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(110) THE SURGICAL ANATOMY OF CLITORAL INNERVATION: A REVIEW OF THE CURRENT MEDICAL LITERATURE

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Introduction: The clitoris is a crucial structure for sexual arousal and orgasm in people with gynecological anatomy. Despite its functional importance, the innervation of the clitoris has historically been understudied. The innervation of the clitoris includes somatic afferents of the dorsal nerve of the clitoris, a branch of the pudendal nerve and sacral plexus, and autonomic afferents of the cavernous nerve, a branch of the inferior hypogastric plexus. Although we have identified these structures, there remains a paucity of research on surgical techniques to avoid clitoral innervation during pelvic surgery, despite the importance of these nerves in gynecological sexual function.

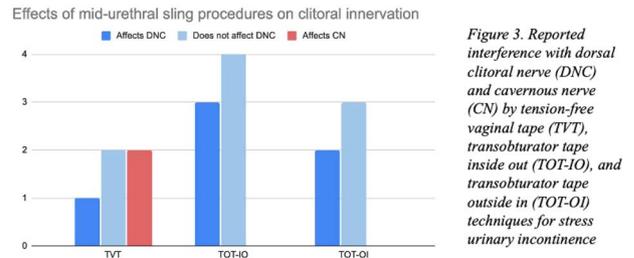
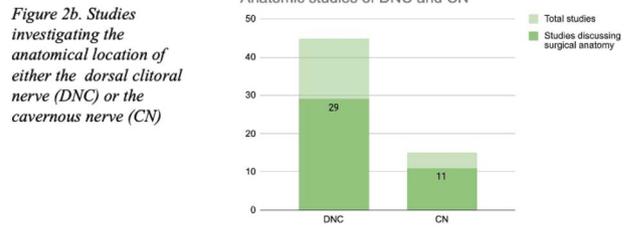
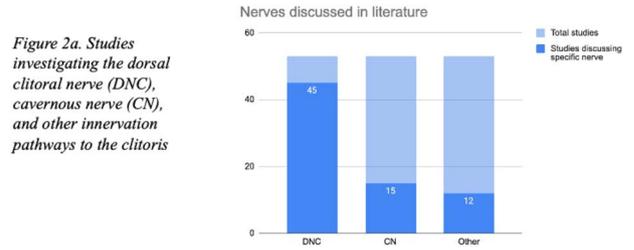
Objective: This paper aims to summarize the current literature on clitoral innervation with special attention paid to the anatomical locations of nervous structures within the pelvis to inform future pelvic surgeons and reduce sexual side effects related to clitoral nerve damage.

Methods: We performed a PubMed search from inception through June 14, 2023 utilizing the Medical Subject Headings (MeSH) search terms “(clitor*) AND (innerv* OR nerv*) AND (surg*)” and imported this search into Covidence software. Included in the literature search were observational studies, clinical trials, review articles, correspondence, and communications, and only articles in English were included.

Results: An initial abstract screen of 200 articles resulted in 87 articles that were fully screened and 53 articles that were utilized as within the scope of this paper. 45 papers discussed the dorsal nerve of the clitoris, while 15 papers explored autonomic afferents via the cavernous nerve. The anatomical location of the dorsal nerve of the clitoris has been tracked in 29 papers, most of which utilize cadaver dissection, with at least six anatomic variations identified. The cavernous nerve’s exact location, however, has not been traced as extensively as has the location of the dorsal nerve of the clitoris, perhaps due to its smaller diameter and shorter length. Additional innervation to the clitoris was proposed in 12 studies as well. Many studies suggested that commonly performed procedures, including midurethral sling placement for stress urinary incontinence, labiaplasty, clitoral hood reduction, clitoroplasty, and urogenital sinus repair may interfere with clitoral innervation if not otherwise modified. Two studies discussed sensory mapping techniques prior to pelvic surgery to account for anatomic variation in clitoral innervation.

Conclusions: The clitoris is a vastly innervated structure with both somatic and autonomic afferents whose locations and anatomic variations should be considered when performing pelvic surgery. Failure to consider not only the dorsal nerve of the clitoris but the cavernous nerve as well may have consequences that negatively impact clitoral sensitivity, engorgement and erection, orgasmic ability, and overall sexual function.

Disclosure: No.



Surgeries that affect DNC	Surgeries that do not affect DNC	Surgeries that affect CN	Surgeries that do not affect CN
TVT, TOT-IO, TOT-OI, wedge labiaplasty, clitoroplasty (NNS, NS), clitoral hood reduction, periclitral mass resection, obstetric laceration repair, total urogenital sinus mobilization, prepuce reduction, vulvectomy, monsplasty, urethral sphincter repair	TVT, TOT-IO, TOT-OI, trim labiaplasty, clitoroplasty (NS, ventral), dorsal onlay vaginal graft urethroplasty, partial urogenital sinus mobilization, hysterectomy, selective pudendectomy	TVT, clitoroplasty (NS, ETE), total urogenital sinus mobilization, dorsal onlay vaginal graft urethroplasty, total mesorectal excision	Partial urogenital sinus mobilization

Table 1. A variety of pelvic surgeries were reported to interfere with the dorsal clitoral nerve (DNC) and cavernous nerve (CN) pathways. Some of these surgeries were also identified as sparing DNC and CN pathways in other studies

Figure 3. Reported interference with dorsal clitoral nerve (DNC) and cavernous nerve (CN) by tension-free vaginal tape (TVT), transobturator tape inside out (TOT-IO), and transobturator tape outside in (TOT-OI) techniques for stress urinary incontinence