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# Intussusception ureterectomy

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**Summary.** A modification of intussusception ureterectomy is described. Dilatation of the ureter is unnecessary before the procedure and closure of the bladder wall defect is recommended to avoid urine extravasation.

**Key words:** Intussusception ureterectomy

## Introduction

The common practice of leaving a 10 to 15 centimeter length of lower ureter in patients with non malignant disease in the upper urinary tract at the time of nephroureterectomy, means that later excision of the ureteral stump is necessary in about 5% of the cases. In patients with invasive urothelial carcinoma in the upper urinary tract, most authors recommend total nephroureterectomy, including a bladder cuff, because 20–70% of the cases later develop a new carcinoma in a remaining ureteral stump or at the ureteric orifice [3, 5–7, 11, 12].

In 1952 H. P. McDonald et al. [9] described a new technique of nephroureterectomy. This method was later modified by Abercrombie [1]. In both methods the ureteric orifice was resected transurethrally, just like later recommended by Miskowiak [10]. Blandy recommended likewise resection of the ureteric orifice, but performed transvesically [2]. In all these procedures urine extravasation is inevitable or possible. Hetherington et al. [4] found that the modified method of nephroureterectomy for urothelial tumors of the upper urinary tract described by Abercrombie, should not be advised in malignant conditions, because the risk of extravesical tumorcell implantation due to urinary extravasation.

In 1953 D. F. McDonald described the intussusception ureterectomy technique [8]. In brief a ureteral bulb-tip catheter is passed, preferably preoperatively, and the intubated ureter is dilated. The cut end of the ureter is then sutured to the ureteral catheter and by means of traction the ureter may be gently intussuscepted into the bladder and at last the ureter is amputaded by resectoscope.

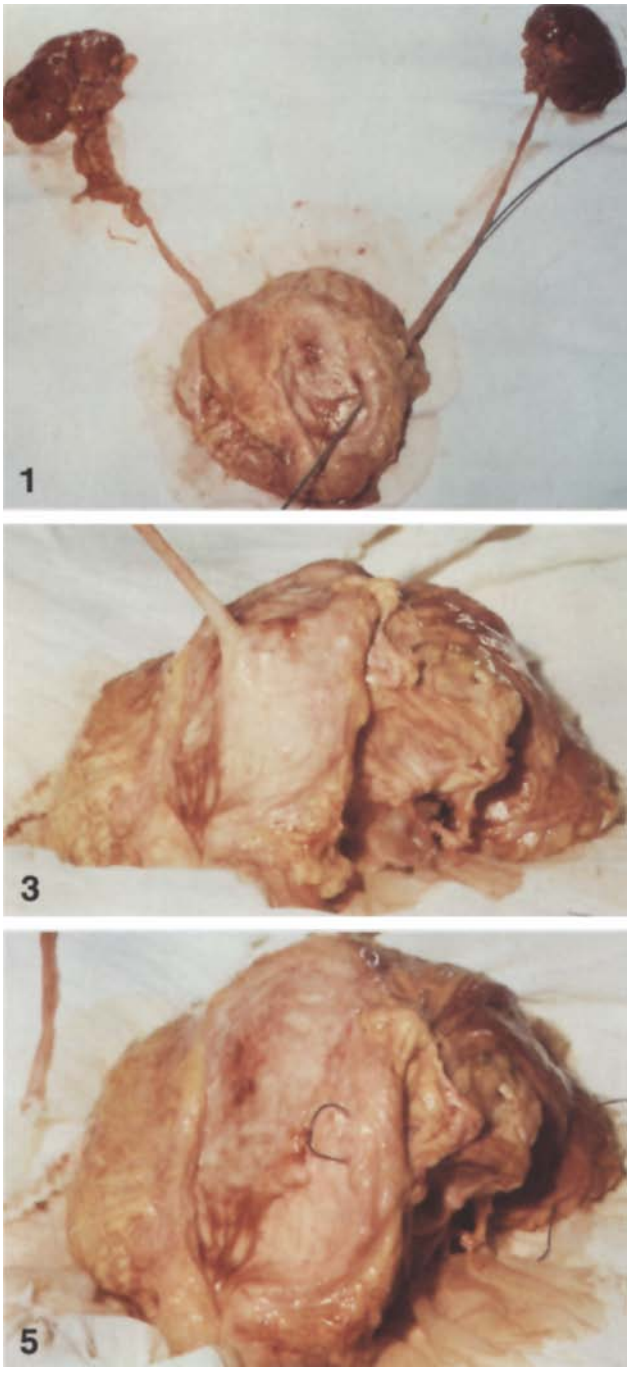
In intussusception ureterectomy the risk of extravasation is minimized, but the method has in our opinion a disadvantage: the dilatation of the ureter risks cell liberation from undetected tumor or from dysplastic urothelium. We sought to revive the technique of McDonald but in addition describe a modification which excluded the risk of tumor cell implantation extravesically and probably reduced the risk of cell liberation from the ureter.

## Method

After nephrectomy and resection of the part of ureter with the tumor, a catheter with a suture is passed down the ureter and into the urinary bladder (Figs. 1 and 2). The catheter is then sutured to the cut end of the ureter, which is closed. Afterwards the ureter is mobilized from its retroperitoneal attachments. A small cystotomy is performed and the ureter is then intussuscepted under gentle traction into the urinary bladder. The ureter is lifted up (Fig. 3) and after a "suburothelial" suture (Fig. 4) has closed the bladder wall defect, the ureter and a bladder cuff is resected (Fig. 5). The cystotomy is closed and a urethral catheter is left in the bladder, for about 7 days.

