

Surgery Illustrated – Surgical Atlas

Laparoscopic transvesical diverticulectomy

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

PLANNING AND PREPARATION

INDICATIONS

Indications are the same as for open surgery, i.e. large diverticula of > 4 cm in diameter. There is no specific contraindication to this procedure. Previous abdominal surgery or bladder surgery is not a problem. Even diverticula previously endoscopically incised can be treated.

PREOPERATIVE PROTOCOL

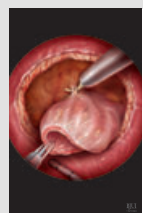
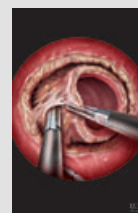
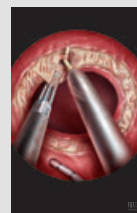
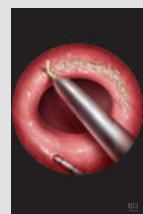
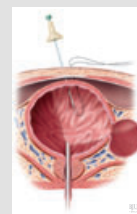
No specific preparation is needed. Before surgery, a Stamey test, a voiding cystourethrogram and a urodynamic study are performed.

The patient is placed in the lithotomy position and the surgery is carried out under general anaesthesia. The specific surgical instruments required are in the following checklist:

- 0° Optic
- Three trocars (5-mm)
- Monopolar hook
- Monopolar scissors
- Bipolar grasp
- Two grasps
- Suction device
- Two needle drivers
- Korth cannula
- Guidewire
- Surgipasser
- Cystoscope

SURGICAL TECHNIQUE

The procedure starts with cystoscopy; it is important to identify accurately the position



of the diverticulum in relation to the ureters and to control the correct placement of the trocars inside the bladder.

The bladder is filled with saline solution. Once the position of the diverticulum is identified,

three spinal needles are inserted through the abdominal wall into the bladder cavity under the direct vision of the cystoscope. This manoeuvre allows an understanding of the correct positioning of the trocars in relation to the site of the diverticulum.

Two video columns are necessary, one for the cystoscope and one for the laparoscope. We routinely use three 5-mm trocars. The first trocar to be placed is the optical trocar, followed by the two working trocars.

Figure 1

It is of paramount importance to fix the bladder to the abdominal wall. This is done using a Surgipasser needle with polyglactin 0 suture. Usually the instrument is passed inside the bladder three times, near the location of the trocars. The surgeon's position will be opposite to the diverticulum either on the left or right side or between the legs of the patient for diverticula of the posterior wall.

