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Percutaneous Suprapubic Cystolitholapaxy Through a Laparoscopy Port

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ABSTRACT

Suprapubic endoscopic access to the urinary bladder is a major advance in the endoscopic management of intravesical pathology. In this report, we present our laparoscopy-assisted suprapupic approach to the urinary bladder and discuss the advantages of this method over the more conventional techniques.

INTRODUCTION

THE GREAT ADVANCES MADE in fiberoptic technology during the last three decades[1] have led to progress in endourology that revolutionized urologic practice. The endoscopic procedures in children became safer and easier to perform. Transurethral access to the lower urinary tract is, however, hampered by the small caliber of the urethra in this age group and the occasional need to use large-caliber endourologic equipment. Percutaneous techniques have evolved to use the suprapubic route for endoscopic procedures in such cases,[2,3] and more recently, laparoscopy-assisted techniques have been described.[4–6]

In this report, we describe our technique by which different large-caliber endoscopic instruments were used through a 10-mm laparoscopy port introduced suprapubically.

PATIENTS AND METHODS

Two patients presented to our unit with large bladder stones. The first boy, who was 4 years old, had undergone successful repair of bladder exstrophy and epispadias and came with a 3 × 4-cm bladder stone. The second patient was an 8-year-old boy, previously healthy, who was found to have a 5 × 7-cm primary bladder stone.

Standard cystoscopy was performed per urethra using a 10F cystoscope. The bladder was filled to capacity, and the superior lateral bladder wall was illuminated. Through a 10-mm skin incision (Fig. 1), a 10-mm laparoscopy port was introduced intravesically using a closed puncture technique with the direction made feasible by the help of the illumination from the cystoscope. Through the laparoscopy port, a 24F lithotrite was introduced, which fitted easily in the port and standard cystolitholapaxy was performed. At completion, the urinary bladder was closed with a 3-0 absorbable suture and the fascia with 3-0 absorbable suture. The procedures went smoothly, and an indwelling catheter was kept for 48 hours.

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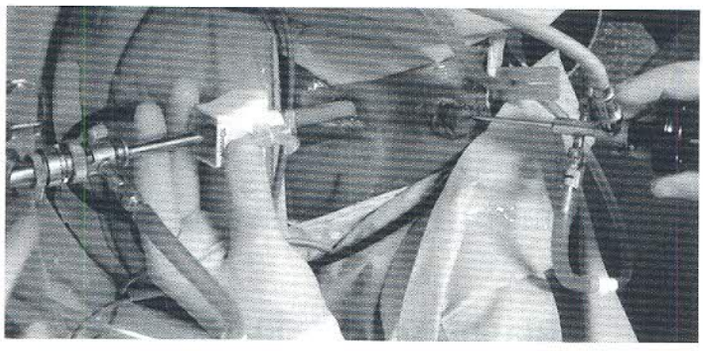

FIG. 1. A 4-year-old child with repaired bladder exstrophy during percutaneous suprapubic cystolitholapaxy. The 24F lithotrite is introduced through laparoscopy port, and 10F cystoscope is introduced per urethra.

DISCUSSION

Percutaneous suprapubic cystoscopic and laparoscopic access to the urinary bladder is well documented in the literature.[2–6] The indications include difficulty in performing endourological procedures through the urethra; e.g., hip pathology, small-caliber urethra in children, the fear of destruction of a previously constructed urethra and bladder neck, need to perform an endourologic procedure in a continent reservoir, and surgical ureteral reimplantation.[2–6]

Percutaneous suprapupic access to the bladder is performed in two ways. One is similar to the method used for percutaneous renal surgery, where it is called percutaneous cystolithotomy (PCCL).[15] This involves the principle of sequential dilatation of the percutaneous access over a guidewire until a nephroscope can be introduced to permit stone fragmentation. This technique obviously needs special experience and familiarity with the instruments used and the dilatation technique, which limits its widespread use.[2] The alternative technique is the use of laparoscopy instruments inside the bladder.[4–6] The closed laparoscopic technique is much easier technically than PCCL. However, the limited variety of laparoscopic instruments for endourologic procedures prevented its wide application.

The new method that we described in this paper is a step forward, where the use of a laparoscopy port contributed significantly to making the procedure short and simple. And there is no doubt that the use of a lithotrite (Fig. 2) made such an endourologic procedure more practical and easy to duplicate.

CONCLUSION

In the pediatric age group, percutaneous suprapubic cystoscopic procedures done through a laparoscopy port introduced intravesically provide a simple and practical approach for different therapeutic intravesical

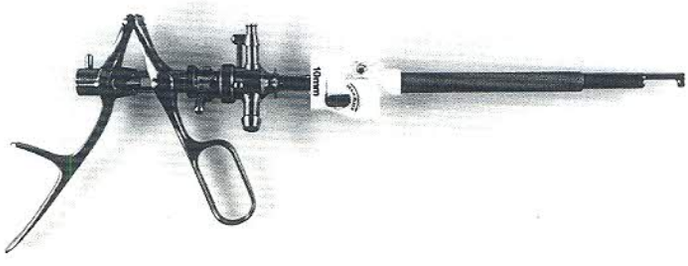

FIG. 2. Lithotrite inserted through 10-mm laparoscopy port.

procedures. Further experience with such a technique would enable many pediatric open bladder and continent reservoir procedures to be performed in minimally invasive fashion.

REFERENCES

1. Kroovand L. Endoscopy. In: Kelalis P, King LR, Belman AB (eds): Clinical Pediatric Urology. Philadelphia: WB Saunders, 1992, pp 166–186.
2. Maheshwari PN, Oswald AT, Bansal M. Percutaneous cystolithotomy for vesical calculi: A better approach. Tech Urol 1999;5:40.
3. Badlani GH, Douenias R, Smith AD. Percutaneous bladder procedures. Urol Clin North Am 1990;17:67.
4. Batislam E, Germiyanoglu C, Karabulut A, et al. A new application of laparoscopic instruments in percutaneous bladder stone removal. J Laparoendosc Adv Surg Tech 1997;7:241.
5. Cartwright PC, Snow BW, Mansfield JC, Hamilton BD. Percutaneous endoscopic trigonoplasty: A minimally invasive approach to correct vesicoureteral reflux. J Urol 1996;156:661.
6. Okamura K, Ono Y, Yamada Y, et al. Endoscopic trigonoplasty for primary vesicoureteric reflux. Br J Urol 1995;75:390.

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