUGA/ICS terminology report definitions. To assess the detrusor contraction strength we used the contractility index PIP [detrusor pressure at maximum flow rate (PdetQmax) + Qmax] (normal detrusor contractility 30-75cmH2O). To assess the bladder outlet obstruction (BOO) we used the Blaivas and Groutz nomogram using (BOO = Qmax < 12 mL/sec combined with a Pdet Qmax of > 20 cm H2O in pressure-flow study). All surgical procedures were performed by two senior surgeons with standardized technique. Patients were followed up at 1, 3, 6, and 12 months after surgery, and then annually. At each visit, patients underwent clinical examination, evaluation of urinary symptoms, uroflowmetry with PVR measurement and urodynamic testing 6 months after surgery. Statistical analysis: the McNemar chi-square test, the paired t-test for continuous parametric variables, and the Fisher exact test ($p<0.05$ statistically significant) were performed

Results

From November 2013 to March 2016, thirty four consecutive patients (mean age 63.4±7.2) underwent LSC. Median follow-up was 24 months (range 10.4-39 months).Table 1 shows after surgery an improvement of storage and voiding symptoms statistically significant. Stress urinary incontinence disappeared in all women but however there were 10 de novo cases. Urge and mixed urinary incontinence(urge predominant form) persisted in 1 and 2 women respectively. Table 2 shows the pre- and post-op urodynamic data. After surgery we observed a statistically significant decrease of Pdet max (42.5±24.8 vs 21.5±10.6, $p<0.0001$), and increase of Qmax (12.9±8.8 vs 27±8.8 $p<0.0001$). No statistical change emerged comparing pre and post-operative cystometric capacity and first desire of voiding. Before surgery eleven patients (32.4%) had no inhibited contractions (NIC) during cystometry (1 patient with leak), after LSC they persisted in only 3 patients, of which 1 women with leak and overactive bladder syndrome wet. The analysis of PIP index showed that preoperatively 8 women had detrusor underactivity of which 6 solved the dysfunction after surgery, however in the total sample the mean change postoperative PIP index was not statistically significant ($p=0.224$). Before LSC 15 patients had BOO, of which 11 (73%) solved the obstruction with surgery ($p=0.022$).

Table 1 Pre- and post-operatively urinary symptoms

	Preoperative N (%)	Post operative (persistent form) N (%)	De novo N (%)	P value
Stress urinary incontinence	2 (5.9)	0	10 (29.4)	0.039
Urge incontinence	5 (14.7)	1 (3)	0	0.125
Mixed urinary incontinence (predominant urge form)	6 (17.6)	2 (6)	0	0.125
Urgency	21 (63.6)	3 (9.1)	0	<0.0001
Nocturia	11 (33.3)	3 (9.1)	1 (3)	0.039
Daily frequency voiding	17 (51.5)	6 (18.2)	3 (9.1)	0.057
Voiding dysfunctions	21 (63.6)	2 (6)	0	<0.0001

Table 2 Pre- and post-operatively urodynamic data

Parameters	Preoperative mean±sd	Postoperative mean±sd	P value
Pdet Max	42.5±24.8	21.5±10.6	<0.0001
Qmax	12.9±8.8	27±8.8	<0.0001
Cystometric capacity	351.2±85	369.8±80.3	0.255
First desire of voiding	158.5±77.6	169.2±58.0	0.441
PIP index	47.99 ±24.2	42.9±10.0.08	0.250

Interpretation of results

The results confirm LSC is an efficacy procedure for the treatment of POP also for functional results. Voiding symptoms significantly improved, result confirmed by the improvement of Qmax and BOO, and decrease of Pdet max. Storage symptoms improved probably for the disappearance of the obstructive effect of POP but the persistence of them in more patients compared voiding symptoms maybe was linked to other causes such as the aging. Women with NIC decreased after surgery, as effect of the disappearance of the obstruction, however they persisted in 1 patients with OAB symptoms, demonstrating different physiopathological causes .In according to PIP detrusor underactivity improved in 6 women after LSC probably for low degree of underactivity .

Concluding message

This study confirms the good functional outcomes of LSC in the treatment of POP in the medium follow-up.

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Disclosures

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