

## Radical cystectomy in octogenarians

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### ABSTRACT

This retrospective study evaluates the morbidity and outcome of cystectomy and urinary diversion in octogenarians with invasive bladder cancer. Records of all patients older than 80 years who underwent cystectomy during the last 10 years were analyzed retrospectively. Among 565 cystectomies, 11 (<2%) patients were identified and evaluated for intraoperative and postoperative complications and mortality post surgery. The median age was 82 years. One female and ten male patients were selected. Eight patients were hypertensive, three were diabetic, one had coronary artery disease, two had chronic lung disease and one had depression. Seven patients presented with hematuria, two had lower urinary tract symptoms and two presented with renal failure who were optimized for renal function. All patients had ileal conduit as the form of urinary diversion. Simultaneous urethrectomy was done in two patients. Median surgical time was 5 h. Median hospital stay after surgery was 10 days. Four patients had pneumonitis and one patient developed hemiplegia, but all patients were eventually discharged. One patient expired due to stent septicemia within one month after discharge. Follow-up ranged from four months to five years. Three patients expired three years after surgery—one due to disease recurrence and the other two due to unrelated cause. One patient was lost to follow-up and six patients are doing well. Our results support the use of cystectomy in octogenarians with invasive bladder cancer, which has acceptable morbidity and mortality, and offers the best chance for sustained disease-free quality survival.

**Key words:** Complications, elderly, invasive bladder cancer, ileal conduit, mortality, radical cystectomy

### INTRODUCTION

Cancer is the major cause of death and morbidity in the elderly. The proportion of elderly people in the general population is increasing. The increase in lifespan is associated with an increase in the incidence of some tumors including bladder cancer.<sup>[1,2]</sup> Among people in the eighth decade, bladder cancer is the fifth leading cause of cancer death.<sup>[1]</sup> Radical cystectomy is the treatment of choice for patients with invasive bladder cancer. Co-morbidity and unique physiological changes present a surgical challenge in the elderly patient.<sup>[1,2]</sup>

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### MATERIAL AND METHODS

A retrospective review of all patients 80 years or older who underwent radical cystectomy with urinary diversion during the last 10 years was done. Out of 565 cystectomies performed in this period, 11 (<2%) were identified. Age ranged from 80 to 87 years (median 82 years). There were 10 males and one female patient. Patients were assessed for preoperative, intraoperative and postoperative factors. Those treated previously with radiation therapy (RT) or chemotherapy were included in the analysis.

#### Preoperative

Preoperative evaluation included a history, physical examination, chest X-ray, and liver function tests. Computerized tomography (CT) of the abdomen was done to evaluate local and metastatic disease. Bone scans and excretory urography were not obtained routinely. Investigations of renal, cardiovascular and pulmonary function were done to determine suitability to undergo major surgery and cardiologist and chest physician consulted. The pre-anesthetic risk of concomitant disease was qualified using the American Society of Anesthesiologists (ASA) physical status classification. Of the patients, five were treatment-naïve and six were previously diagnosed cases and had some treatment for the same. Two were on follow-up post Radiotherapy, two had received intravesical therapy

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and two had received chemotherapy. Before surgery, seven patients had hematuria, two had lower urinary tract symptoms and two presented with renal failure. Four patients had a palpable mass in the hypogastrium, four had hydronephrosis on CT scan (one had bilateral hydronephrosis) and three had enlarged lymph nodes on CT scan.

All patients were admitted to the hospital 18-24 hs before surgery. All underwent a one-day mechanical bowel preparation plus intravenous hydration before surgery. All were started on hyperalimentation and were asked to do incentive spirometry before surgery and received blood transfusion as required. Preoperative antibiotics were administered to all.

### Intraoperative

Indication for cystectomy included any muscle-involving cancer not deemed suitable for segmental resection. Radical cystectomy was performed as per the standard practice and included the bladder, distal ureters, seminal vesicles and prostate in men and uterus, anterior vagina and urethra in women. Pelvic lymphadenectomy was performed in all patients. An ileal conduit was the urinary diversion of choice in all patients. Surgical time, blood replacement, use of ureteral stents and intraoperative complications were recorded for each patient.

### Postoperative

All patients were monitored in the postoperative recovery ward for two to three days following surgery, and five patients had an extended stay. Postoperative morbidity was defined as any event that prolonged hospital stay. All complications were recorded and categorized as having a medical or surgical cause. Postoperative mortality was defined as death during hospital stay or up to 30 days after discharge from hospital. Total length of hospital stay was recorded. All re-hospitalizations were analyzed as to the time from hospital discharge to subsequent hospitalization and the reasons for it.

