

# The anatomical structure of the paravesico-vaginal space, a novel landmark for nerve-sparing radical hysterectomy

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In addition to the para-vesical space, the para-rectal space, and the Okabayashi space, previous anatomic studies have proposed a fourth space,<sup>1</sup> the para-vaginal space,<sup>2</sup> when performing nerve-sparing radical hysterectomy. We recently introduced an improved nerve-sparing radical hysterectomy, in which a novel anatomical landmark, the paravesico-vaginal space, was a crucial part of the procedure for total preservation of the bladder branch of the inferior hypogastric plexus.<sup>3,4</sup> Differing from the para-vaginal space, which was developed by dissecting the loose connective tissue between the side of the cervix and the dorsal vesico-uterine ligament, the paravesico-vaginal space was developed after the deep uterine vein and the dorsal vesico-uterine ligament were dissected. A step-by-step surgical procedure was shown in our previous study.<sup>4</sup> We herein aim to further illustrate the anatomical structure of the paravesico-vaginal space.

The video 1 is divided into three parts, including how to access the paravesico-vaginal space surgically, the anatomical structure of the paravesico-vaginal space, and some basic details of the nerve sparing surgical technique, respectively. Kelly forceps, fine scissors, an electronic knife and Ligasure were applied during the surgical procedures. Briefly, to isolate the paravesico-vaginal space, a vascular-free space, which was at the top of the

paravesico-vaginal space, was first identified between the terminal ureter and the lateral wall of the vagina. Then the paracolpium was meticulously divided around the vascular-free space by sharp dissection, with bleeding controlled using monopolar or bipolar electrocautery. After dissection of the paracolpium, the bladder branch of the inferiorhypogastric plexus was further exposed and isolated in a caudal and lateral direction. Thereafter, a pear-shaped space, the paravesico-vaginal space, was formed by the uterine branch of the inferior hypogastric plexus, the lateral vaginal wall, and the cardinal ligament. We connected the paravesico-vaginal space and the para-rectal space by blunt dissection, and dissected the cardinal ligament for 3 cm.

In conclusion, the paravesico-vaginal space was delimited by the terminal ureter in its uppermost portion, the cardinal ligament at its bottom border, the lateral wall of the vagina, and the bladder branch of inferiorhypogastric plexus laterally. Nerve-sparing radical hysterectomy can be performed with greater efficiency by dividing the paravesico-vaginal space.

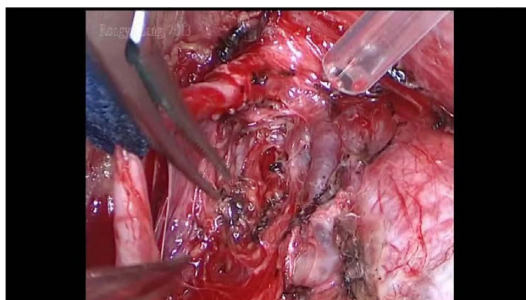
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**Video 1**