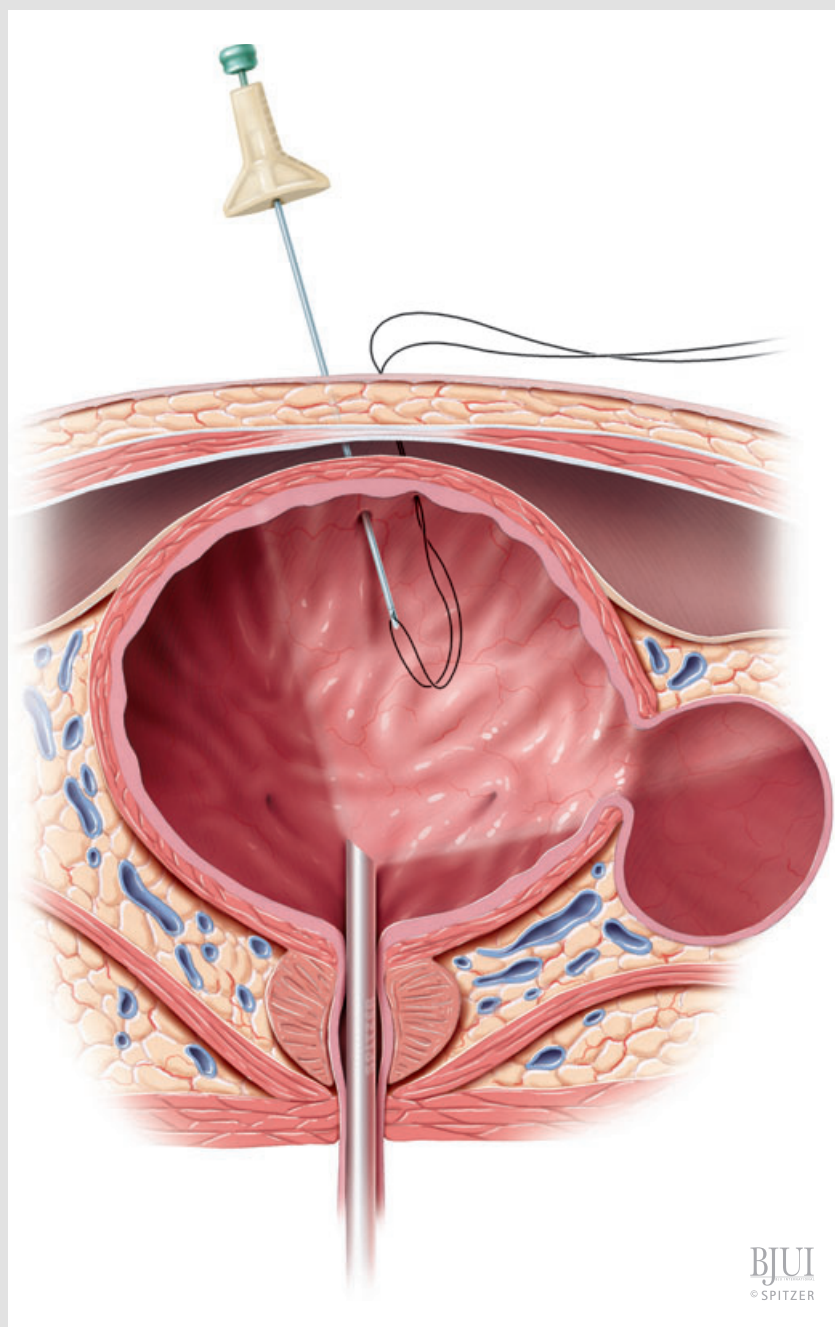
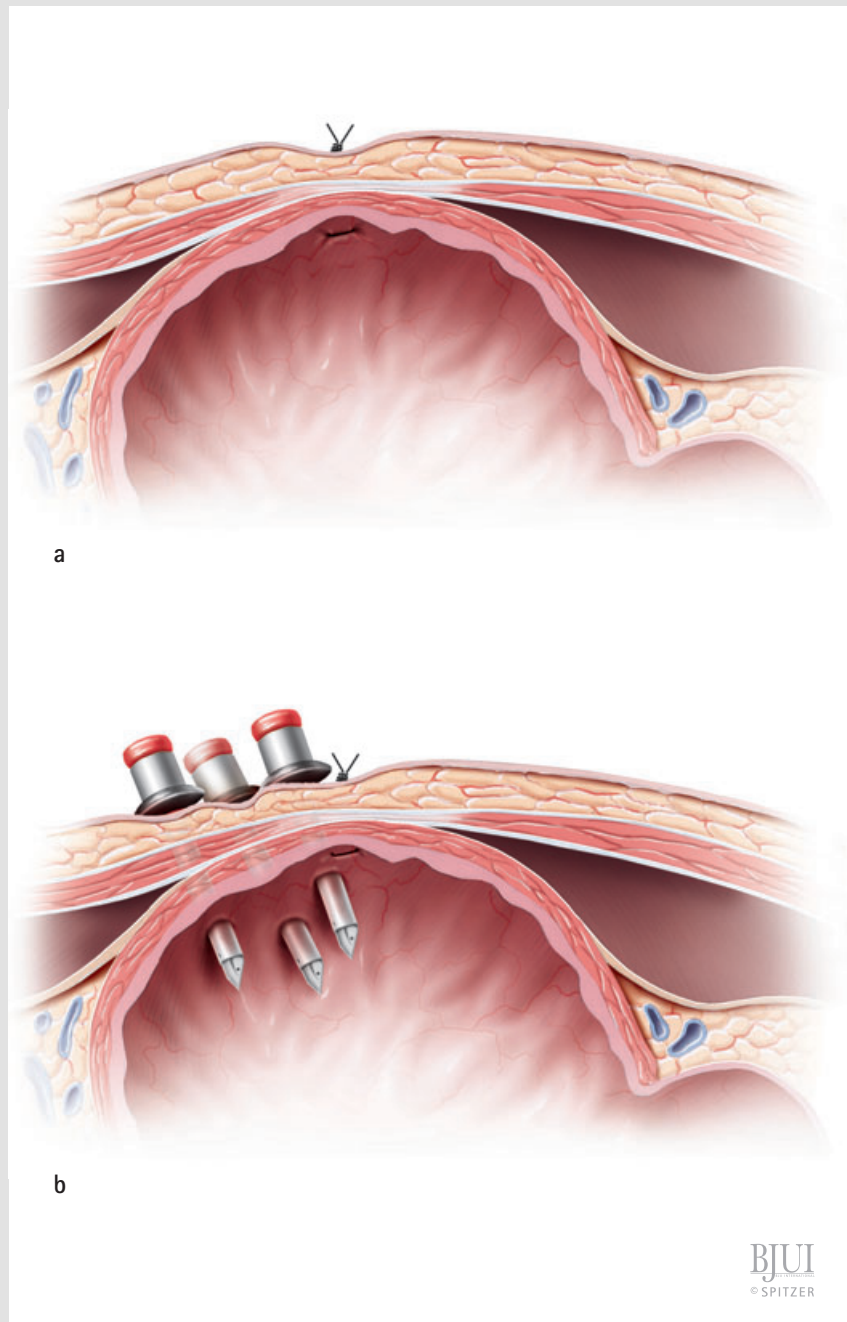