## RESULTS

Between January 2000 to February 2010 out of 565 cystectomies performed, 11 patients were operated who were aged 80 years or older. There has been an increase in these cases in the recent years. Median age was 82 years (range 80 to 87). Ten patients were male and one was a female patient. Table 1 shows the pathological stage of these patients.

All the patients were either ASA Grade III or IV (nine patients Grade III and two patients Grade IV). In this elderly population hypertension was present in eight, diabetes in three, coronary artery disease in one, chronic lung disease in two, renal failure in two and clinical depression in one

patient. Overall, five patients had an additional co-morbidity each, while six patients had two additional co-morbidities.

All patients were optimized before surgery. One patient had stenting and one had bilateral percutaneous nephrostomies for optimization of renal function. Median surgical time of cystectomy and ileal conduit was 5 h (range 4–7 h). Simultaneous urethrectomy was done in two patients. Average blood loss calculated was 807 ml (range 250–1200 ml). Eight patients had surgery through a minilap 10-cm incision and extraperitoneal approach in which the peritoneum was opened later, only after complete dissection of the prostate and bladder on either side of the urachus and subsequent diversion was done inside the peritoneum. Wound closure was by running sutures. Ureteral splints were placed in all patients during construction of the ileal conduit.

Intraoperative complications occurred in three patients—transient hypotension in two patients and rectal injury in one, which was managed with tube caecostomy.

Median hospital stay after surgery was 10 days (range 5–20 days). All patients were discharged from the hospital.

Postoperative morbidity was encountered in seven patients. Of the patients, two had only one complication and five had more than one complication. Pneumonitis was the most common medical complication and wound infection the most common surgical complication. Congestive heart failure and delirium occurred in two patients. Table 2 lists the complications. Mean hospital stay post surgery was six days for patients without complication versus 14 days for patients with any complication. Patients who had prior

**Table 1: The pathological stages**

Pathological stage	Number
T1 N0 M0	1
T2 N0 M0	3
T3 N0 M0	3
T4 N0 M0	1
Any T N1 M0	2
Any T N2 M0	1

**Table 2: The post-operative complications**

Post op complications	Numbers
Pneumonitis	4
Congestive heart failure	2
Delirium	2
Hemiplegia	1
Sepsis	1
Wound infection	3
Ileus	3
Pelvic collection	1

radiotherapy or chemotherapy had delayed recovery of bowel function and increased lymph drainage.

There was a single postoperative mortality of an 85-year old man who died within one month of surgery. He presented 10 days after his discharge from the hospital possibly due to stent septicemia and expired subsequently. Two patients were hospitalized within three weeks of surgery due to generalized weakness and constitutional symptoms and were discharged after conservative treatment.

Follow-up of the patients ranged from four months to five years. Three patients expired three years after surgery—two due to unrelated causes and one due to disease progression. One patient was lost to follow-up, two patients were started on adjuvant chemotherapy due to nodal metastases and are doing well 12 months and six months after surgery respectively. The other four patients on follow-up are doing well after two years, 18 months, 10 months and four months respectively.

## DISCUSSION

Due to advances in anesthesia, intensive care and surgery, the mortality and morbidity rates following radical cystectomy have dramatically decreased over the last 20 years.<sup>[2]</sup> Now radical cystectomy and ileal conduit can be performed with an acceptable morbidity and mortality in individuals 80 years of age or older<sup>[1]</sup> with no statistically significant difference with respect to age.<sup>[3,4]</sup> Prolonged hospital stay can be avoided by minimizing the size of incision and performing extraperitoneal radical cystectomy,<sup>[5,6]</sup> which helps in early restoration of bowel function as it minimizes bowel handling with decreased postoperative pain.

Co-morbidities were not related to postoperative complications or hospital stay. Several other small series have also failed to demonstrate any association between ASA class and clinical outcome after cystectomy.<sup>[6,7]</sup>

Two unique complications reported commonly in the older series are congestive heart failure and delirium.<sup>[1,2]</sup> In our series, congestive heart failure occurred in two patients and delirium was seen in two patients.

Zincke *et al.*, reported 19 patients who underwent radical cystectomy between 1967 and 1980, with a mortality rate of 5% and mean hospital stay of 22 days.<sup>[8]</sup>

Tachibana *et al.*, reported nine octogenarians who underwent radical cystectomy. There was no peri-operative death but morbidity was 67%, with two-thirds of the patients suffering from postoperative delirium.

