484

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THE IMPACT OF LAPAROSCOPIC SACROCOLPOPEXY ON LOWER URINARY TRACT FUNCTION AND SYMPTOMS.

Hypothesis / aims of study
The aim of the study is to evaluate the effect of laparoscopic sacrocolpopexy with bone anchor fixation on urodynamic parameters and lower urinary tract symptoms.

Study design, materials and methods
Laparoscopic sacrocolpopexy is performed in a prospective single-center cohort study. Until March 2007 28 patients were included. Preoperatively all patients underwent a pelvic organ prolapse quantification (POP-Q) assessment and filled in a disease-specific quality of life questionnaire (Urogenital Distress Inventory (UDI), Incontinence Impact Questionnaire (IIQ) and the Defecatory Distress Inventory (DDI))[1]. A bladder diary and conventional urodynamic investigation were performed before surgery to assess lower urinary tract symptoms and dysfunction. Furthermore, dynamic MRI was undertaken before surgery. All patients were operated by the same gynaecologist and laparoscopic surgeon. Bone anchor fixation of the polypropylene mesh to the third sacral segment was achieved with the Franciscan laparoscopic bone anchor inserter as described earlier.[2] Patients were examined three months after surgery. (POP-Q, disease-specific quality of life questionnaires, bladder diary, conventional urodynamic investigation and dynamic MRI).

Results
Twenty eight patients were included. Basic characteristics are shown in table 1.

Table 1. Basis characteristics.

Age (median-range)	70 (49-85)
Vault prolapse n (%)	28 (100%)
Stress urinary incontinence n(%)	4 (14%)
Urge urinary incontinence n (%)	3 (11%)
Previous Burch colposuspension n (%)	4 (14%)
Previous TVT n (%)	1 (4%)
Previous colporrhaphy n (%)	14 (50%)

Median operating time was 165 minutes (range 120-210). Median blood loss 50 ml (range 20-50). Peroperative complications during operation occurred in 2 cases. Perforation of the sigmoid occurred during adhesiolysis preceding bone anchor placement in one patient. Bone anchor and mesh placement were abandoned in this patient. In a second patient laceration of the ileum was observed after bone anchor and mesh placement. Following suturing and antibiotic therapy the postoperative course was uneventful, no additional problems occurred in three months follow-up. Recurrent prolapse was seen in 5 patients (17%), 2 cases of recurrent vaginal vault prolapse and 3 cases of anterior wall prolapse. At the moment urodynamic follow-up data are available for 15 patients.

Table 2. Urodynamic observations.

	Pre-operative	Post-operative	p-value
First desire to void (ml)	241 (184-308)	326 (213-395)	0.13
Strong desire to void (ml)	324 (282-454)	448 (237-478)	0.36
Cystometric capacity (ml)	377 (312-501)	455 (238-489)	0.46
Post residual void (ml)	50 (0-70)	0 (0-50)	0.39
Voiding time (s)	81 (52-166)	87 (55-201)	0.98
Flow time (s)	52 (34-63)	55 (40-69)	0.55
Flow rate (ml/s)	12 (10-17)	13 (7-21)	0.75
Maximal detrusor pressure (cm H_2O)	38 (32-81)	38 (28-53)	0.72

Urodynamic investigation demonstrated de novo detrusor overactivity in one patient, but she had no complaints of urgency or urge urinary incontinence. One patient mentioned de novo urinary stress incontinence.

Interpretation of results
We found no statistically significant changes in urodynamic observations thus far, but some trends can be detected: a decreased residual volume after voiding and an increased volume both for the first and strong desire to void. Following laparoscopic sacrocolpopexy with bone anchor fixation occasionally de novo detrusor overactivity and de novo stress urinary incontinence may occur.

Concluding message
Laparoscopic sacrocolpopexy with bone anchor fixation in this group of patients had no significant negative impact on lower urinary tract symptoms. Cystometric capacity was increased, although not statistically significant.

References
1. Measuring health-related quality of life in women with urogenital dysfunction: the urogenital distress inventory and incontinence impact questionnaire revisited. Neurol Urodyn 2003;22:97-104.
2 .A new device for bone anchor fixation in laparoscopic sacrocolpopexy. Surg Endosc 2005;19:594-597.

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HUMAN SUBJECTS: **This study was approved by the medisch ethische commissie sint Franciscus Gasthuis and followed the Declaration of Helsinki Informed consent was obtained from the patients.**