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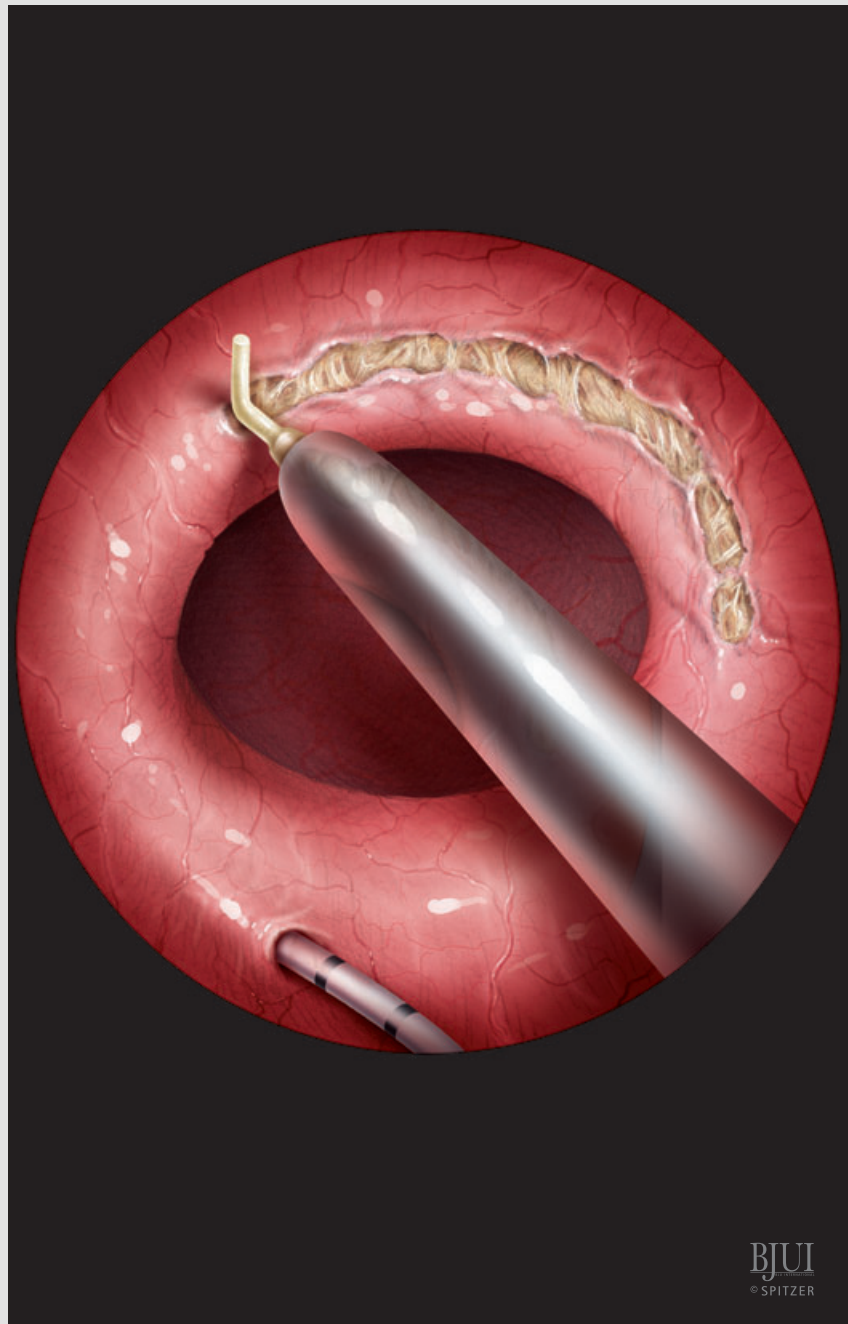
Figure 2