## Discussion

The ureter probably does not have to be removed routinely in non malignant diseases, but in patients with urothelial tumors in the upper urinary tract total nephroureterectomy including a bladder cuff is normally recommended [3, 5–7]. For that use we have performed a modification of the intussusception ureterectomy described by McDonald [8], that procedure was performed without a cystotomy but we have had



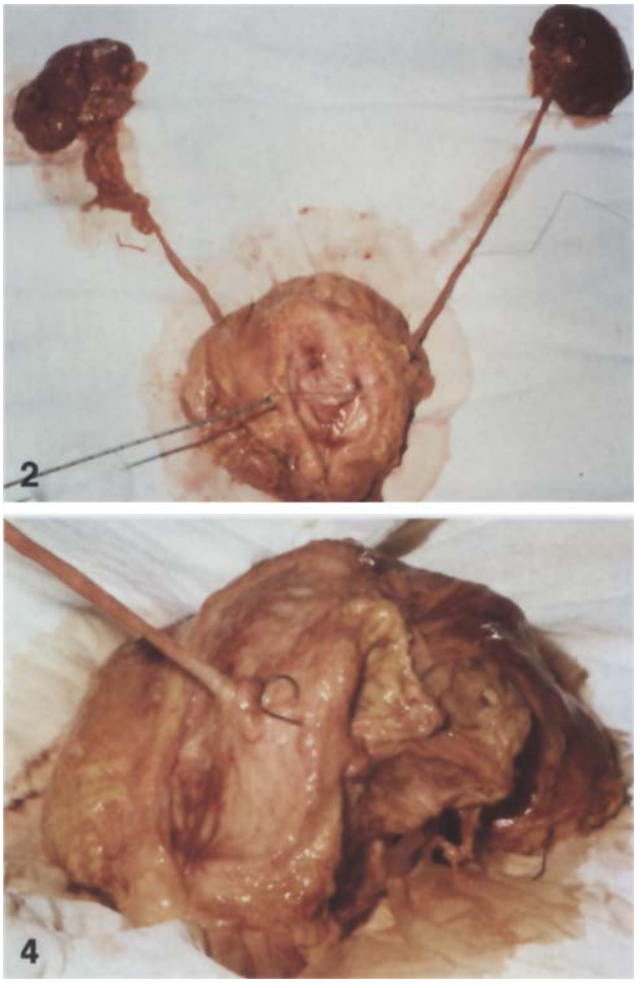




**Fig. 1.** The catheter passing through the ureter and down into bladder

**Fig. 2.** The suture fixed to the catheter – tip and pulled out the ureter orifice

**Fig. 3.** The ureter lifted up

**Fig. 4.** The "suburothelial" suture surrounding the ureter orifice

**Fig. 5.** The ureter resected and the bladder defect closed by the "suburothelial" suture

no complications with this additional incision and as we found it important to close the bladder wall defect after the ureterectomy to inhibit urine extravasation we recommend this technique. One of our first operations was performed without this closure and postoperatively urine extravasation did happen through this defect, confirmed by cystography. The defect closed spontaneously on conservative treatment with suction on the urethral catheter.

We have found intussusception ureterectomy easy to perform, but believe from our own experience and the results of Hetherington et al. [4] that the defect of the bladder wall after ureterectomy must be closed. In our method it has not been necessary to dilate the ureter to perform the intussusception and because of that the risk of tumorcell implantation elsewhere in the urinary tract, is minimized.

## References


1. Abercombie GF (1972) Nephro-ureterectomy. Proc R Soc Med 65:1021–1022
2. Blandy JP (1978) Operative urology. Blackwell, Oxford, pp 34–37
3. Booth CM, Cameron KM, Pugh RCB (1980) Urothelial carcinoma of the kidney and ureter. Br J Urol 52:430–435
4. Hetherington JW, Ewing R, Philip NH (1986) Modified nephroureterectomy: a risk of tumour implantation. Br J Urol 58:368–370
5. Johansson S, Wahlqvist L (1979) A prognostic study of urothelial renal pelvic tumours. Cancer 43:2525–2531
6. Kakizoe T, Fujita J, Murase T, Matsumoto K, Kishi K (1980) Transitional cell carcinoma of the bladder in patients with renal pelvic and ureteral cancer. J Urol 124:17–19
7. Kvist E, Bredesen J, Luke M, Lauritzen AF, Bille T (1987) Er cystoskopikontrol nødvendig hos patienter opereret for øvre urinvejstumorer? Danish Ugeskr Laeger 149:2074–2076
8. McDonald DF (1983) Intussusception ureterectomy: a method of removal of the ureteral stump at time of nephrectomy without an additional incision. Surg Gynecol Obstetr 97:565–568
9. McDonald HP, Upchurch WE, Sturdevant CE (1952) Nephroureterectomy: a new technique. J Urol 67:804–809
10. Miskoviak J (1986) Stripping of the distal ureter after nephrectomy for pelvis papilloma. Scand J Urol Nephrol 20:285–287
11. Werth DD, Weigel JW, Mebust WK (1981) Primary neoplasma of the ureter. J Urol 125:628–631
12. Zoretic S, Gonzales J (1983) Primary carcinoma of ureteres. Urology 21:354–356



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