

Laparoscopic suturing during radical prostatectomy with FlexDex system: first case in Europe

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Introduction

Since 1990s [1,2], laparoscopic radical prostatectomy has undergone numerous modifications in surgical technique, including approach (transperitoneal[2] vs extraperitoneal[3]), and most notably, robotic-assisted.

Various surgical techniques can be employed to perform the anastomosis during laparoscopic radical prostatectomy. Many surgeons prefer the robot-assisted procedure because of its ergonomic advantages, but the technology remains expensive. A key feature is the patented FlexDex "Virtual Center™" mechanism. This low cost system reproduces the surgeon's natural hand to wrist movements at the articulating instrument jaw. A simple lever opens and closes the jaw while the rotation dial allows the surgeon to efficiently rotate the instrument. The 3-Axis Wrist Gimbal, compared to standard devices, significantly reduces instrument tremor, provides improved ergonomics and expands the surgical working area inside the patient. It may propose a solution to the treatment of anastomosis during radical prostatectomy, in a totally mechanical way and more cost effective than robotic surgery.



Methods

Our patient is a 68 year old man with clinically localized prostate cancer (ct1). Pre-operative prostate biopsy documents a carcinoma Gleason score 7 and PSA 5,16 ng/ml.

We performed, for the first time in Europe, a laparoscopic extraperitoneal radical prostatectomy using, for suturing and for anastomosis, the FlexDex™ articulating needle driver, in a center without a robot available.

Results

The patient underwent laparoscopic extraperitoneal radical prostatectomy using the FlexDex™ articulating needle driver. Time of operation was 115 minutes. The vesicourethral anastomosis was created using a running stitch placed first at the 5 o'clock position on the posterolateral aspect of the bladder outside-in and then through the urethra at the same location inside-out. Proceeding anticlockwise, the running suture was placed 5 times more through both the bladder neck and the urethra in a similar fashion until it meets the free end at the 5 o'clock position. A single knot was then tied outside the bladder.

No complication occurred during the procedure. The pelvic drainage was placed and then removed in 1 post-operative day. The patient was mobilized and ate in first post-operative day. In sixth postoperative day a cystography with anteroposterior and lateral views was performed and the patient removed the catheter. After catheter removal, the patient started a rehabilitation training with pelvic floor exercises.

At 3 months postoperatively the patient has a complete urinary continence and PSA is <0,008 ng/ml.

Conclusion

The learning curve for laparoscopy is steeper than for robotic surgery and instruments like the FlexDex™ may help to bridge this difference. The instrument may provide an alternative to the surgeon that is both more intuitive to use than traditional laparoscopy and more cost effective than robotic surgery.

References

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