TRANS-DOUGLAS APPROACH FOR INTRA-FASCIAL NERVE SPARING ROBOTIC ASSISTED RADICAL PROSTATECTOMY

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ABSTRACT
Robotic assisted radical prostatectomy is the widely used treatment modality for organ confined prostate cancer. Erectile dysfunction and incontinence are common drawbacks for radical prostatectomy and this represents the rationale for sparing of the neuro-vascular bundle during this operation. Complete preservation of the peri-prostatic tissue may maximize the nerve sparing, therefore may improve the functional outcomes. In this manuscript we report on how we do complete intra-fascial nerve sparing radical prostatectomy through the Douglas pouch approach, however prospective studies are required to investigate the results of this technique.

Key Words: Robotic radical prostatectomy, Nerve sparing, Intra-fascial

INTRODUCTION
Robotic Assisted Radical Prostatectomy (RARP) is now a standardized technique for treatment of organ confined prostatic cancer in comparison to open surgery (1). Erectile Dysfunction (ED) and Urinary Incontinence (UI) are common drawbacks for radical prostatectomy, therefore almost all the patients undergo this treatment modality pay great attention to the functional outcome regarding potency and continence that may extremely affect the quality of life (QOL) (2) and even nerve sparing in patients with pre-operative ED may improve the continence results (3). Maintenance of acceptable QOL after surgery represents the rationale for Neuro-Vascular Bundle (NVB) preservation during radical prostatectomy but not on expense of oncological aspects. We propose that attacking the prostate through the peritoneal Douglas-pouch during radical prostatectomy may be helpful in preservation of more peri-prostatic fascia and therefore more neurovascular tissue (4).

SURGICAL TECHNIQUE
After obtaining an informed consent and under general anesthesia, a 20 F Foley catheter is inserted into the bladder, then five laparoscopic ports are fixed in the abdominal wall as shown in Figure 1. The first one is 12mm port for the robotic camera at the umbilical ring using Hasson technique. After insufflation of Co2 inside the abdominal cavity up to 15 mmHg pressure, two 8mm robotic ports are fixed about 8-10 cm away from the optic port (one hand breadth) on the line between the umbilicus and the anterior superior iliac spine on each side. Two assistant ports on the right side, one 5mm port for suction between the optic and the robotic port, and the other is 12mm port about 8mm lateral to the robotic port. After fixation of all ports, the patient position is changed to deep Trendelenburg position.

An incision is made in the lower part of the anterior wall of Douglas pouch for direct approach to the seminal...
vesicles. After dissection of bilateral seminal vesicles and cutting of the vaso deferentia bilaterally, traction by the assistant is applied on the seminal vesicles anteriorly to make traction on the posterior layer of the Denovilliers’ fascia which will be incised few millimeters below the entrance of the ejaculatory ducts to enter the plane between the rectum and the prostate. For proper dissection of the postero-lateral aspect of the prostate and preservation of the neuro-vascular tissue, traction on the ipsilateral seminal vesicle up words and to the opposite side will clearly expose the ipsilateral pedicle. Multiple windows are created in the wide tissue bands to make it thinner and then controlled by metallic clips near to the prostate (Figure 2). After that, bladder neck is dissected from the prostatic base starting from below just above the ejaculatory ducts then upwards and laterally along the bladder neck circumference. In the previous step, the dissection should be guided by the prostatic tissue to keep the bladder neck narrow and intact (Figure 3). Finally the prostatic apex is dissected from the urethra with peeling of any striated muscle fibers over the apex before urethral cutting to keep the maximum integrity of the striated sphincter, then the urethra is sharply cut just few millimeters above the concavity of the prostatic apex (Figure 4). The urethro-vesical anastomosis is performed in continues manner using 3/0 Stratafix™ suture over a 20F Foley catheter, thus the operation is completely performed through the Douglas pouch without interruption of the retropubic space of Retzius or peri-vesical tissue (Figure 5).

**DISCUSSION**

The concept for nerve sparing radical prostatectomy started after Walsh and colleagues works. They reported in 1981 that cavernous nerves are located outside the prostatic capsule and and within the visceral layer of the pelvic fascia and can be preserved during retro-pubic radical prostatectomy without compromising the oncological outcomes [5,6]. The surgical anatomy of the prostate has wide variability especially in the NVB distribution which is situated between the multi-layered prostatic fascia and composed of numerous branches interfering with the blood vessels and adipose tissue at the lateral and posterior aspects of the prostate. In addition, it is very close to the seminal vesicles and prostatic apex [7]. This variability
Trans-Douglas approach for intra-fascial nerve sparing Robotic Assisted Radical Prostatectomy

functional and oncological outcomes with high feasibility and reproducibility of this new technique (9). But until now, there are no available studies; pro or retrospective, comparing this technique with the standard techniques of RARP.

A lot of criticism may be directed to this approach regarding the oncological outcomes in high risk patients with big tumour size, because of the higher probability of post-operative positive surgical margins as the peri-prostatic tissue is completely preserved. Therefore it is better to restrict this technique to low risk group until new available data on large cohort and from different high volume centers appear in the literature.

CONCLUSION

Trans-Douglas nerve sparing radical prostatectomy may improve the post-operative functional outcomes, however prospective randomised comparative studies are mandatory to prove no inferiority to the conventional technique regarding the oncological outcomes. Also identification of clear selection criteria for candidate patients to this technique needs more investigation.

REFERENCES
