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Case Series of the Month

A New Anatomic Approach for Robot-Assisted Laparoscopic Prostatectomy: A Feasibility Study for Completely Intrafascial Surgery

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Abstract

Robot-assisted laparoscopic prostatectomy (RALP) has been disseminated widely, changing the knowledge of surgical anatomy of the prostate. The aim of our study is to demonstrate the feasibility of a new, purely intrafascial approach.

The Bocciardi approach for RALP passes through the Douglas space, following a completely intrafascial plane without any dissection of the anterior compartment, which contains neurovascular bundles, Aphrodite's veil, endopelvic fascia, the Santorini plexus, pubourethral ligaments, and all of the structures thought to play a role in maintenance of continence and potency.

In this case series, we present our first five patients undergoing the Bocciardi approach for RALP. We report the results of our technique in three patients following two unsuccessful attempts. No perioperative major complication was recorded. Pathologic stage was pT2c in two patients and pT2a in one patient, with no positive surgical margin. The day after removing the catheter, two of the three patients reported use of a single, small safety pad, and one patient was discharged without any pad. One patient reported an erection the day after removing the catheter.

The anatomic rationale for better results compared with traditional RALP is strong, but well-designed studies are needed to evaluate the advantages of our technique.

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1. Case series

Robot-assisted laparoscopic prostatectomy (RALP) was first performed in 2000 by Binder et al in Frankfurt, Germany [1], and by Abbou et al in Creteil, France [2]. Since then, RALP has been disseminated widely, with continuous improvements in technique, such as Rocco stitch positioning [3]; improvements in anastomotic sutures; and use of suprapubic catheters instead of transurethral catheters [4]. Nevertheless, endopelvic fascia, neurovascular bundles, puboprostatic ligaments, eventual accessory pudendal arteries, and the Santorini plexus, all advocated to play a

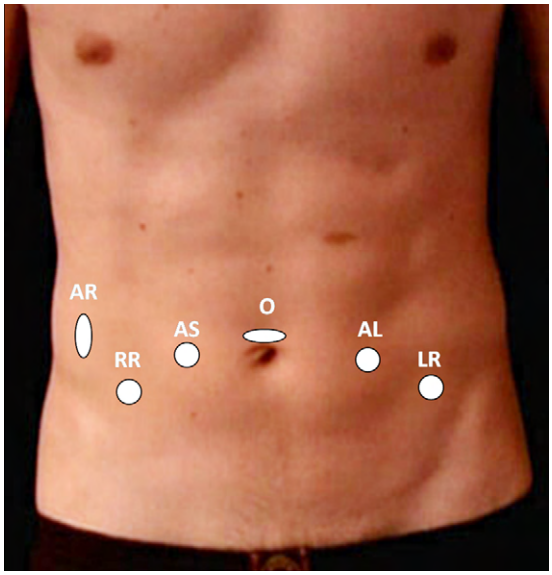

Fig. 1 – Position of the six laparoscopic trocars.
RR = right robotic arm, 8 mm; LR = left robotic arm, 8 mm; O = optic, 12 mm; AR = right assistant port, 10 mm; AS = aspiration, 5 mm; AL = left assistant port, 10 mm.

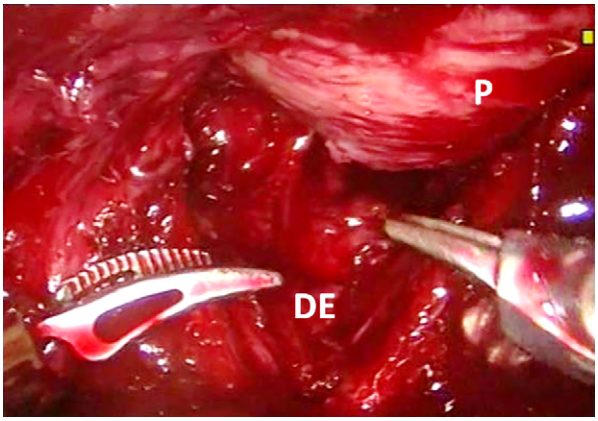

Fig. 3 – The posterolateral surface of the prostate is isolated, maintaining a totally intrafascial plane.
P = prostate; DE = Denonvillier's fascia.

role in maintenance of potency and continence [5], remain at risk of damage using the robotic approach.

