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Simultaneous Transurethral Resection of Bladder Tumour and Prostate: Is It Safe?

Key Words

Bladder cancer · Transurethral resection of prostate · Transurethral resection of bladder tumour · Cancer implantation

Abstract

Objectives: This study aims to review and assess the safety of carrying out transurethral resection of prostate (TURP) and transurethral resection of bladder tumour (TURBT) simultaneously, in men who require TURP for bladder outflow obstruction and are incidentally found to have a transitional cell carcinoma of the bladder. **Methods:** A detailed Medline search between 1966 and 2005 identified only five published papers in the English literature addressing this subject. These were retrospective studies of small numbers and were analysed together in order to quantify the risk of bladder cancer recurrence that could be attributed to TURP. The anatomical area of interest for tumour recurrence was hence the bladder neck and prostatic urethra. **Results:** 424 patients had simultaneous TURBT and TURP, whereas 350 had TURBT alone. The rate of recurrence of bladder tumour in these two groups of patients was 58 and 63%, respectively. The recurrence rate at the bladder neck and prostatic urethra was equally comparable. Tumour grade and multiplicity do not appear to influence the tumour recurrence rate when TURP

is carried out at the same time as TURBT. **Conclusions:** There is paucity of clinical evidence to support the theoretical risk of tumour cell implantation at the bladder neck and prostatic urethra when TURP is carried out at the time of TURBT.

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It is not unusual to encounter the clinical scenario of a male patient undergoing endoscopic treatment for bladder cancer (TURBT) who also needs transurethral resection of prostate (TURP). Is it safe to combine the two procedures or is there a risk of circulating cancer cells implanting into the raw prostatic fossa and thereby enhancing the risk of subsequent recurrences? This review examines the published evidence.

The concept of urothelial cancer cell implantation was put forth by Albarran and Imbert [1], more than 100 years ago, whilst discussing the risks of ureteric and bladder recurrences following removal of renal pelvic cancers. Subsequent in vitro and in vivo animal studies have supported the implantation theory on denuded urothelium, even though the clinical evidence is anecdotal [2, 3]. In a retrospective study on 56 patients, Page et al. [4] demonstrated that recurrent tumours occurred predominantly at the dome and postero-superior wall of the bladder. They postulated that the scattered tumour cells implant-

Table 1. Compiled data comparing tumour recurrences after simultaneous bladder tumour and prostate surgery with TURBT alone

Group (first author)	Simultaneous group ¹			Control group ²		
	patients	with recurrence %	with recurrence in prostate and bladder neck, %	patients	with recurrence %	with recurrence in prostate and bladder neck, %
Golomb, 1989 [5]	36	23 (64)	9 (25)	–	–	–
Tsivian, 2003 [6]	51	35 (69)	11 (22)	–	–	–
Greene, 1972 [7]	100	54 (54)	17 (17)	100	54 (54)	16 (16)
Laor, 1981 [8]	137	77 (56)	21 (15)	150	92 (61)	27 (18)
Vicente, 1988 [9]	100	55 (55)	10 (10)	100	73 (73)	10 (10)
Total	424	244 (58)	68 (16)	350	219 (63)	53 (15)

¹ Bladder tumour and prostate surgery at the same sitting. ² TURBT alone.

Table 2. Subgroup analysis of tumour recurrence in the prostatic urethra and/or bladder neck related to tumour multiplicity

Group (first author)	Simultaneous group ¹				Control group ²			
	single tumour		multiple tumours		single tumour		multiple tumours	
	patients	with recur- rences ³ , %	patients	with recur- rences ³ , %	patients	with recur- rences ³ , %	patients	with recur- rences ³ , %
Greene, 1972 [7]	81	11 (14)	19	6 (34)	77	10 (13)	23	6 (26)
Laor, 1981 [8]	112	12 (11)	25	9 (36)	124	17 (14)	26	10 (38)
Tsivian, 2003 [6]	28	4 (8)	23	7 (32)	–	–	–	–
Total	221	27 (12)	67	22 (33)	201	27 (13)	49	16 (33)

¹ Bladder tumour and prostate surgery at the same sitting. ² TURBT alone. ³ Recurrences in the prostate and bladder neck.

ed on raw areas, created at these sites by the cystoscope sheath and hot air bubbles, during endoscopic treatment of the primary tumour(s). If that concept was true, then a raw prostatic bed would be a fertile area for tumour cells to implant during simultaneous treatment of bladder tumour(s) and prostate. Such patients would have a higher incidence of recurrent tumours in the prostatic area. Is that view supported by literature evidence?

We undertook a Medline search on the subject (1966–2005), and were able to find five papers of interest, written in English: two single-arm and three two-arm retrospective studies. Four of these were reported more than 15 years ago. The overall results of these studies are shown in [table 1](#).

