

## **PREOPERATIVE URODYNAMIC INVESTIGATION AND OBJECTIVE OUTCOME AFTER LAPAROSCOPIC COLPOSUSPENSION. IS A DIFFERENT APPROACH POSSIBLE ?**

### Hypothesis / aims of study

To evaluate the association between preoperative resting urethral parameters and objective outcome of laparoscopic colposuspension in women with stress urinary incontinence.

### Study design, materials and methods

We used data from three previously published prospective studies on laparoscopic colposuspension performed at our department. An identical pre- and postoperative evaluation in all these studies enabled us to pool the results.

For this analysis, we included women with primary stress urinary incontinence, a hypermobile urethra and a preoperative maximum urethral closure pressure of 20 cm H<sub>2</sub>O or higher. Before surgery all women had a leakage of 5 ml or more using a standardized short term pad-test. We only included those women having had a laparoscopic colposuspension where two sutures were placed on each side of the urethra.

We identified 216 women with a complete preoperative urodynamic evaluation and an objective follow up at a median time of 13 months after surgery (range 2 -33) (first study median 7 months , range 2-12 , second study median 12 months , range 9 -24 and third study median 13 months , range 9 -17).

For definition of objective outcome, the same standardized pad-test was used at follow up. We only considered a woman cured if there was no leaking after surgery, regardless of the subjective outcome.

We analyzed the associations between objective cure and preoperative maximum urethral closure pressure (MUCP), functional profile length (FL) and urethral continence area (CA) at rest.

We used the Wilcoxon signed rank test to evaluate univariate associations. For parameters significantly associated with cure, Receiver Operator Characteristics (ROC) curves were performed to evaluate the presence of any cut off value.

### Results

We identified 216 women (76 from study one, 75 from study two and 65 from study three) fulfilling the inclusion criteria. At follow up 179 of 216 (83 %) were objectively cured and 37 of 216 (17 %) uncured using the chosen criteria.

Statistical analysis showed a significant association between MUCP, FL, CA and objective cure. Using ROC curves, we were unable to identify distinct cut off values for any of the chosen resting urethral parameters (Fig 1 - 3).

### Interpretation of results

Our study shows a significant association between all studied resting urethral parameters, in particular CA, and one year objective cure. However, it fails to identify any cut off values in relation to surgical failure. According to the ROC curves, the association appears instead to be linear.

This challenges the traditional concept of a 20 cm H<sub>2</sub>O cut off value used to define the "low pressure urethra". In our study the strongest association was found for CA. This seems logical since this parameter is an integral of the urethral pressure tracing and combines the properties of both MUCP and FL.

### Concluding message

Despite the lack of a cut off value, preoperative information on urethral parameters may be of clinical interest for assessment of prognosis and selection of surgical technique. In our hands, CA provides best information. However, results from other studies, preferably analyzing other surgical techniques, should confirm our data.

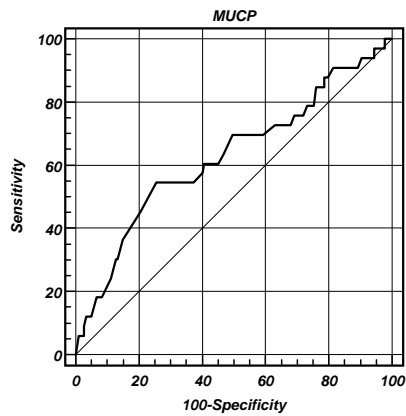


Fig 1: Association between Maximum Urethral Closure Pressure and Objective Cure (1 year after surgery)

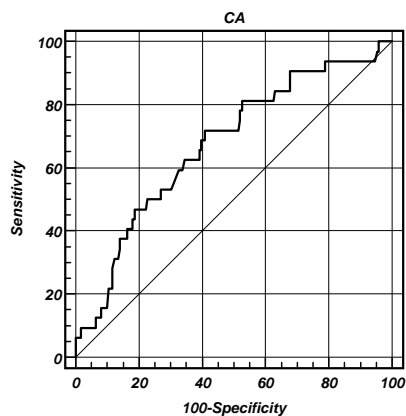


Fig 3: Association between Continence Area and Objective Cure (1 year after surgery)

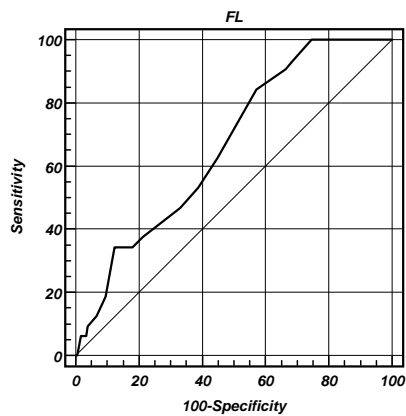


Fig 2: Association between Functional Profile Length and Objective Cure (1 year after surgery)

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**HUMAN SUBJECTS:** This study was approved by the Lunds University Hospital's Ethical Committee and followed the Declaration of Helsinki Informed consent was obtained from the patients.