During our learning curve for RALP (seven cases before the current study), we developed the idea of avoiding all of these anatomic structures by passing through a posterior plane, the Douglas space, previously explored only through the transcoccygeal approach [6].

In this case series, we report our very early experience with this new approach for RALP in our first five patients.

1.1. Surgery

A three-arm da Vinci robot (Intuitive Surgical, Sunnyvale, CA, USA) was used. No institutional review board approval is required to perform these kinds of studies in our country.

The Bocciardi approach for RALP uses the following structure:

- The patient is put in the standard 30° Trendelenburg position. Six laparoscopic trocars are inserted, as described in Fig. 1. The three-arm da Vinci robot is set up with a 0° lens.
- The parietal peritoneum is incised at the anterior surface of the Douglas space. Seminal vesicles and deferens vasa are isolated and incised (Fig. 2).
- Denonvillier's fascia is separated by the posterolateral surface of the prostate in an antegrade direction, reaching the prostatic apex, maintaining a completely intrafascial plane (Fig. 3).
- The bladder neck is isolated and sectioned. To evert the mucosa and to easily identify the bladder neck orifice for performing the anastomosis, four short cardinal stitches are positioned (Fig. 4).
- The anterior surface of the prostate is bluntly isolated from the Santorini plexus without any incision. The apex isolation is completed, and the urethra is incised. The prostate is positioned into an Endobag.
- The anastomosis is performed using a continuous suture starting from the 3 o'clock position. After passing the anterior stitches into the bladder neck, the catheter

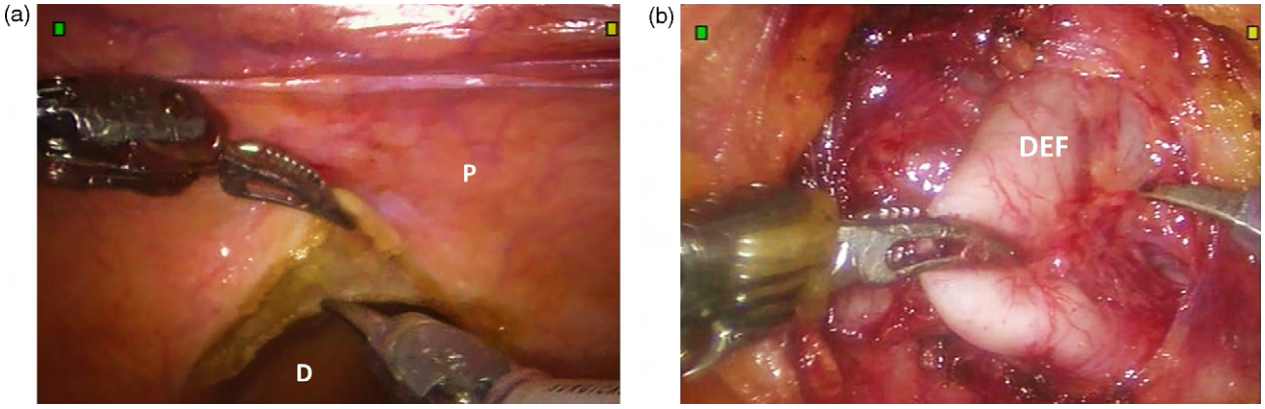

Fig. 2 – (a) The parietal peritoneum is incised at the anterior surface of the Douglas space; (b) deferens vasa and seminal vesicles are isolated.
P = peritoneum; D = Douglas space; DEF = deferens.