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Surgery Illustrated – Focus on Details
Anterior retraction of the prostate during robotic-assisted laparoscopic radical prostatectomy using the closure device

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ILLUSTRATIONS by STEPHAN SPITZER, www.spitzer-illustration.com

Video available at: http://wip.bjui.org/ContentFullItem.aspx?id=272&LinkTypeID=1&SectionType=1

INTRODUCTION

Of those surgeons using laparoscopic radical prostatectomy (LRP) for localized prostate cancer, with or without robotic-assistance (RALRP), most prefer the antegrade approach to dissect the prostate and neurovascular bundles. After dividing the anterior bladder neck, a key manoeuvre is adequate anterior retraction of the prostate to allow safe and timely dissection of the posterior bladder neck. During LRP, this step is commonly achieved by inserting a curved metal sound through the urethra, allowing the assistant to maintain upward traction on the prostate while dissection of the posterior bladder neck proceeds. However, this manoeuvre is rendered all but impossible during RALRP as the camera arm of the da Vinci® (Intuitive Surgical, Mountain View, CA, USA) surgical cart limits access to the penis for inserting the metal sound. Options to achieve adequate anterior retraction of the prostate include: (i) Retraction by an assistant using a laparoscopic grasper; (ii) retraction using the fourth arm of the da Vinci surgical system; (iii) percutaneous insertion of a suture through the eye of the catheter.

Here we describe a variation of option (iii) which we have found provides effective and efficient anterior retraction of the prostate during RALRP. The Endo Close™ trocar-site closure device (Tyco Healthcare, Lane Cove NSW, Australia) is commonly used to close trocar sites after laparoscopic procedures, particularly in obese patients. It consists of a spring-loaded blunt stylet which is used to retain suture material as the device is passed through the abdominal wall. Using the same principle, we use this device to pass a length of suture percutaneously through a suprapubic puncture, through the eye of the catheter, and back out through the suprapubic puncture, thereby allowing effective elevation of the catheter.

TECHNIQUE

After dividing the anterior bladder neck and exposing the urethral catheter in the bladder, the catheter balloon is deflated and the catheter withdrawn. The catheter tip is delivered into the operative field and orientated so the eye of the catheter is directed towards the 12 o'clock position.

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Figure 1

(A) A 100-cm length of 1/0 nylon suture material is loaded into the Endo Close device. The Endo Close is then introduced percutaneously 1 cm above the symphysis pubis by the bedside surgeon, and directed through the eye of the catheter.

