

## Imaging Study in Female Voiding Dysfunction (II): External Compression of the Urethra by a Metastatic tumor

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### BRIEF HISTORY

A 61-year-old woman presented at our urogynecologic clinic with intermittent symptoms of urinary frequency, hesitancy, strain to void and poor stream as well as a palpable nodule over the vulvar area. Three years prior to this admission, she underwent radical proctectomy, dissection of regional lymph nodes and low stapled colorectal anastomosis for rectal cancer. Unfortunately, 2 years after that procedure, left lobectomy of the liver was performed for metastatic adenocarcinoma.

### CLINICAL EXAMINATION

Physical examination revealed a subcutaneous nodule located in the left side of the vestibule, next to external urethral meatus. The opening of the external urethral meatus, compressed by the subcutaneous nodule, was in the shape of a longitudinal slit (Fig. 1).

### ULTRASONOGRAPHY

Transvaginal ultrasound identified an irregular isoechoic mass, 1.22 by 0.94 cm in size, located next to the distal urethra (Fig. 2). Dop-

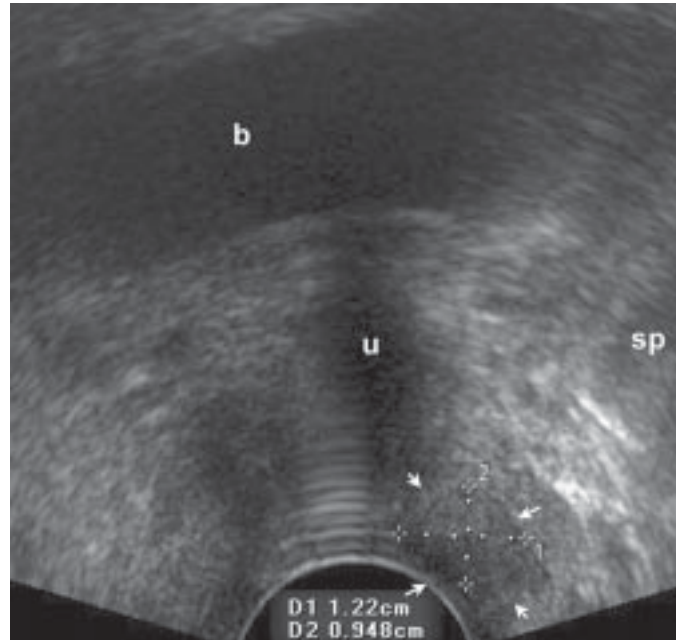


Fig. 2. Transvaginal ultrasonography demonstrates an irregular isoechoic nodule (arrow), measuring 1.22 × 0.94 cm, is locating near the distal urethra. (b = bladder, u = urethra, sp = pubic symphysis)



Fig. 1. Clinical examination demonstrates that an infiltrating subcutaneous nodule (arrow) is locating in the left side of the vestibule. The opening of the external urethral meatus is compressed by the mass into the shape of a longitudinal slit.

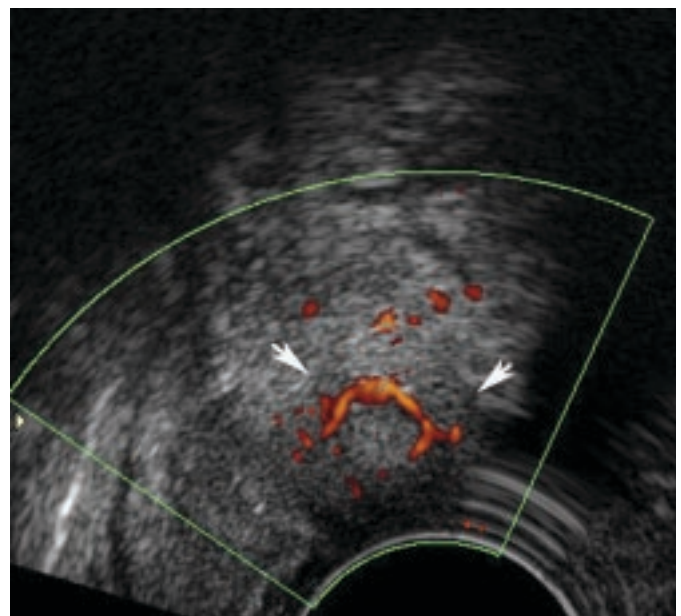


Fig. 3. Doppler flow study reveals vascularity within the tumor (arrows).