After trocar positioning, the cystoscope is removed. A 5-mm 0° optic is used. The assistant holds the camera while the surgeon works with the two instruments placed at both sides of the optical trocar.



Figures 3 and 4

During the first part of the procedure, the surgeon uses alternately a monopolar hook (or monopolar scissors) in the right hand and a grasp in the other. The neck of the diverticulum is outlined with the monopolar cautery all around. The bladder mucosa is incised. All muscular fibres are carefully divided until the correct plane between the mucosal wall of the diverticulum and the perivesical fat is found. The plane is followed and developed around the diverticulum wall.

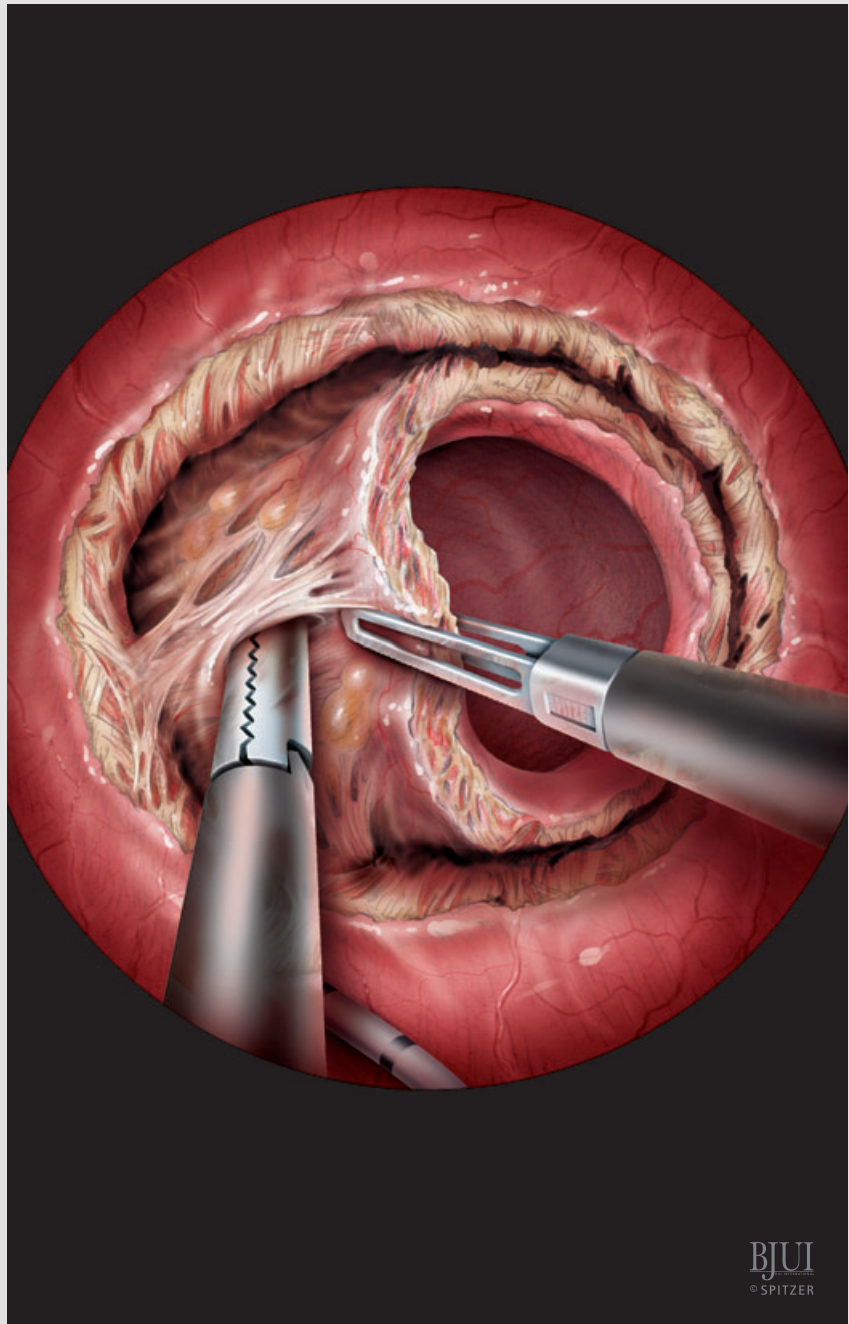
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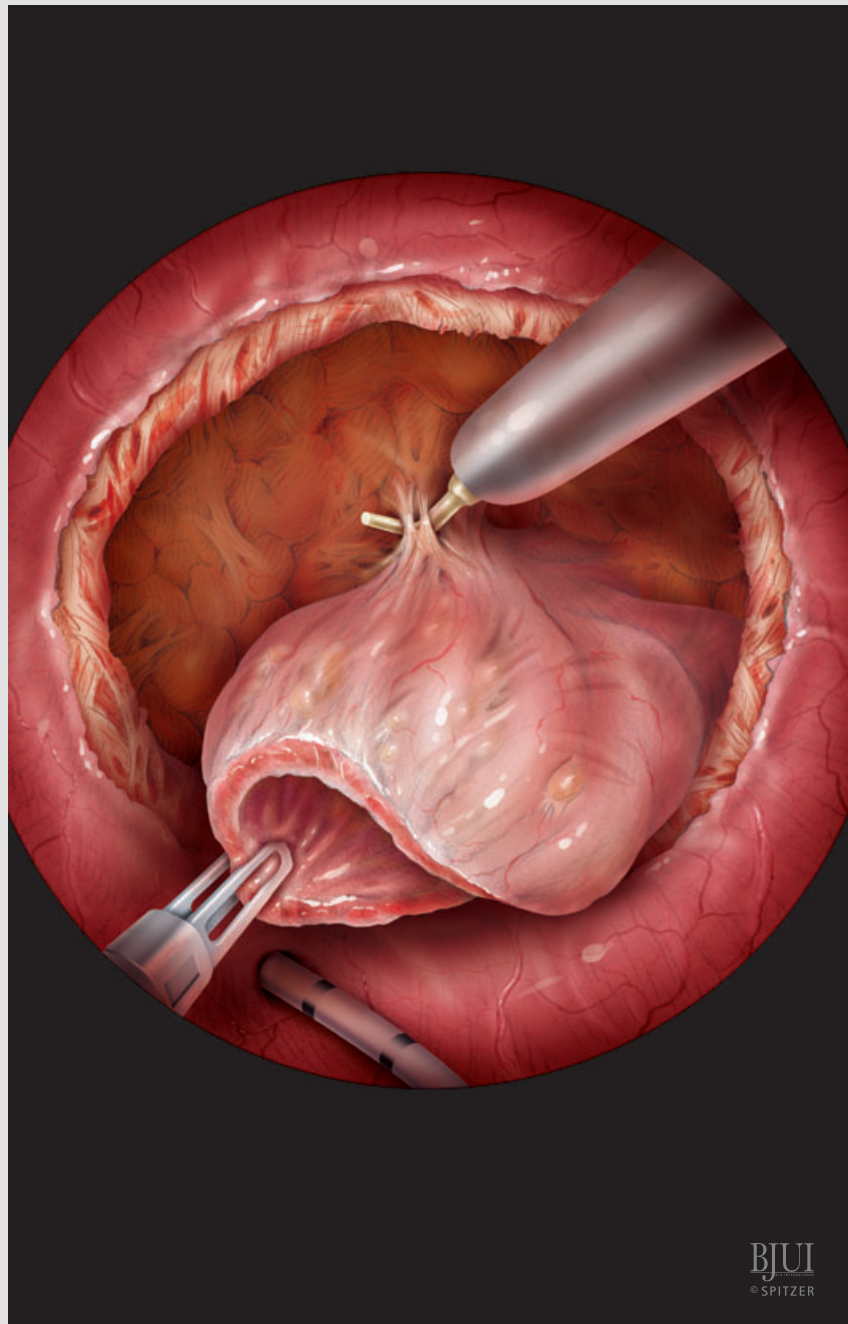
Figure 5