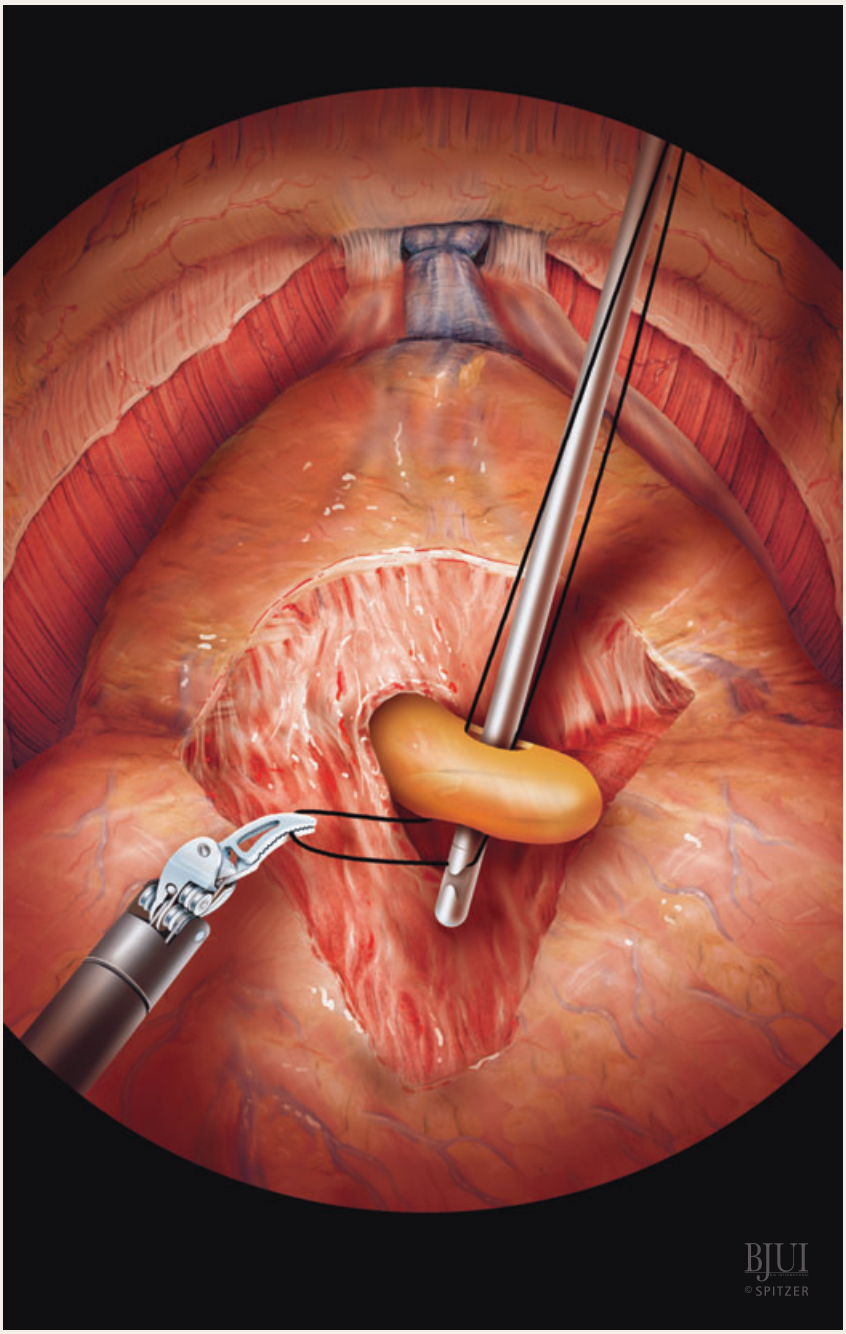


Figure 2

The catheter is elevated away from the bladder neck by the console surgeon using the Maryland bipolar grasper and monopolar scissors. Once the device has been passed through the eye of the catheter, the suture is secured by the Maryland grasper and is released from the Endo Close by depressing the button on the top of the device.