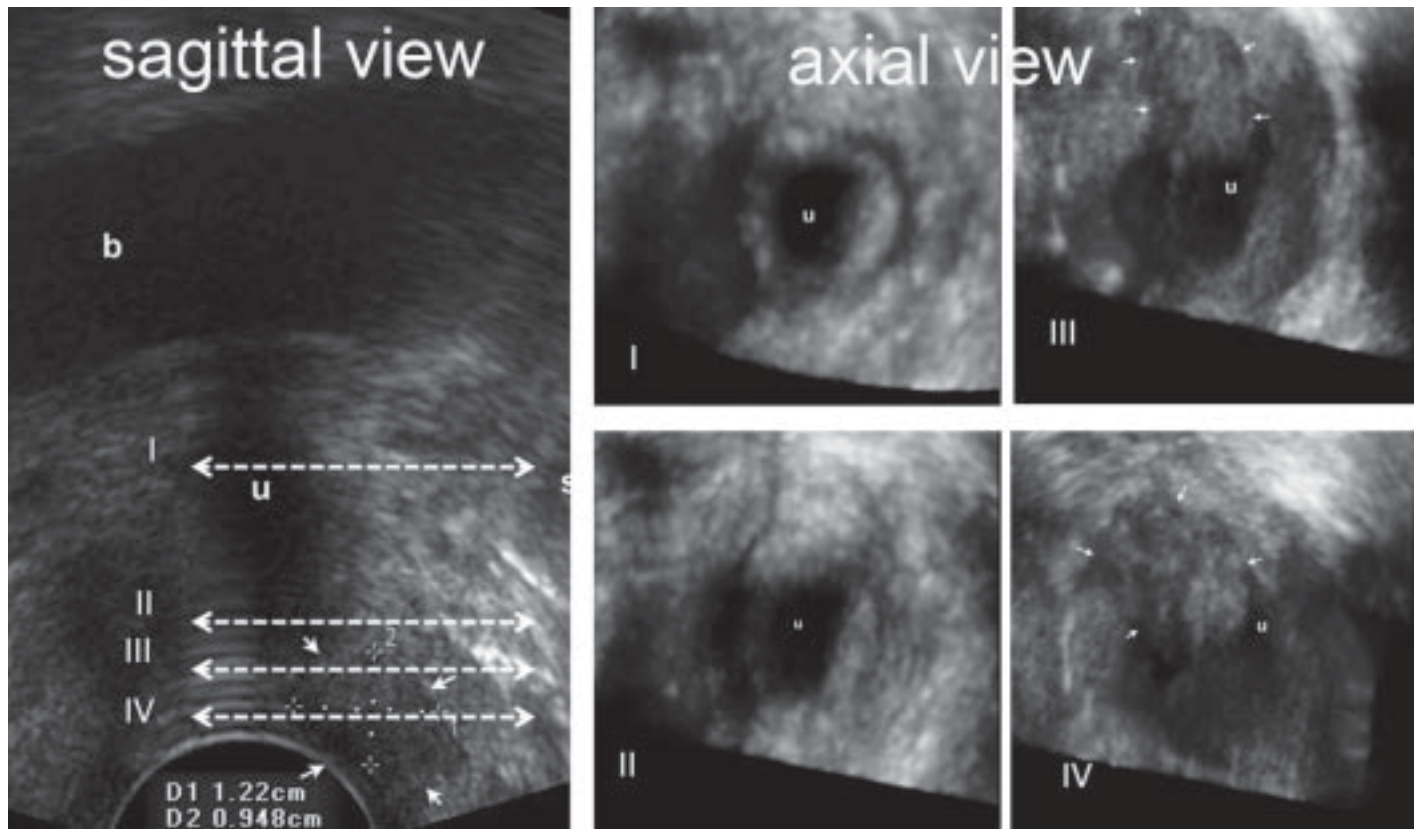


Fig. 4. Mid-sagittal and sequential axial views (as indicated by the dotted lines and Roman numerals) demonstrate the spatial relationship between the tumor nodule (arrows) and urethra (u). The distal area of the urethra is compressed and infiltrated by the tumor with irregular narrowing in the echolucent portion of the urethra (b = bladder)

pler flow mapping revealed neovascularity within the tumor mass (Fig. 3). Three-dimensional axial views demonstrated that the distal urethra was compressed and infiltrated by the tumor with irregular narrowing in the echolucent portion of the urethra (Fig. 4). Computed tomography revealed no focal nodulation in the small or large bowels, no distant metastasis, and no lymphadenopathy.

## SURGICAL INTERVENTION

An excision of the tumor was performed and pathologic examination confirmed adenocarcinoma, which was consistent with colonic origin. The patient was discharged on the third day postoperatively with an indwelling 16 Fr Foley catheter. Two weeks after her discharge, after removing the Foley catheter, she was able to void without difficulty. Ultrasonography revealed little postvoid residual urine volume.

## COMMENT

The cause of bladder outlet obstruction in women may be categorized generally into two types, functional and anatomical. Our experience with this case suggested that ultrasonography may be useful in evaluating patients with suggested urethral obstruction. On ultrasound, the urethra appears as a tubular structure with a central echolucent part and surrounding hyperechogenic structures. Morphological changes in this echolucent portion of the urethra have been reported to be associated with voiding dysfunctions [1,2].

## REFERENCES

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2. Huang WC, Yang JM: Transvaginal sonography in the treatment of a rare case of total urethral stenosis with a vesicovaginal fistula. *J Ultrasound Med* 2002; **21**:463-467.