

Three-Dimensional Transvaginal Ultrasonographic Findings in a Failed Case of Cystocele Repair Using an Anterior Type Transobturator Mesh System

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BRIEF HISTORY

A 65-year-old woman, gravida 6, para 5, was seen in our urogynecology clinic for urinary frequency and a sensation of a vaginal lump for one year. She had undergone a total abdominal hysterectomy for symptomatic fibroids 20 years previously. Two years ago, she had a mesh augmented anterior colporrhaphy using a transobturator mesh system for a large cystocele.

CLINICAL EXAMINATION

On vaginal examination, a stage II urethrocyстоcele (-1.0 cm at point Aa and -0.5 cm at point Ba on the POP-Q system) and stage I vault prolapse were noted. Urinalysis showed mild leukocytosis and no bacteria. Free uroflowmetry revealed the voided volume was 128 mL, the maximum flow rate was 7.0 mL/sec (0.1 percentile on a Liverpool

nomogram), and the residual urine volume was 224 mL. There was no unstable detrusor contraction during the filling phase on cystometry.

ULTRASONOGRAPHY

Three-dimensional (3D) transvaginal sonography revealed a folded, wavy hyperechogenic mesh located behind the urethra in the upper-mid urethra (Fig. 1A). The mesh consisted of a flat portion and suspending straps. During a Valsalva maneuver, the flat part of mesh appeared to be pushed downward and outward by a protruding portion of the bladder base with a caudal shifting of its dorsal margin (Fig. 1B). Yet, the ventral margin of the mesh remained in the same location with respect to the pubic symphysis. A 3D coronal view demonstrated the two ipsilateral anchoring arms (superficial and deep straps) were positioned in close proximity to each other. There was minimal motion of the bladder neck during stress.

