NVB stimulations was not necessarily stronger than those at the other stimulation points. We thus consider that nerve fibers at the posterior of the prostate also contribute to erectile function.

When interpreting the results of the present study, several limitations must be considered. First, the major limitation of our study was the small number of patients investigated. However, the same results were observed in all 12 patients, with electrostimulation at the posterior area of the prostate increasing cavernosal pressure. Although a limited number of patients were investigated, we consider the uniformity of the findings as sufficient indication that the posterior nerve fibers may substantially contribute to erectile functions. Future studies assessing improved outcomes of postoperative erectile function in patients with preservation of posterior nerve fibers are warranted. Second, the present study uses changes in the middle urethral pressure via balloon catheter to assess increases in the cavernosal pressure instead of inserting a needle directly into the cavernous body of the penis. Although the urethral pressure is not strictly the same as the cavernosal pressure, the intraurethral catheter method was employed because we found that the pressures in both of these compartments were correlated in all previous cases and that more stable responses can be obtained while reducing invasiveness.

CONCLUSION

Our results demonstrated that many nerve fibers responsible for erectile functions are contained in the PP and MPP as well as at the typical NVB. These findings indicate that we should take care not to cut into the tissues just outside of the DF during posterior dissection of the prostate. Similar to the preservation of the nerve network at the posterolateral, lateral, and ventral sides of the prostate, the preservation of the posterior tissues as much as possible, including the PP and MPP just outside of the DF, can contribute to optimal recovery of erectile functions after surgery.

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SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at https://doi.org/10.1016/j.urology.2019.05.048.

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EDITORIAL COMMENT

This is a helpful study by Kaiho, Y. et al. that, during robotic prostatectomy, assessed the functional distribution of the "periprostatic nerve network" responsible for erectile function. Using electrical stimulation through a bipolar electrode (which produces a very localized electrical filed), points along the traditional neurovascular bundle and the posterior surface of the prostate were tested for their ability to induce a pressure rise within the penis. The findings suggest the nerves responsible for erectile function may span further along the posterior prostate surface than the area routinely preserved during typical nerve sparing.

Similar to what CaverMap facilitated in exploring the functional anatomy of the cavernous nerve during the era of open prostatectomy, this study provides insight into the neuroanatomy relevant to the robotic age.[1] In particular, the current study provides functional anatomic information from the cranial viewpoint that is central to the usual robotic base-to-apex dissection. This knowledge complements that gained in the open surgery era, where the apex-to-base approach was generally used, and the neurovascular bundles were viewed from an anterior perspective.

Overall, the findings in this study can be applied during nerve sparing to potentially aid the preservation of more neural tissue that facilitates erection. The utility of this approach to intraoperative stimulation as a guide for nerve sparing is unclear, but may be of limited benefit if history repeats itself. While the CaverMap was intended for this, it fell from favor due to a limited usefulness in identifying what tissues to preserve, as well as a poor ability to predict postoperative recovery of erectile function based upon intraoperative testing.[1]

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