Ogawa *et al.*, reported no operative deaths and a 44% complication rate in nine octogenarians who underwent cystectomy.<sup>[9,10]</sup>

Game *et al.*, assessed the intra and postoperative morbidity and mortality in 25 patients 75 years of age or older who underwent radical cystectomy for invasive bladder cancer.<sup>[3]</sup> Median operating time was 4 h. Peri-operative mortality rate was 4%. Intraoperative, early and late postoperative complication occurred in 15, 16 and six patients respectively. The median hospital stay and intensive care unit stay was 24 and 14 days, respectively.

In a review of the literature by Peyromaure *et al.*,<sup>[2]</sup> the early mortality rate after cystectomy in patients over 70 years old ranged from 0–4.5%, and these results were similar to those in a younger population. The overall peri-operative complications ranged from 61–70% which were mostly anesthetic. The overall postoperative complications ranged from 28–64% which again were mostly medical (41–72%) like in other series. In a series of cystectomies in the elderly, the early re-operation rate ranged from 0–9%, whereas in our series there was no re-operation required. The mean length of hospital stay after cystectomy in the elderly patients ranged from 7–24 days.<sup>[11]</sup>

The finding in a recent retrospective review<sup>[12]</sup> showed that overall, octogenarians did not have a significantly higher rate of minor (55% vs. 51%) and major (17% vs. 13%) complications as compared to younger patients but had a higher proportion of neurological and cardiac complications. Other series suggest that postoperative complications take a particularly long time to treat in elderly patients even though they are only rarely life-threatening.

Our series report a peri-operative mortality of 9% and complication rate of 65%. Mean hospital stay was 10.5 days. Our surgical time of 5 h 10 min is comparable to other series, though we routinely performed pelvic lymphadenectomy in all patients which was not done in a few of the other series.

Three patients out of 11 had wound infection and there was no dehiscence. Routinely, total parenteral nutrition was administered.

Several investigators like Nielson *et al.*, found that advanced age was associated with extravesical disease, upstaging from clinical to pathologic stage and cancer-specific mortality in patients treated with radical cystectomy<sup>[13]</sup> and elderly patients were less likely to be treated with extirpative surgery than their younger counterparts.<sup>[14]</sup> Nevertheless, after controlling for tumor grade and stage, cystectomy was associated with the greatest risk reduction of death from carcinoma bladder.<sup>[14,15]</sup>

Weizer *et al.*, found that management with cystectomy yielded the best survival chances in patients with non-metastatic muscle-invasive carcinoma bladder who were older than 70 years.<sup>[16]</sup>

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According to Surveillance, Epidemiology and End Results (SEER) data, disease-specific survival after radical cystectomy appears to be influenced only by disease-related factors (stage and extent of lymphadenectomy),<sup>[17]</sup> and not by age.

Most patients with untreated invasive bladder cancer die of disease within two years. Older patients referred to us often have locally advanced disease with palpable masses and urinary obstruction and are not amenable for alternative therapy such as definitive radiation therapy or chemotherapy.<sup>[1]</sup> Octogenarians with these characteristics should be considered for cystectomy with the intent to cure and or to control local symptoms. Palliation with short-term radiation to improve quality of life is often associated with complications and provides minimal therapy. Holmany and Borghede studied the side-effects after short-term radiotherapy in octogenarians with invasive bladder cancer.<sup>[18]</sup> Of their patients 47% had acute side-effects and 23% of all patients had to be re-hospitalized for a median of 10 days. None of the 17 patients studied with severe local symptoms such as urgency, pain and incontinence improved after treatment, and five patients (5%) died in the hospital as a result of treatment.

The treatment goal in any cancer surgery is to cure the primary neoplasm and preserve quality of life. We believe these can best be achieved by cystectomy for invasive bladder cancer even in 80-year-old patients.<sup>[1,2,6,9,15]</sup> Conservative or alternative strategies often result in progressive, uncontrolled pelvic cancer associated with bleeding, pain disability, obstruction and repeated bladder manipulations. Most authors therefore consider that cystectomy is justified in elderly patients whose life expectancy is more than two years. The only critical factor for the success of treatment for muscle-invasive carcinoma urinary bladder in the elderly is patient selection.<sup>[19]</sup>

## CONCLUSION

The number of octogenarians in the total population is rising and many will be diagnosed with invasive bladder cancer. Age alone should not exclude them from a curative procedure. This series demonstrates that cystectomy with urinary diversion can be safely performed in the elderly with acceptable morbidity and mortality.

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