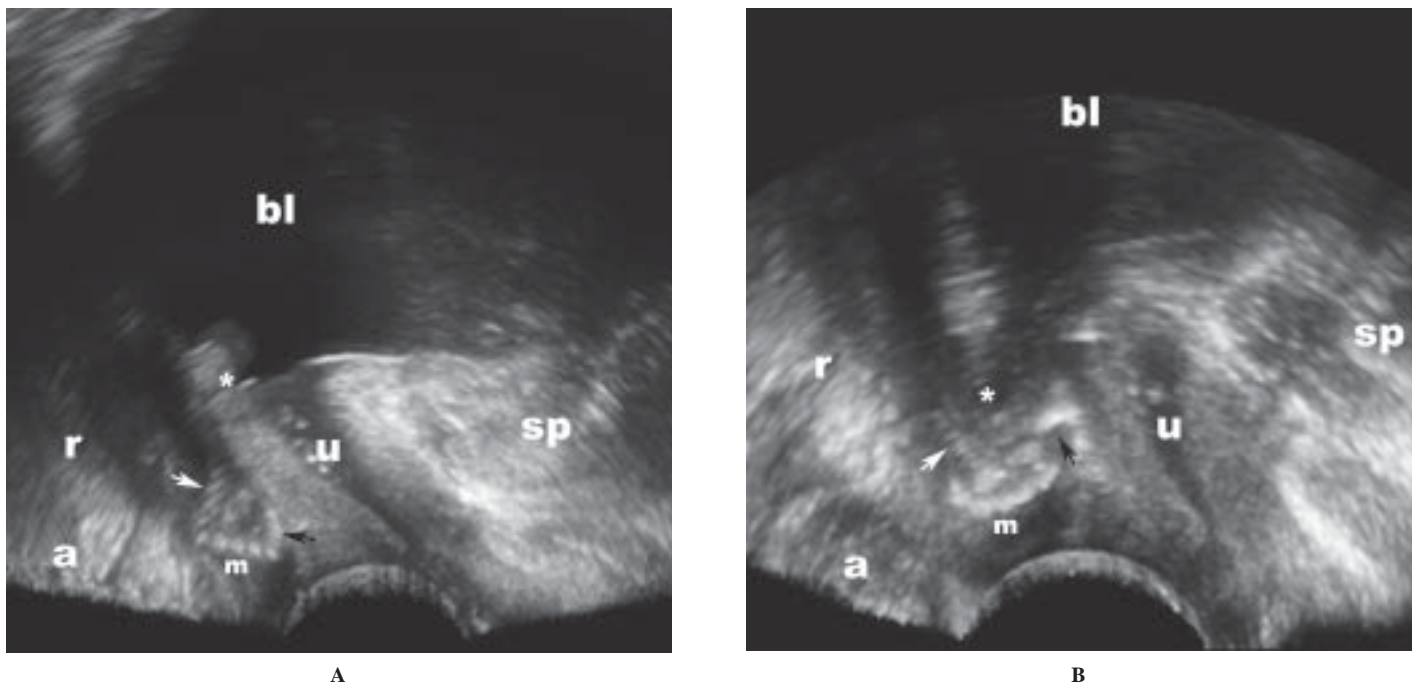


Fig. 1. Mid-sagittal view (A, resting and B, straining) showing a folded, wavy hyperechoic polypropylene mesh (m) located in the upper-mid urethra. The flat part of mesh appears to be anchored by the suspending system consisting of deep (white arrow) and superficial (black arrow) straps. On Valsalva, the flat part of mesh was pushed downward and outward by a protruding portion of the bladder base (*) with the dorsal margin shifting around 20 degrees in a caudal direction. The ventral margin of the mesh remained in the same location with respect to the pubic symphysis. (bl: bladder; sp: pubic symphysis; u: urethra; a: anal canal; r: rectum)

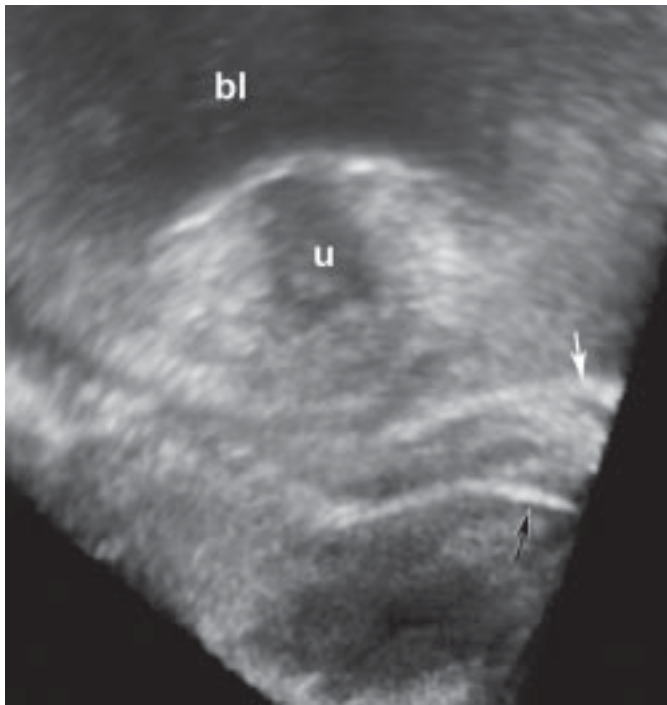


Fig. 2. Resting coronal view showing the two ipsilateral anchoring arms on the patient's left (right side of the image, indicated by arrows). The anchoring locations for the deep (white arrow) and superficial straps (black arrow) are close to each other. (bl: bladder; u: urethra)

COMMENT

Currently, anterior type transobturator polypropylene mesh interposition, using systems such as Perigee (American Medical Systems, Minnetonka, MN, USA) or Prolift Anterior (Gynecare, Ethicon, Sommerville, NJ, USA), is promoted for cystocele repair with claims that it reduces the high recurrence rate of traditional anterior colporrhaphy. The anterior type transobturator polypropylene mesh system is designed as a piece of mesh with four arms for anchorage:

superficial (superior or distal) arms for positioning the mesh caudally at the bladder neck and deep (inferior or proximal) arms for extending the mesh cranially at the apex of the vagina. Therefore, the mesh implants employed in the repair of a cystocele are supposed to have a morphologic configuration extending from the bladder neck to the vaginal apex with an intention to recover or enforce support of the anterior vaginal wall [1]. It has been suggested that the supporting mesh be placed tension-free to avoid postoperative voiding dysfunction.

This case demonstrated a distal placement of the mesh (or possibly distal migration of the mesh). A 3D coronal view revealed close proximity of the anchoring locations for the deep and superficial straps of the implanted mesh. The anchor of the deep strap seemed to pass through a guiding cannula, which was inadequately introduced. This may explain the distal placement of the implanted mesh demonstrated on ultrasound. Thus, the cranial end of the mesh did not remain extended over the bladder base. The bladder neck was well supported by the mesh (minimal motion of the bladder neck on Valsalva) whereas the bladder base was not. However, the mesh did seem to hinder any worsening progression of the cystocele. Because of the dependent position of the bladder neck, the placement of an anterior type transobturator mesh system is not considered as a cause for postoperative voiding dysfunction. We therefore suggest the patient to be closely followed up.

ACKNOWLEDGEMENTS

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REFERENCE

1. Tunn R, Picot A, Marschke J, Gauruder-Burmester A: Sonomorphological evaluation of polypropylene mesh repair after vaginal mesh repair in women with cystocele or rectocele. *Ultrasound Obstet Gynecol* 2007; **29**:449-452.