

THE MEASUREMENT OF THE URETHRAL LUMEN BY PERINEAL ULTRASOUND AND THE ART OF THE FEMALE URINARY INCONTINENCE.

Hypothesis / aims of study

It has been claimed, that it may be possible to make a differential diagnostic between stress and urge urinary incontinence by an imaging. The goal of our study was to improve the diagnostic possibilities of the perineal ultrasound in the urogynecology and to find out an ultrasound parameter for a differential diagnostic between stress and urge female urinary incontinence.

Study design, materials and methods

150 female patients were included in our retrospective study. They underwent an examination in the outpatient department of the urogynaecology in our clinic because of the diagnostic and treatment of the urinary incontinence or other symptoms of pelvic floor dysfunction. This study analyses data of the measurements of the urethral lumen. We have performed 3 measurements of the urethral lumen by perineal ultrasound in the sagittal plane, located at the meatus urethrae internum (U1), in the middle of the urethra (U2) and at the meatus urethrae externum (U3) in the state of relaxation. The data were subdivided into 3 groups. Group 1: 41 patients with a diagnosis of urge urinary incontinence (OAB), group 2: 67 patients with a diagnosis of stress urinary incontinence (SUI), group 3: 42 patients without diagnosis of incontinence (CTRL).

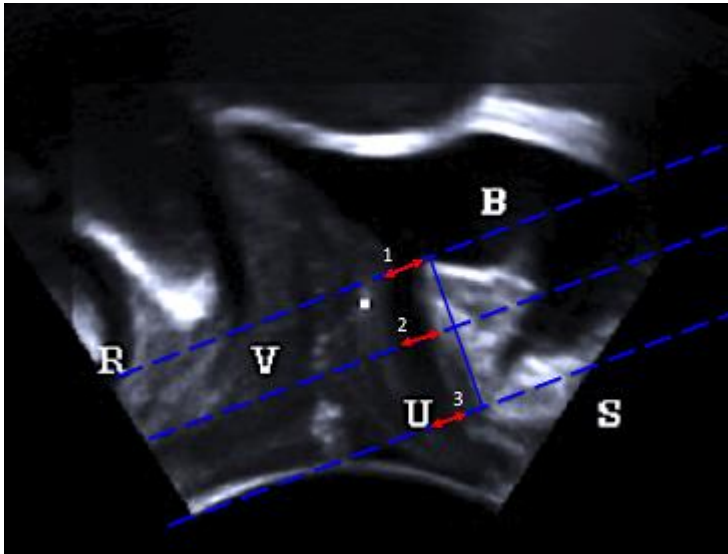


Figure 1: Perineal ultrasound presentation of the urethral lumen U1 (1), urethral lumen U2 (2), urethral lumen U3 (3), bladder (B), the symphysis (S), urethra (U), vagina (V), rectum (R).

Kruskal-Wallis test with Dunn's multiple comparisons was used for the statistic analysis.

Results

We have observed significant differences ($p < 0.05$) by the urethral lumen U2 by OAB vs. CTRL and SUI vs. CTRL. As compared to controls, urethral lumen U2 in the group of SUI ($p < 0.05$) and OAB ($p < 0.05$) was significantly narrower. There were no significant differences of the urethral lumen U2 between OAB and SUI.

There were no significant differences in the measurements of the urethral lumen U1 and U3. There was a difficulty in the measurement of urethral lumen U3, because of the insufficient visualization of the meatus urethrae externum in some cases.

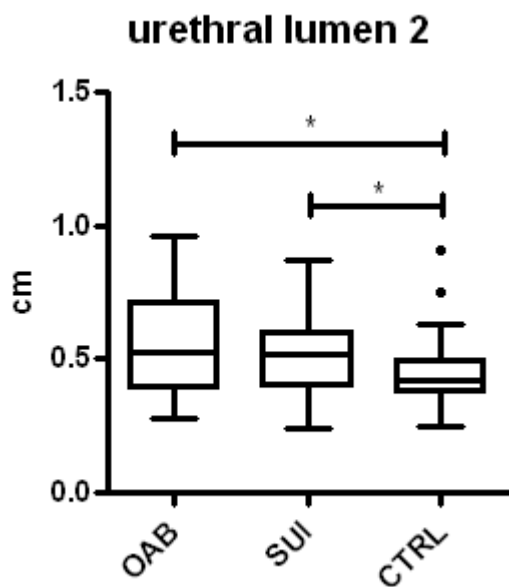


Figure 2: Measurement of the urethral lumen located in the middle of the urethra (urethral lumen 2 - U2).

Interpretation of results

Our results show that the role of the perineal ultrasound is an important part in the diagnostic of the female urinary incontinence. However, it is still not enough sufficient to take up the lead role for the differential diagnostic of female urinary incontinence and cannot replace conventional management of the diagnostic of urinary incontinence. The results show that the urethral tissue in the middle of the urethra plays an important role in the continence.

Concluding message

Further research will be necessary for the development the possibility of a differential diagnostic of the female urinary incontinence with perineal ultrasound as well as to develop a cut-off value for the urethral lumen between continent and incontinent female patient.

Disclosures

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