Golomb et al. [5] reported on 36 cases who underwent simultaneous transvesical prostatectomy and bladder cancer excision. Nine (25%) patients developed recurrence at the bladder neck or prostatic urethra; however,

in 3 of these the primary tumour(s) were located at the bladder neck. The true recurrence rate was therefore 17%. The authors advised against simultaneous TURBT and TURP. The second and more recent single-arm study, by Tsivian et al. [6], reported on 51 men treated with TURBT and TURP at the same time; 11 (22%) developed recurrence(s) at the bladder neck and prostatic urethra, but the true recurrence rate was 14%, since the primary tumour was located on the bladder neck in 4 of the 11 patients. Six of the remaining 7 had multifocal recurrences in other parts of the bladder. The recurrences around the bladder neck in these 6 patients were considered to be the result of ‘field change’ rather than implantation. In the authors’ view only 1 patient had true recurrence at the prostatic area that could be attributed to the simultaneous TURP. On this basis, they concluded that simultaneous TURBT and TURP does not negatively affect tumour recurrence at the bladder neck and prostatic urethra.

Table 3. Subgroup analysis according to tumour grade

Group (first author)	Histological grade 1		Histological grade 2		Histological grade 3	
	patients	with recurrences ¹ , %	patients	with recurrences ¹ , %	patients	with recurrences ¹ , %
<i>Simultaneous group</i> ²						
Greene, 1972 [7]	57	8 (14)	29	7 (24)	14	2 (14)
Laor, 1981 [8]	34	5 (15)	35	9 (26)	51	7 (14)
Vicente, 1988 [9]	4	1 (25)	78	8 (10)	18	1 (6)
Total	95	14 (15)	142	24 (17)	83	10 (12)
<i>Control group</i> ³						
Greene, 1972 [7]	59	9 (15)	23	4 (17)	18	3 (17)
Laor, 1981 [8]	38	7 (18)	35	7 (20)	57	12 (23)
Vicente, 1988 [9]	18	0 (0)	78	9 (12)	9	1 (11)
Total	115	16 (14)	131	20 (15)	84	16 (19)

¹ Recurrences in the prostate and bladder neck. ² Bladder tumour and prostate surgery at the same sitting. ³ TURBT alone.

In the three two-arm studies, they compared patients who underwent simultaneous prostate and bladder tumour surgery (simultaneous group) with those who had bladder tumour surgery alone (control group). The overall tumour recurrence rate was interestingly equal or lower in the simultaneous group, although not significantly so [7–9]; the prostatic and bladder neck tumour recurrence rate was similar in the two groups. In the study by Vicente et al. [9], the age, tumour multiplicity, tumour stage and the distribution of new and recurrent tumours were comparable in the two groups. However, twice as many tumours in the control group were poorly differentiated. Not surprisingly, at a median follow-up of 24 months, the overall recurrence rate was higher in the control group in this series (73 vs. 55%, $p < 0.01$). The tumour recurrence rate at the bladder neck and prostatic urethra was, however, identical (10%) in the two groups.

We combined the data from these five studies and analysed the recurrence rates in the two groups, particularly with regard to known high-risk factors like tumour multiplicity, grade and stage. The simultaneous group included 424 patients and the control group 350 patients (table 1). The overall recurrence rates in the simultaneous and control groups were 58 and 63%, respectively. The prostatic and bladder neck recurrence rates were 16% in the simultaneous group and 15% in the control group. Data on tumour multiplicity was available in only three studies. In the simultaneous group, 221 patients had solitary tumours and 67 had multiple tumours. In the con-

trol group there were 201 patients with solitary tumours and 49 with multiple tumours. As shown in table 2, the overall recurrence rate at the bladder neck and prostatic area was expectedly higher in patients undergoing endoscopic treatment for multiple tumours (33 and 33%) compared to solitary tumours (12 and 13%), in both the simultaneous and control groups. Data on tumour grade was available in three out of five studies. The recurrence rate at the prostatic urethra and bladder neck was rather consistent and comparable across the three different grades in the simultaneous and control groups (table 3). Data on tumour stage was only available from one study and was insufficient to determine the effect of stage on recurrence rates in the two groups.

There is paucity of scientific evidence on the subject of tumour implantation at the time of endoscopic treatment of bladder tumours. A prospective randomised trial comparing simultaneous bladder tumour and prostatic resection with resection of bladder tumour alone is needed to clarify the issue. From the currently available data, it appears that undertaking TURBT and TURP at the same sitting under the same anaesthetic is not an unsafe surgical practice. Multiplicity or higher tumour grade does not appear to increase the chances of subsequent recurrences in the prostatic area either, if the two procedures are combined.

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