

Use of endoscopic lithotripsy technique in the treatment of intestinal neobladder lithiasis performed by means of the VIP method

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Videosurgery Miniinv (e-pub, ahead of print)

DOI: 10.5114/wiitm.2013.40105

Abstract

We describe a case of minimally invasive endoscopic technique used in the treatment of a large calculus in the intestinal neobladder. The patient had the intestinal bladder created by means of the Vesica Ileale Padovana (VIP) method because of an invasive urothelial carcinoma. The use of the pneumatic lithotripter, inserted through the urethra into the intestinal neobladder, enabled crushing of the calculus and safe evacuation of the resulting small fragments. The endoscopic technique described enabled avoidance of a technically difficult surgical treatment and allowed for rapid return of the patient to complete health. In our opinion this is the best method of treatment.

Key words: lithiasis, intestinal neobladder, minimally invasive surgery.

Introduction

Radical cystoprostatectomy with lymphadenectomy is the method of choice for treating invasive bladder cancer in male patients. This treatment involves the surgeon's selection of the appropriate method of suprapubic urinary diversion (SUD). In favorable circumstances, it is possible to create an intestinal neobladder in the patient. This allows the patient to avoid disability in the form of urostomy, but involves different types of early and late complications. Late complications include intestinal neobladder lithiasis; this occurs in 0.5% of cases. The reason for calculus formation may be infection, excessive mucus secretion or foreign bodies, e.g. staples. If intestinal neobladder lithiasis occurs, the best method for removal of the calculus will be determined. Due to the urethra-neobladder junction it is possible to insert a cystoscope sheath and then

a lithotripter into the neobladder and crush calculi. Endoscopic treatment allows the patient to recover quickly, fully and regain good quality of life.

Case report

The patient, aged 65, was admitted to the Urology Department on October 24, 2011 due to a large calculus in the intestinal neobladder which had been created by means of the VIP method in May 2006. The calculus was discovered via ultrasound and confirmed on the plain abdominal radiograph (Figure 1).

On October 25, 2011, cystoscopy and intravesical lithotripsy of the calculus were performed on the patient under conduction anesthesia with the use of the lithoclast (Swiss LithoClast). The crushed fragments were then washed out. An ultrasound control examination and a control X-ray image did not reveal any residual calculi (Figure 2). The patient was

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Figure 1. X-ray picture before lithotripsy



Figure 2. X-ray picture after lithotripsy

discharged on the second day after surgery without complications, and was urinating on his own without a catheter.

Discussion

The way in which we remove calculi from the intestinal neobladder depends on the size of the calculi, their hardness, the availability of non-invasive or minimally invasive methods, and the surgeon's preferences. We always try to adjust a treatment method to a particular case. In urology, endoscopic methods are principally used, which allow successful removal of calculi from the urinary bladder. In the case of a large stone, surgical treatment and complete removal of a calculus is preferred [1]. Stones which are surgically removed and weigh over 800 g (with a diameter of 10 cm) have been described. Open surgical treatment requires a very careful procedure in order to avoid damage of the mesentery serving the neobladder [2]. The use of the endoscopic method in the case of such a large calculus could result in incomplete removal of the stone and expose the patient to further surgical treatment. Conversely, in order to avoid open surgery on the intestinal neobladder, an endoscopic procedure may be performed in two stages [3].

There are authors who favor breaking up calculi in the intestinal neobladder by means of the extracorporeal shock wave lithotripsy (ESWL) method. This enables the crushing of calculi without the risk of damaging the urinary continence mechanism. Claus *et al.* used the ESWL technique in 2 patients with good results. Calculi were crushed in their entirety without damaging the continence [4].

Endoscopic methods of crushing stones in the urinary bladder used in urology may be successfully applied in the case of intestinal neobladders. There is a well-founded concern that damage of the urethra-neobladder junction may take place during insertion of the cystoscope. We recommend urethroscopy, with evaluation of the urethra and width of the junction at the beginning of the procedure. This allows safe insertion of the cystoscope in a typical way, i.e. 'blindly' in the case of a wide junction, or the insertion of a cystoscope under visual control if the possibility of junction damage exists. Crushing a calculus in the intestinal neobladder must be performed in a safe way in order to avoid bladder perforation. Currently, mechanical crushing of stones is being abandoned for pneumatic lithotripsy or holmium laser lithotripsy. A mechanical lithotripter may damage the junction during the insertion. Mechanical calculus crushing may lead to perforation as calculi often grow into the intestinal mucosa membrane. The use of pneumatic lithotripsy does not expose the patient to such complications. Even in the case of limited damage to the mucosa membrane during lithotripsy, intestinal neobladder perforation does not occur. Good drainage of urine through the catheter allows for healing of the damaged wall of the neobladder [5].

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Received: 17.03.2013, **accepted:** 15.06.2013.