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PERIPARTAL ULTRASONOGRAPHY OF THE LOWER URINARY TRACT-A NEW POSSIBILITY?

Hypothesis / aims of study

There is generally conceded at present, that the gravidity, vaginal delivery and the mode of vaginal delivery are of risk factors for the later occurrence of female stress urinary incontinence or pelvic floor descent. This question has been widely explored by the number of authors (1, 2, 3, and 4). Despite of this fact the precise mechanism that leads to a vulneration of the structures important for the maintenance of urinary continence remains still unclear. This study was designed to define the precious effect of descending fetal head during physiological vaginal delivery on the key structures-urethrovesical junction and urethra itself.

Study design, materials and methods

We recruited 9 stress continent primiparas (mean age 26,2 SD 4 years, mean weight 76,1 kg), which we examined 1 month before expected term of birth. The observed parameters (urethral rotation and bladder neck descent) were of normal values. For all measurements we used Falcon 2101, B-K Medical, Denmark. All measurements we performed with a curvelinear probe with 5 MHz frequency in transperineal approach. During the second stage of labour we checked the influence of descending head on position of urethrovesical junction.

Results

The position of urethra, uretrhovesical junction and inferior pole of pubic bone can be easily visualized during the second stage of labor. The typical image at the beginning of the fetal head descends is shown in the figure 1. We observed **two** basic patterns of „behavior“ of the urethrovesical junction which is under the pressure of fetal head:

- **I.)** in 4 women was UVJ elevated and pushed forward against the pubic bone.
- **II.)** in 5 women was UVJ on the contrary pushed excessively downwards and rolled up with urethra against the inferior margin of pubic bone. (Fig 2). The dislocation of the urethrovesical junction can be as much as 6 centimeters.

None of the deliveries needed to be terminated with forceps or vacuumextraction. The total length of second stage of labour had not any significant influence on the patterns described above.

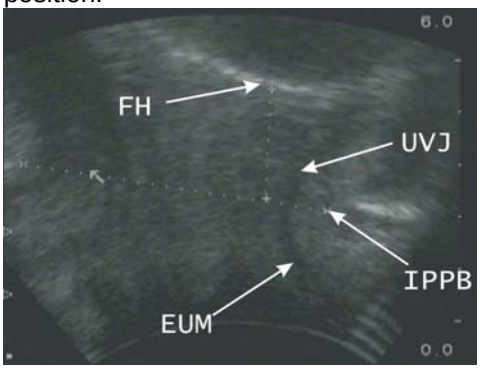
Interpretation of results

The behavior of the anterior vaginal wall during the descent of the fetal head varies. In case of excessive descent of the urethra, the supporting structures are obviously markedly overstretched. This may correlate with the damage of endopelvic fascia and future urinary stress incontinence.

Concluding message

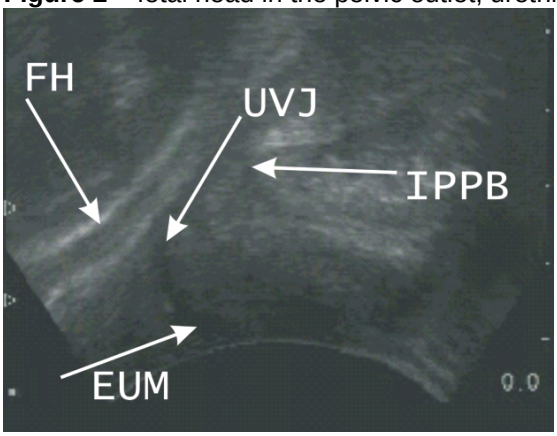
Intrapartal ultrasound can describe the behavior of urethra during the second stage of labour. This can help us to understand the mechanism of intrapartal injury of the pelvic floor.

Figure 1 – fetal head in the pelvic inlet, urethra and pubic bone clearly visible in normal position.



FH – fetal head, UVJ – urethrovesical junction, IPPB - inferior pole of pubic bone, EUM – external urethral meatus

Figure 2 – fetal head in the pelvic outlet, urethra far below the inferior pole of the pubic bone.



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