

TRANSVAGINAL SONOGRAPHIC MEASUREMENT OF URETHRAL LENGTH AND VAGINAL WALL THICKNESS AT ANTERIOR, MID, POSTERIOR URETHRA IN INCONTINENT AND CONTINENT WOMEN

Hypothesis / aims of study

Urethral factors including sphincteric segment are important to maintain the continence mechanism and anatomic, physiologic changes in this portion are associated with development of incontinence (1). Recently sling procedure using various types of tape is a popular operation in anti-incontinence surgery. During these procedures, most tension-free tape is located in the mid-urethra and in some cases thickness from vaginal wall to urethral lumen at this portion of urethra is not thick enough to prevent tape erosion. Few study associated with wall thickness and urethral length in incontinent patients compared with continent women was reported. In this study, trans-vaginal ultrasonographic measurement of urethral length and wall thickness was evaluated to compare between continent and incontinent women.

Study design, materials and methods

Fifty continent (average age 49 year-old) and 30 incontinent women (average age 48 year-old) were enrolled. Trans-vaginal ultrasound was performed using a 7.5MHz probe (LOGIC alpha-200 MR, GE, USA). Urethral length from external meatus to internal orifice and thickness of anterior, mid, posterior wall between urethra and vagina were measured.

Results

Parity number in incontinent patient group is 3.00 ± 2.22 and 2.40 ± 0.66 in continent patient group. Urethral length was 27.82 ± 2.90 mm in incontinent patient group and 30.99 ± 4.43 mm in continent patient group. Thickness at anterior, mid, posterior wall were 10.04 ± 2.28 mm, 11.33 ± 1.99 mm, 15.58 ± 2.91 mm in incontinent patient group and 6.97 ± 1.44 mm, 9.8 ± 1.07 mm, 16.16 ± 2.89 mm in continent patient group. In type III patients, urethral length was 27.17 ± 3.28 mm and VLPP was 34.25 ± 10.06 cmH₂O compared with 28.15 ± 1.82 mm and 79.57 ± 12.60 cmH₂O in type I, II patients. However, there's no statistical difference between two groups. Tape was located 7-8mm inside from the anterior vaginal wall post-operatively.

Concluding message

Urethral length was shorter in incontinent group and wall thickness was increased near the bladder neck. In mid urethra, tissue from vaginal lumen to urethra was thicker in incontinent group. Considering the wall thickness, tape was located close to the urethral lumen. Therefore we should be more careful to maintain tension-free technique to prevent the development of urethral erosion.

References

(1) Correlating structure and function: three-dimensional ultrasound of the urethral sphincter. *Ultrasound Obstet Gynecol.* 2004 Mar;23(3):272-6.