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Open to Debate: Con

Nerve-sparing Techniques During Robot-assisted Radical Prostatectomy: Clips or Low-energy Bipolar Coagulation? Low Energy

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To achieve optimal functional outcomes in term of erection and continence after radical prostatectomy, dissection of the neurovascular bundles (NVBs) is key. In theory, the NVBs have to be dissected using an athermal technique without any traction and with only clips [1]. To support this concept, only one study on canine models proved that the use of any kind of energy source can damage cavernous nerve function [2].

In the literature and in our daily practice, there is still a debate regarding the use of low-energy coagulation versus clips: some experts reported the same success rates in terms of continence and sexuality for low-energy bipolar coagulation and athermal dissection [3–6]. The objective is to review these reports in favor of a clipless approach.

There are many arguments for the use of a simple clipless technique: there is no risk of clip migration into the bladder or the anastomosis, which can lead to urinary retention, stones, or bladder neck stricture; it is easy to perform (just press the pedal for touch cautery); it is cost-effective and saves time; and it facilitates hemostasis on the

correct vessel and avoids having an assistant place a clip on an incorrect vessel or too large a clip that can lead to significant nerve compression.

One of the surgical challenges during robot-assisted radical prostatectomy (RARP) with bilateral nerve sparing is hemostasis for the prostatic pedicle. In this step it is important to dissect each vessel, for which bipolar coagulation of short duration is applied.

Bipolar touch cautery can be performed only at the prostatic base, where the nerves are largely and widely distributed, and is completely contraindicated at the apex, where the nerves are concentrated under and around the urethra in a U shape [7]. A small amount of bleeding can be tolerated at the apex.

A common issue in surgery is that it is difficult to find prospective randomized trials comparing two approaches. Some expert centers have reported on their own techniques or a comparison between two groups of patients treated with two surgical approaches.

Shin and Lee [5] reported 1-yr functional and oncologic outcomes and postoperative complications for 105 patients who underwent modified clipless RARP with intrafascial NVB sparing. Over median follow-up of 26.5 mo, the rate of postoperative erectile function recovery, defined as a score ≥ 21 on the Sexual Health Inventory for Men questionnaire or ability to have sexual intercourse, was 71%, 81%, 88%, 92%, and 94% at 1, 3, 6, 9, and 12 mo, respectively. Chien et al [3] described analogous findings after a completely athermal RARP procedure, reporting faster return to and preservation of sexual function: according to a 36-item health survey questionnaire, the potency rate was 47%, 54%, 66%, and 69% after 1, 3, 6, and 12 mo, respectively.

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In their modified clipless antegrade nerve-sparing technique, after developing the posterior plane of the prostate towards the apex in the midline, the authors released the vascular pedicles and the NVBs in a medial-to-lateral direction using a combination of sharp and cold scissors. Basourakos et al [6] conducted a retrospective study comparing a new technique involving clipless lateral pedicle control with bipolar energy ($n = 144$) to the standard RARP technique with clips ($n = 194$). Overall, there were no differences in functional and oncologic outcomes between the two groups. On multivariable regression analysis, the bipolar technique was not associated with significant differences in positive surgical margins (odds ratio [OR] 1.04), sexual function (OR 0.4), or urinary function (OR 0.5). The overall 30-d complication rates (12% vs 16%; $p = 0.5$) and bladder neck contracture rates (2.1% vs 3.6%; $p = 0.5$) were similar in the two groups.

In a comparative retrospective study of 1088 patients, Guimarães et al [4] conducted a 1:2 matched pair analysis of patients who underwent either standard transperitoneal RARP or extraperitoneal RARP with complete anterior periprostatic preservation and a clipless approach (no use of clips and cautious use of bipolar energy). There was no significant difference in overall continence rate between the two groups. The mean time for continence recovery was 6.6 mo in the standard group and 5.8 mo in the clipless group. The rate of erectile function recovery, with or without drugs, at 12 mo was in 53.5% in the standard group and 75% in the clipless group. Potency recovery was significantly earlier in the clipless group.

RARP via a clipless approach with low-energy bipolar coagulation of short duration for the prostatic pedicles is a

feasible and reproducible technique with similar erectile function and continence recoveries to the standard approach. However, only a prospective randomized trial can scientifically validate this technique.

Conflicts of interest: The author has a financial relationship with Intuitive Surgical.

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