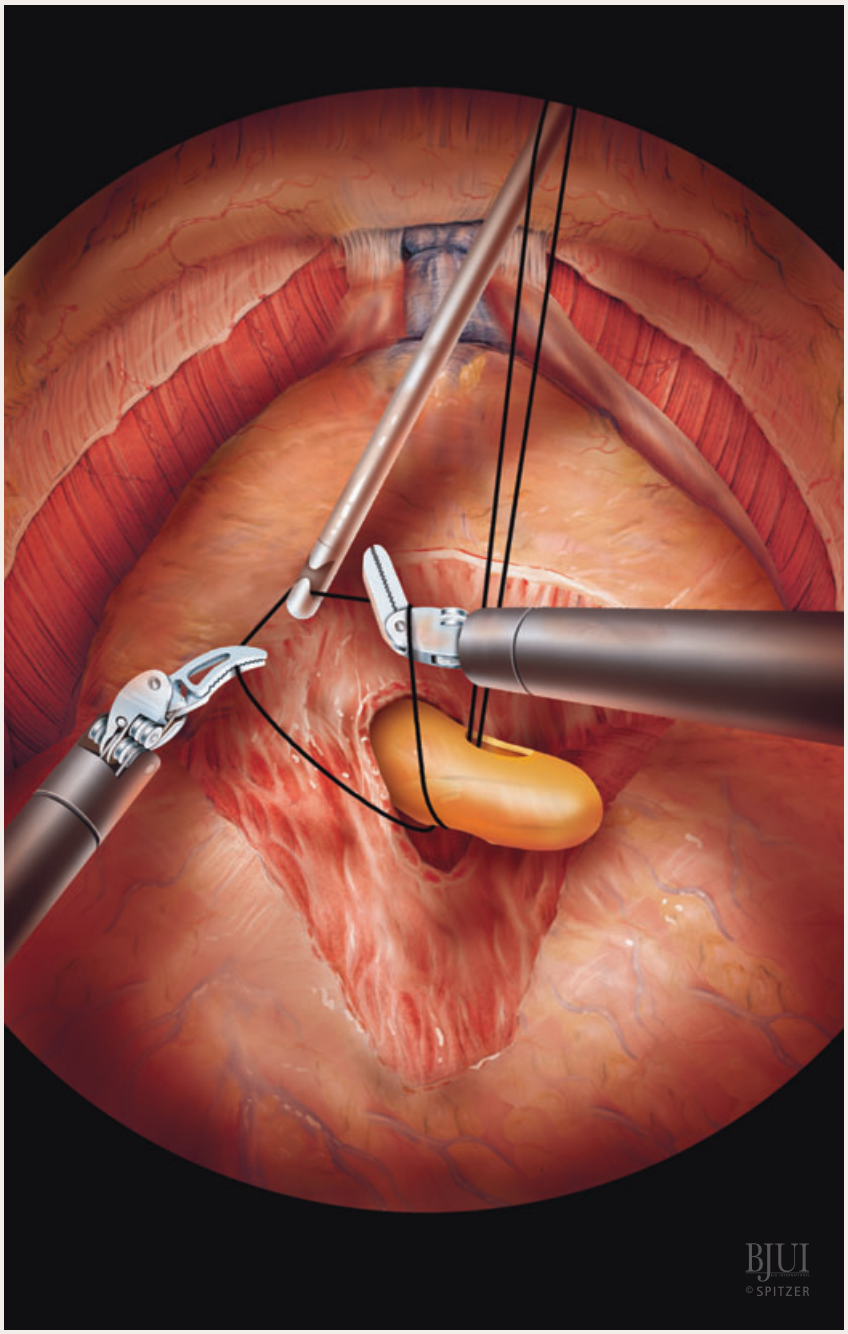
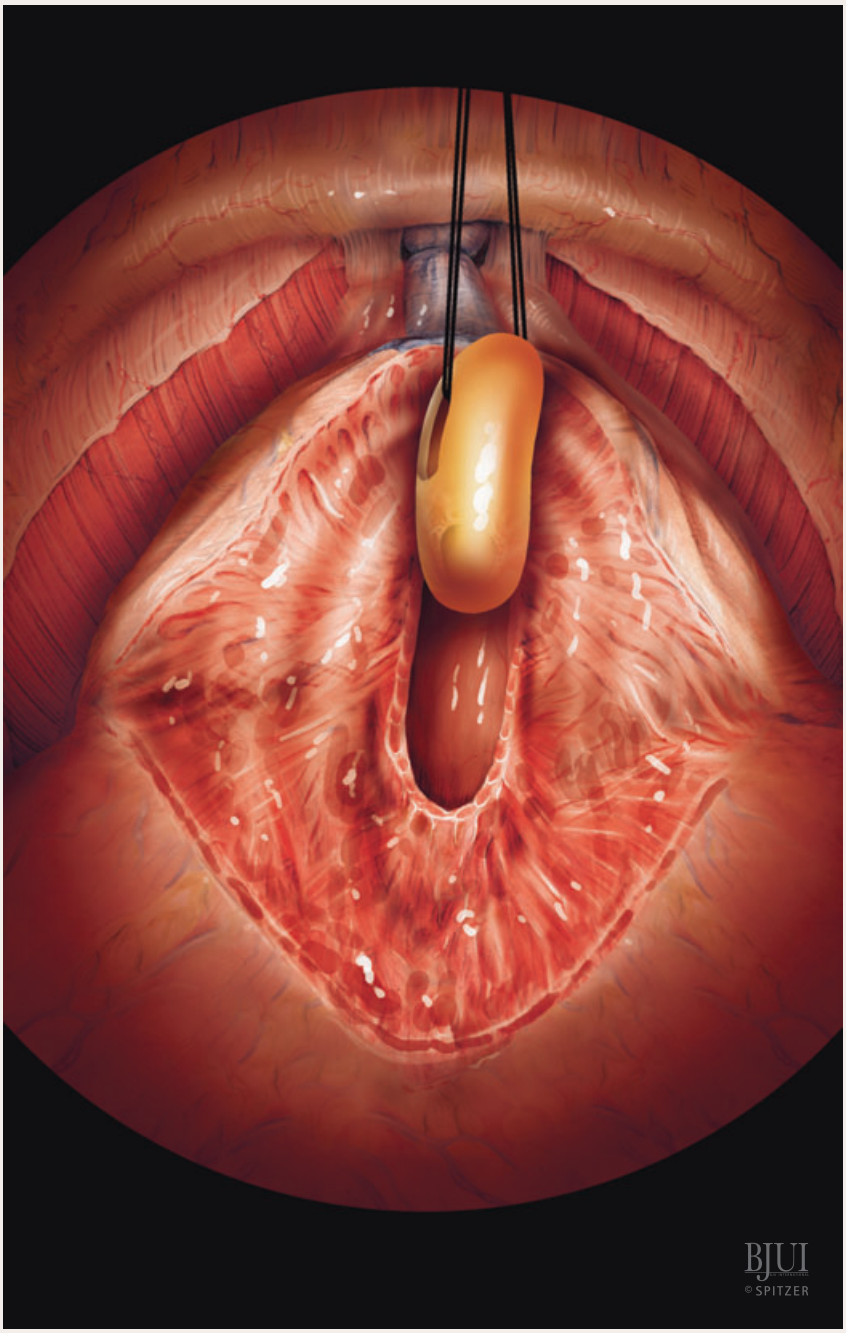


