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# RELATION BETWEEN INTRA-ABDOMINAL PRESSURE VARIATION AND URETHRAL HYPERMOBILITY: THE URETHRAL MOBILITY INDEX.

Hypothesis / aims of study

The aim of the study is to describe intra-abdominal pressure variation in relation to urethral hypermobility and to develop a clinically useful index.

Study design, materials and methods

Eighty-four incontinent female patients were enrolled in this study. Exclusion criteria were age under 18, urinary tract infection, malignancy or known neurological disease. After clinical history was taken and physical, especially vaginal examination done, they filled out a 7-day frequency-volume chart, and underwent cysto-urethroscopy, Q-tip test and multichannel urodynamic evaluation, including urethral pressure profile at rest and during repeated cough.

Results

Mean age was 58 years (range 32-84), average parity 2 (range 0-4). Clinical history revealed that 46 (65%) had mixed incontinence, 17 (24%) pure stress incontinence, and 8 (11%) urge incontinence. Previous hysterectomy, anti-incontinence surgery, grade of urethral incompetence and urinary incontinence increased with age and parity. Fifty-eight had stable (65%) and 26 unstable (35%) detrusor. Maximum urethral pressure, maximum urethral closure pressure were significantly related to a positive stress test (p= 0, 0034 and 0, 0007, respectively. Positive relationship was found between the degree of cystourethrocele and the Q-tip angle (p=0,008)( Figure 1). The amount of abdominal pressure divided with the corresponding Q-tip angle formed an index which decreased as urethral hypermobility increased (p=0,012).

Interpretation of results

When the amount of pressure per angle was calculated, we found that as the Q-tip angle increased the amount of abdominal pressure per angle decreased (Figure 3). Our observations support the concept that the amount of pressure per angle reflects the amount of pelvic muscle and anterior vaginal wall relaxation. Measuring this index may add important information to standardize the Q-Tip test, to plan the surgical approach and the type of repair to be selected.

Concluding message

The modified Q-tip test, as described, is a useful tool to evaluate objectively the amplitude of urethral mobility under stress. This, however, should be done with the simultaneous measurement of the corresponding intra-abdominal pressure. The urethral mobility index obtained by dividing the maximum abdominal pressure by the Q-tip angle quantifies urethral hypermobility. It allows comparisons not only in the same individual (for example pre and post-operatively), but also to compare different patient populations, as for example within a multi-center study.

