## NEUROUROLOGY & FEMALE UROLOGY

### Determining the course of the dorsal nerve of the clitoris

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Urology. 2008; 72: 1040-3

Objectives: To describe the course and variation of the dorsal nerve of the clitoris (DNC) to better define its anatomy in the human adult before embarking on therapeutic strategies in this region of the body and as an aid to surgeons to help avoid iatrogenic injury to the DNC during vaginal surgical procedures.
Methods: Six human female cadavers of variable body weights were sectioned. A vertical midline incision from the base of the clitoris extending toward the direction of the umbilicus was made. The DNC was identified by dissecting out the fascia, fat, and muscles around it. The anatomy of the nerve was noted bilaterally.
Results: Distally, the DNC pierced the perineal membrane lateral to the external urethral meatus. It traversed along the bulbospongiosus muscle before traversing posterior to the crura. The DNC reappeared, hooking over the crura to lie on the anterolateral surface of the body of the clitoris, before dividing into 2 cords and terminating short of the tip of the glans clitoris.
Conclusions: The results of this study have demonstrated the unique anatomy of the distal part of the DNC. Knowledge of the anatomy of the DNC, which was consistent for all the cadavers, is important so that surgeons can avoid potential iatrogenic injuries to this structure.

**Editorial Comment**

The authors describe the anatomy of the dorsal nerve of the clitoris with emphasis on its exit point from the perineal membrane to its end point bifurcation. Of note is that the authors found that the course of the dorsal nerve of the clitoris was in a position that would not be affected by traditional retropubic suburethral sling operation or a transobturator suburethral sling. In addition, they noted that the nerves ended on the lateral positions of the body of the clitoris at approximately 11 and 1 o'clock with no innervation noted at the dorsal position (12 o'clock) and the nerve did not reach the tip of the clitoris but terminated approximately 1cm short of the end.

This article is well worth reviewing prior to the performance of a transvaginal urethrolysis, especially when considering the suprameatal technique (1). It will be interesting to see if there is any affectation of this nerve with the increasingly popular non-surgical transurethral radiofrequency treatment for female stress urinary incontinence (2). The illustrations are excellent in quality and impart good recollective information. In addition to considerations for surgical technique, their anatomic description may impart valuable information to those physicians counseling couples with sexual dysfunction (especially with regard to the second phase female sexual function, arousal, as described in the commentary of the manuscript) and potential optimal sites for clitoral nerve stimulation.

**References**

1. Petrou SP, Brown JA, Blaivas JG: Suprameatal transvaginal urethrolysis. J Urol. 1999; 161: 1268-71.
2. Juma S, Appell RA: Nonsurgical transurethral radiofrequency treatment of stress urinary incontinence in women. Women's Health. 2007; 3: 291-9.

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## Urinary symptoms before and after female urethral diverticulectomy--can we predict de novo stress urinary incontinence?

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J Urol. 2008; 180: 2088-90

Purpose: We assessed preoperative and postoperative urinary symptoms, and determined risk factors for de novo stress urinary incontinence after transvaginal urethral diverticulectomy.
Materials and Methods: We reviewed the case records of 25 consecutive women who had transvaginal urethral diverticulectomy. Urinary symptoms were documented before and after surgery with a structured history and examination pro forma. Demographic, clinical and imaging parameters were reviewed to determine any association with preoperative and postoperative symptoms as well as possible risk factors for postoperative stress urinary incontinence.
Results: The most common presenting symptoms were urinary urgency and frequency (60%), and dyspareunia (56%). On physical examination the most common findings were a tender anterior vaginal wall mass (88%) and urethral discharge (40%). At a mean followup of 15.1 +/- 14.9 months (median 12) the rate of urgency-frequency symptoms and dyspareunia decreased significantly from 60% to 16% and from 56% to 8%, respectively. All the patients who had urge incontinence were cured of this symptom after the operation. De novo stress urinary incontinence developed in 4 patients (16%) postoperatively, and it was mild and only necessitated surgical treatment in 1 patient. A diverticulum larger than 30 mm and proximal urethral location were significant factors ($p < 0.05$) for the development of de novo stress urinary incontinence.
Conclusions: Irritative bladder symptoms are common in woman with urethral diverticulum and usually resolve after surgical excision. Stress urinary incontinence developed immediately after the operation, and had a significant association with a proximal urethral location and ultrasonically measured size greater than 30 mm.

**Editorial Comment**

The authors review their experience of 25 consecutive women who underwent a transvaginal urethral diverticulectomy. Special emphasis was placed on presenting signs and symptoms as well as the postoperative incidence of de novo stress urinary incontinence. The authors found that diverticuluae of a size > 30 mm and with a proximal urethral location had a higher association with postoperative stress urinary incontinence. The surgeons noted that all the patients who had urge incontinence were relieved of that symptom with the operation.

The authors shed light on their thoughts on urethral diverticulectomy especially with regards to symptoms and signs before and after the surgery. Of interest is that none of the patients appears to have had a preoperative MRI but were diagnosed by ultrasound. They did note that double balloon positive pressure urethrography also identified the diverticulum well when used (in 14 of the 25 patients) but cystourethroscopy could only identify the diverticular orifice in less than half of the patient population (44%). The authors reported a 16% de novo incidence of stress urinary incontinence and did not recommend a prophylactic anti-incontinence operation even for those patients meeting the criteria that were identified in the manuscript. Their median follow up was approximately 12 months. One wonders whether the incidence of de novo stress urinary incontinence will be higher if this population of patients is revisited in two or three years from this time and the subsequent recommendation of no prophylactic surgery will change.

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