Figure 3

The empty Endo Close is then withdrawn through the eye of the catheter. By re-positioning the Endo Close adjacent to the catheter and depressing the button, the suture can again be secured within the notch of the device. The Endo Close is withdrawn through the abdominal wall, thereby pulling up on the eye of the catheter.

The suture material is secured at the abdominal wall puncture site using an artery clip, and the catheter is secured externally using a Moynihan clamp.

The resulting upward tension on the catheter produces excellent anterior retraction of the prostate. The tension is released when required later in the procedure by simply releasing the artery clip and pulling the suture through the abdominal wall.



SUMMARY

We have used this technique in over 700 cases of RALRP and have been pleased with its performance. The technique is quick and easy to adopt. It provides efficient anterior retraction of the prostate and frees the bedside surgeon or fourth arm of the robot to assist in other ways. We have noted no complications related to the use of this device in our experience to date. The Endo Close device is an inexpensive addition to the laparoscopic consumables cost of a RALRP and can also be used at the end of the case to assist in trocar site closure.

Troubleshooting: It is important to introduce the Endo Close in the midline and close to the symphysis pubis to achieve the correct angle for catheter retraction. It can be difficult to choose the precise insertion point in the insufflated abdomen when the robotic cart is docked over the patient. Therefore we routinely mark an insertion point 1 cm above the symphysis pubis at the start of the case, before insufflating the abdomen. This point is easily identified even when the robot has been docked and allows insertion of the Endo Close at precisely the correct location.

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