Once the proper cleavage plane is found, the diverticulum can be easily detached using two graspers.

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Figures 6 and 7

Once the dissection is completed, the intact mucosal lining of the diverticulum is brought inside the bladder.



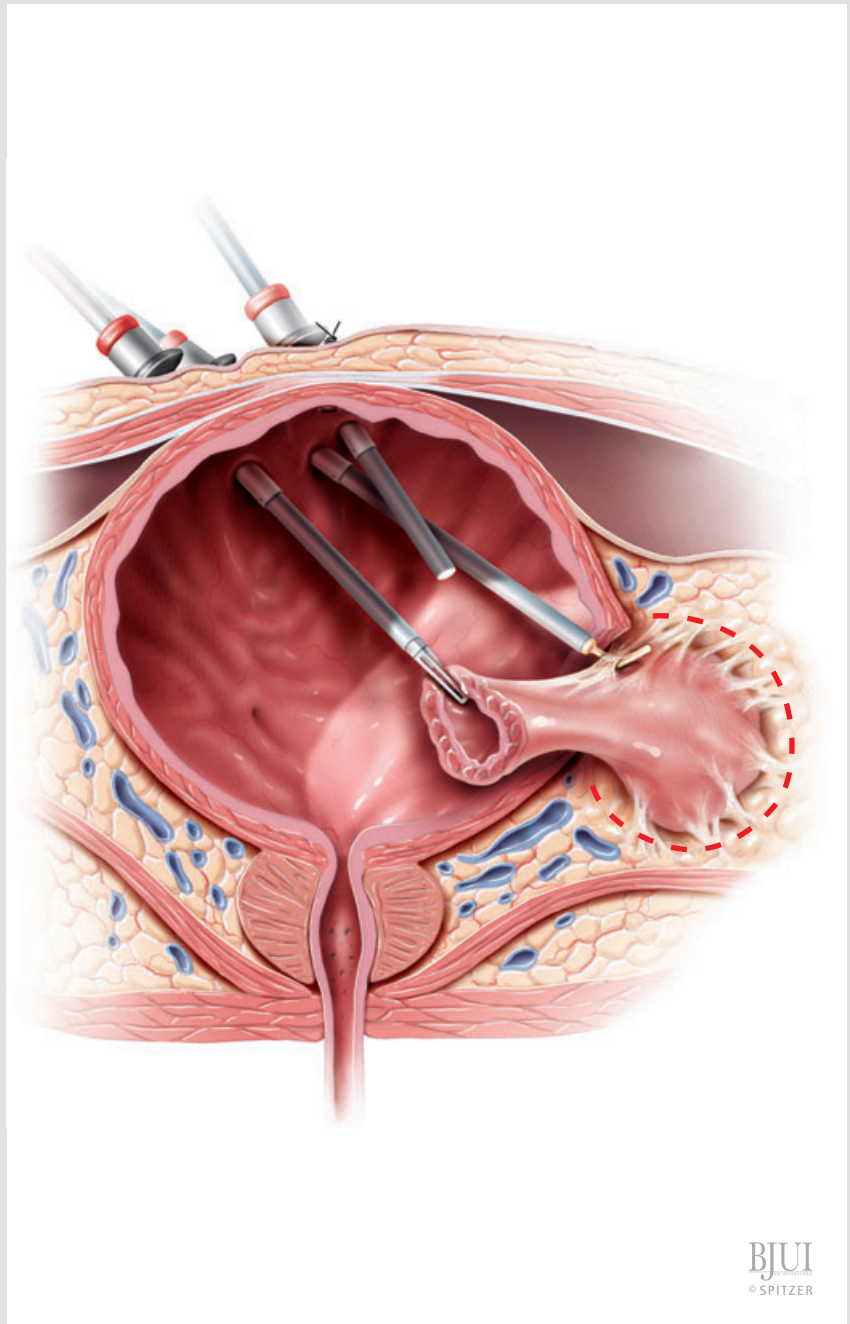
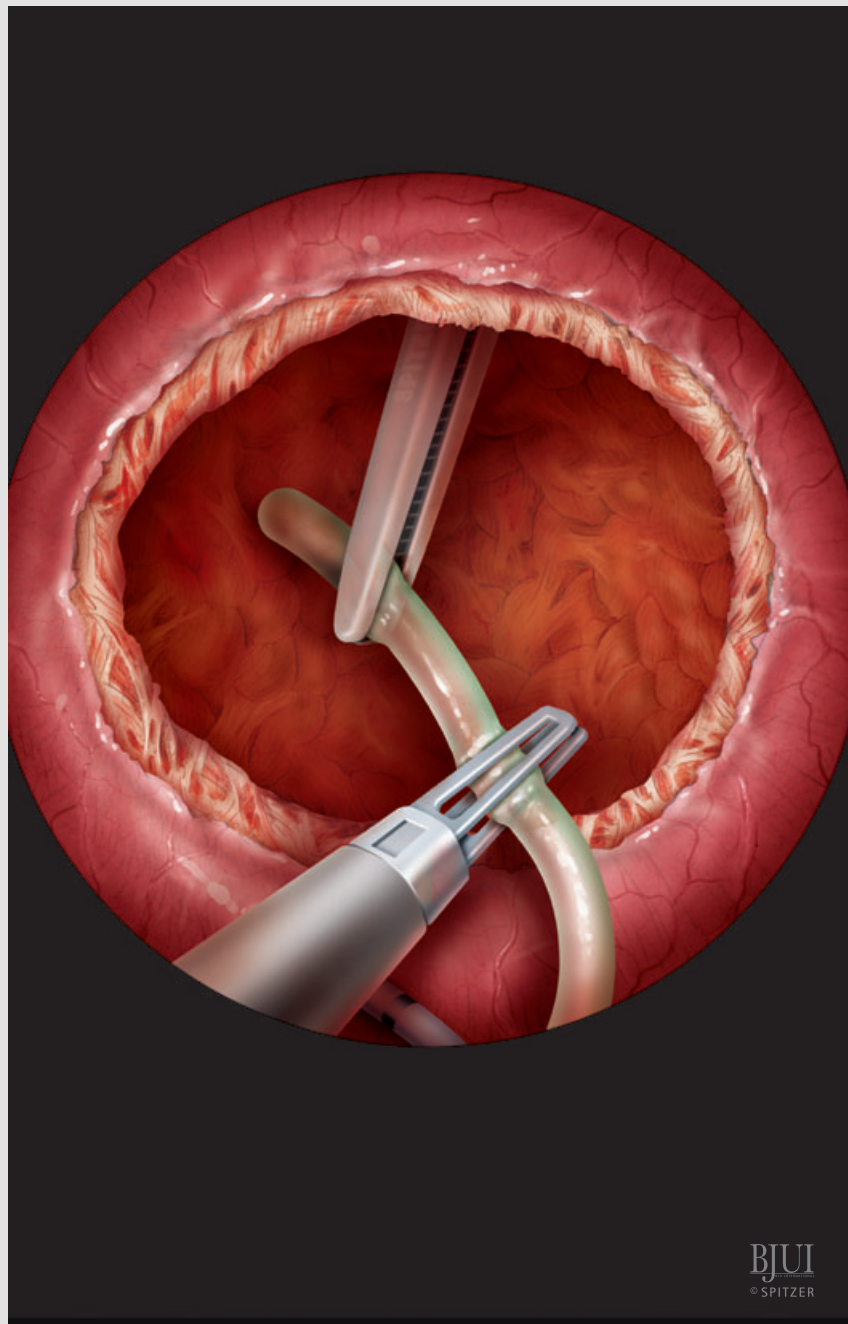
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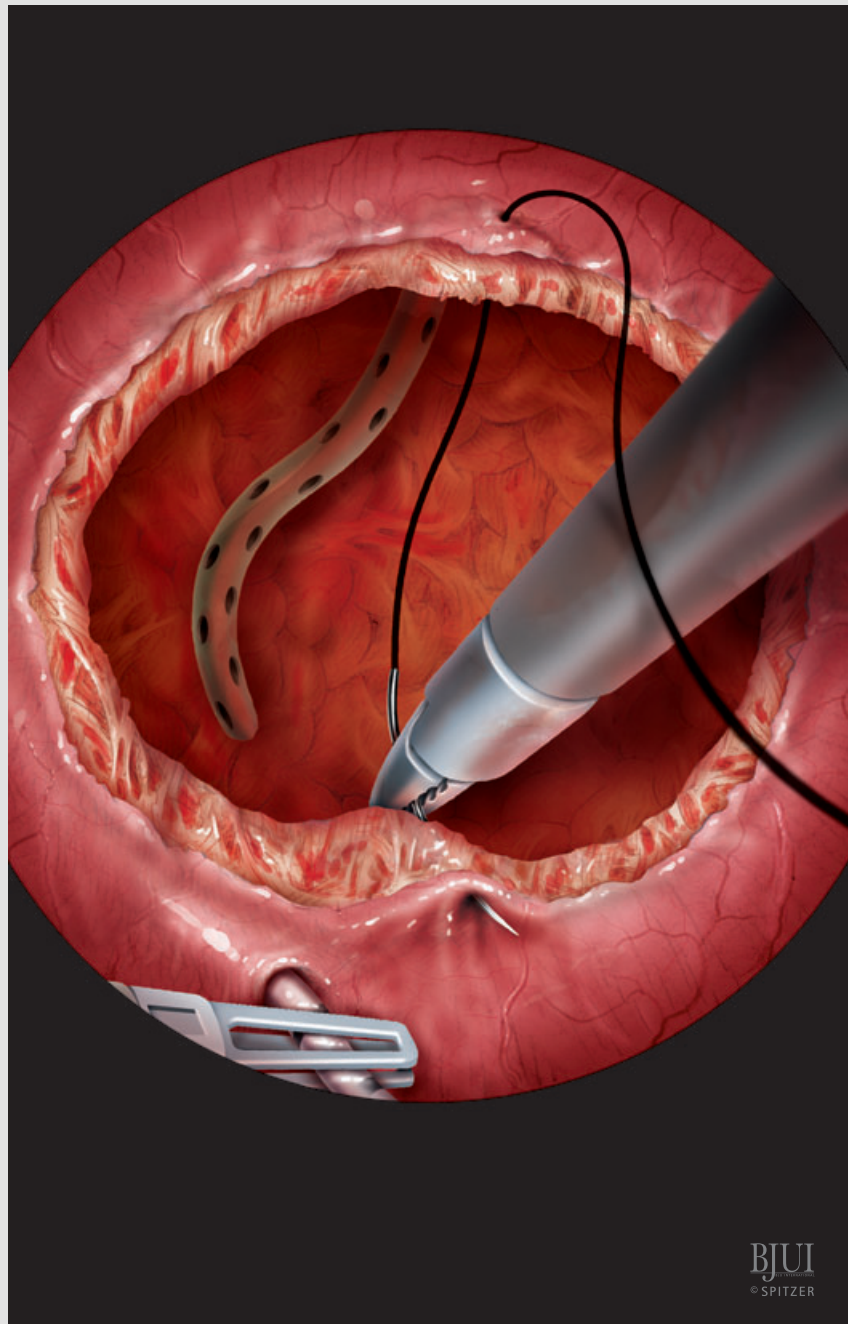
Figure 8

