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# Four Years Experience in Bladder Preserving Management for Muscle Invasive Bladder Cancer

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**Abstract**

***Objectives:*** To evaluate the bladder preservation strategy in invasive bladder cancer particularly relapse, progression and complications.

***Materials and methods:*** From January 2000 to May 2004 a total of 24 patients (mean age of 81 years; range 68–92) with muscle invasive bladder cancer who had refused or were not eligible for cystectomy were followed up for a period of up to four years.

***Results:*** 24 (21 M/3 F) patients were followed up for a mean time of 680 (182–1253) days. All patients complained of frequency, urgency and severe nocturia. The second most frequent complication was bleeding which required a salvage cystectomy in 7 cases. Other major complications were intestinal occlusion in three cases, an enterovesical fistula, brain metastasis requiring neurosurgical intervention and radiation therapy of the brain, bone metastasis in the cervical spinal column and chronic renal failure. The mean re-admission rate was 8 per patient and the mean time spent at the hospital was 109 (range 13–253) days.

***Conclusion:*** In our series the bladder preserving strategy does not confirm the optimistic results of other authors. The complications forced us to carry out a salvage cystectomy in nearly half of the cases. The other half of the patients complained of other severe complications reducing the quality of life of the remaining life span.



**Keywords:** Muscle invasive bladder cancer; Transitional cell carcinoma; Bladder preservation; Transurethral resection; Co-morbidity

## 1. Introduction

Radical cystectomy is the therapeutic gold standard for muscle invasive transitional cell carcinoma of the bladder (TCC) [1]. There are however, trends to develop bladder preserving strategies in selected cases [2–4]. Kim et al. recommend complete transurethral resection (TUR) of the tumour followed by systemic chemotherapy, radiation therapy or a combination of both [3–6]. The results of some series can be compared to those obtained in some radical cystectomy series with a five year cancer specific survival rate of 45.8–70% [2–11]. The bladder preservation rate achieves 40–80% in this series.

Oncological surgery outcome depends not only on the biological aggressiveness of a particular tumour, but also on the overall health of the individual patient. This is particularly relevant for patients undergoing cystectomy, given the advanced age and co-morbidity frequently encountered in this population [9].

At our institution a radical cystectomy is proposed to every patient affected by muscle invasive non-metastatic TCC. Not every patient however is ready to

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accept this radical surgical concept and some candidates are not eligible for surgery due to severe concomitant disease (i.e. a high American Society of Anestesiology (ASA)-score). In this study we evaluate the impact of conservative management of invasive TCC on complication rates, cancer control and survival. We report four years of experience on patients who were managed conservatively.

## 2. Material and methods

This single-institution prospective study began on 1 January 2000 and ended on 30 May 2004. Demographic and clinicopathological characteristics for each patient were collected with the approval of Institutional Ethic Committee. During this period a total of 139 indications for radical cystectomies for recurrent pT1G3 and/or muscle invasive tumours were posed. 24 (21 M/3 F) patients with primary muscle invasive TCC (stage pT2G3) were not elected for radical surgery on the basis of advanced age or patients choice and/or due to severe multiple co-morbid disease with high ASA score (Table 1). All of them underwent complete TUR of the lesion. After histological confirmation of T2 tumours clinical stage was based on the results from intravenous pyelogram, abdominopelvic CT scan, bone scintigraphy, chest roentgenography, blood count and liver function tests. In all cases this extension study gave a negative result for metastasis. Additional investigations depending on concomitant disease were carried out.

Six weeks after the primary TUR a second look TUR was performed to confirm the complete resection or to remove the residual neoplastic material completely. The 1997 TNM system was used for clinical and pathological staging.

Thereafter the patients underwent radiation therapy and/or chemotherapy. Some of these patients refused any form of adjuvant therapy (detailed data are given in Table 2). Radical radiation therapy consisted of a dose of 65–75 Gy. When multimodality therapy was used we used a protocol from Fellin et al. [12]. After TUR two courses of MCV were given followed by radiotherapy (40 Gy) and concurrent cisplatin.

The follow-up protocol was designed as follows: cystoscopy and cytology every three months, chest X-ray and abdominopelvic CT scan every six months and intravenous pyelogram once a year.

**Table 1**
Co-morbidity index of the patients

| | |
|---|---|
| Myocardial infarct | 5 |
| Congestive heart failure | 7 |
| Hypertension | 14 |
| Arrythmias | 4 |
| Renal insufficiency | 1 |
| Chronic pulmonary disease | 9 |
| Diabetes | 6 |
| Peripheral vascular disease | 5 |
| Aortic aneurysm | 2 |
| Liver disease | 3 |
| Leukemia | 1 |
| Morbus Kahler | 1 |

Individual patients may have more than 1 co-morbid condition.

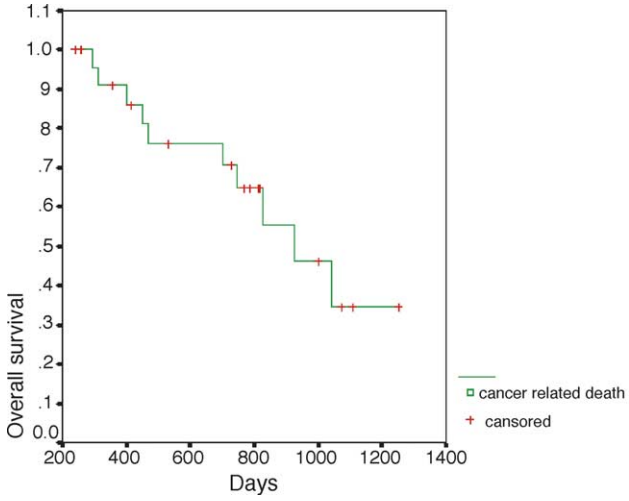


Fig. 1. Kaplan–Meier curve for disease-specific survival time.

## 3. Statistical analysis

Disease-specific survival time was considered the time between tumour diagnosis and death or date of the last follow-up, according to the Kaplan–Meier product-limit method [13]. Data of patients who had died as a result of another disease and data of patients free from disease at the last follow-up were censored. Univariate analysis by log-rank testing was performed to calculate the significance of major complication-related interventions such as blood units ($\geq$3), embolization, major surgical interventions and unimodal vs. multimodal treatment on the disease-specific survival time (Fig. 1).

## 4. Results

From January 2000 to May 2004 a total of 24 (21 M/3 F) patients with a mean of 81 years (range 68–92 years) took part in the study and were followed up for a mean time of 680 (range 182–1253) days. The ASA -score of the patients was 2 in 5 of 24 (20.8%), 3 in 8 of 24 (75%) and 4 in one of 24 (4.2%). 7 patients were treated with TUR alone, 9 patients with TUR and radiation-therapy, 4 patients with TUR and systemic chemotherapy and two patients underwent TUR, radiation and chemotherapy. 22 patients (91.7%) experienced a recurrence. During the observation period 2 (8.3%) patients remained free of tumour. The mean re-admission rate was 8.0 (range 2–13).

All patients complained of frequency (defined as micturation more than once every hour and nicturia >4), urgency and reduced bladder capacity. This was