**Figure 1: Relation between the Q-tip angle and the grade of cystourethrocele.**

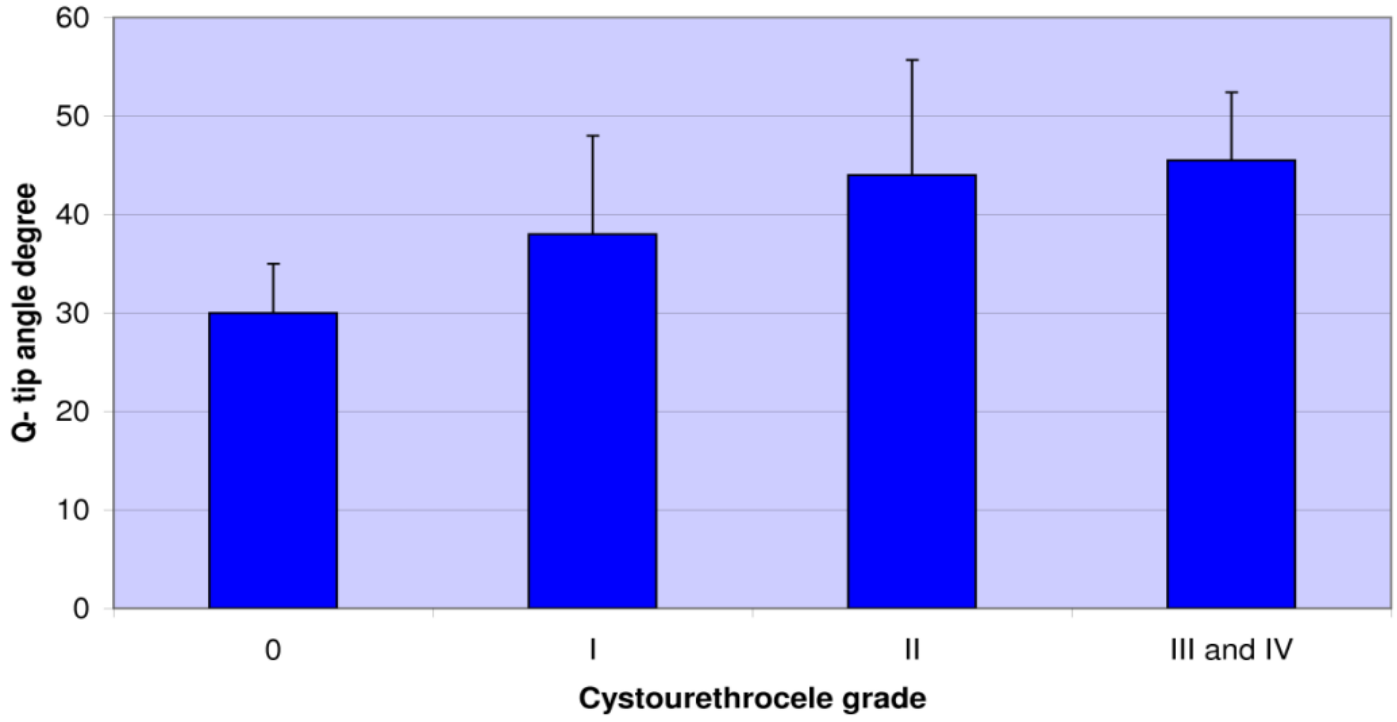
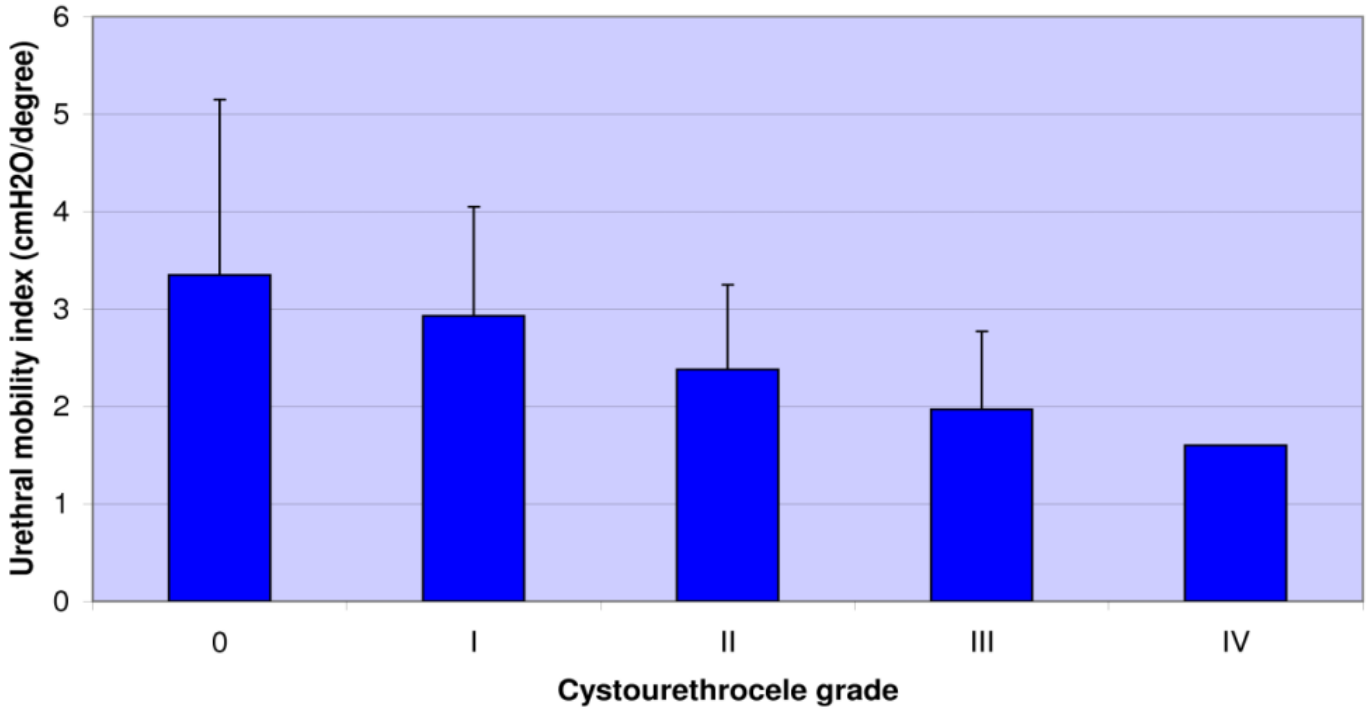


**Figure 3: Relation between urethral mobility index and degree of cystourethrocele**

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| ***Is this a clinical trial?*** | **No** |
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| ***Was this study approved by an ethics committee?*** | **No** |
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| ***Was the Declaration of Helsinki followed?*** | **Yes** |
| ***Was informed consent obtained from the patients?*** | **Yes** |