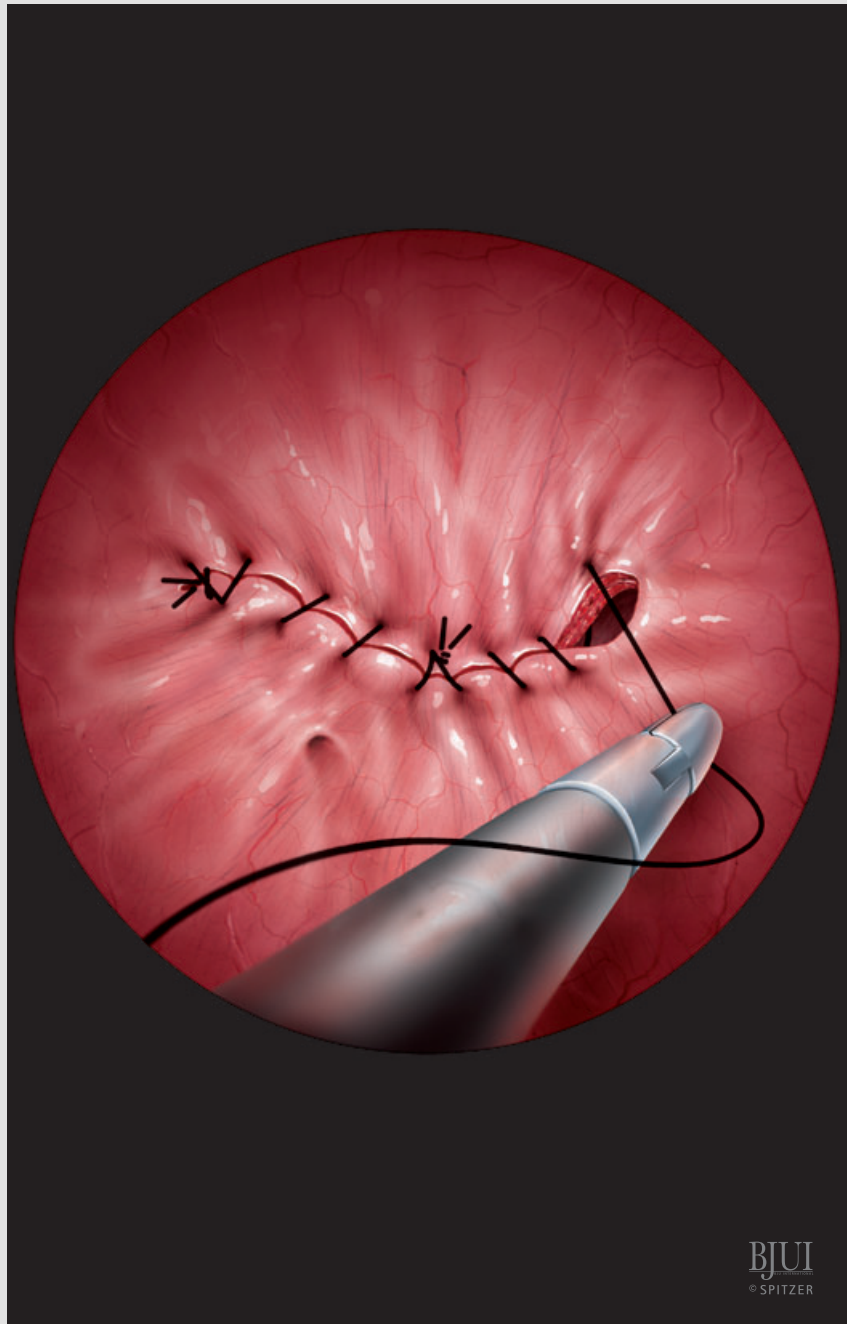
A 5-mm skin incision is made lateral to the midline and a long Kelly clamp is introduced into the residual cavity. A Redon drain is introduced into the bladder through a 5-mm port, grasped and extracted with the Kelly clamp.



PANSADORO *ET AL.***Figures 9 and 10**

The bladder defect is closed with a single or, if possible, a double-layer running suture using 2/0 and 3/0 polyglactin for muscle and mucosa, respectively.





 PANSADORO *ET AL.*

The diverticulum is retrieved through the cystoscope using the endoscopic biopsy device. To remove the trocars a guidewire is inserted through them into the bladder cavity. The trocar is removed and a Korth cannula is introduced. Then using the groove a 12 F Foley catheter replaces the original trocar.

In this way each trocar is replaced individually with a two-way Foley catheter. Afterwards

gentle traction is applied cranially to all catheters, to obtain haemostasis of any bleeding from the bladder wall. The original sutures used to fix the bladder are removed. If the prostate is small a TURP can then be done because the three suprapubic catheters will keep the endovesical pressure low. At the end of the TURP, an 18–20 F three-way Foley catheter is placed with continuous irrigation. The suprapubic catheters are removed on the

first day after surgery, and the transurethral catheter is removed on the fifth.

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