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# Words of Wisdom

## Re: Neuroanatomy of the Male Urethra and Perineum

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BJU Int 2003;92:624–30. (PMID: 14511049)

**Expert's summary:**

The authors describe the neuroanatomy and the topography of the perineal nerves from their origin to the bulbocavernous muscle and corpus spongiosum. The study was performed in normal male human fetal specimens using an immunohistochemical characterisation and a three-dimensional computer reconstruction of samples. The authors showed that the perineal nerves course deeply into the bulbocavernous muscle and that fine nerve branches enter inside the corpus spongiosum. This study clearly determined that the corpus spongiosum is a neurovascular tissue, which is under the perineal nerve control.

**Expert's comments:**

This paper contains useful information, addressed to urethral reconstructive surgeons, to prevent sexual and urinary dysfunctions after bulbar urethroplasty. In the past, Colleen suggested a peristaltic function of the anterior urethra that could evacuate its contents by contraction of the bulbocavernous muscle (BCM) by compressing the urethral lumen and the proximal part of the corpus spongiosum [1]. The squeezing of blood through the urethral bulb in a distal direction within the urethral spongiosum tissue creates a "peristaltic" wave, whereby the urethra is relieved of its contents [1]. Clonic contractions of the BCM expel semen and urine from the bulbar urethra [1]. The BCM is innervated by the perineal nerve, which originates from the pudendal nerve. Recently, Yung and Bradley demonstrated the role of the perineal nerve in BCM contraction using electrophysiologic techniques [2]. The article presented here showed that the BCM and perineal nerve are fully involved in the functional aspect of the bulbar urethra. The surgical damage to the BCM or perineal nerve during bulbar urethroplasty may cause postoperative urinary or ejaculatory dysfunctions, such as postvoid dribbling, premature ejaculation, decreased force of semen expulsion, and low semen volume. We have experienced postvoid dribbling in patients who underwent bulbar urethroplasty without radiologic evidence of postoperative urethral sacculation [3]. These disorders may result from disruption of one or more of the reflex pathways providing innervations of the BCM. The question we should try to address is: Is it possible to make bulbar urethroplasty without damage the BCM and perineal nerves to spare an efficient contraction of the BCM, thus avoiding urine and semen sequestration in the bulb of urethra? This muscle- and nerve-sparing bulbar urethroplasty will represent the new goal of reconstructive urethral surgery. According to suggestions of Yucel and Baskin, considerable changes will be introduced in the management of urethral surgery and these will improve the quality of life of patients who undergo bulbar urethroplasty.

## References

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[2] Yang CC, Bradley WE. BJU Int 2000;85:857–63.
[3] Barbagli G, et al. J Urol 2005;174:955–8.

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DOI:10.1016/j.eururo.2006.09.006