

## CASE REPORT

# High Grade Muscle-Invasive Urinary Bladder Cancer in A 36 Year Old Male Patient: A Case Report & Review of Literature

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### ABSTRACT

We are reporting a case of urothelial bladder cancer in a 36 year old male patient with no history or exposure to any risk factors. The incidence of urothelial bladder cancer is very low in young individuals i.e. below 40 years of age with reported rate of incidence around 0.1-0.4 %. Most of the times, these young individuals present with non-muscle invasive bladder cancer with low grade and low stage. As the age increases, the incidence of high grade bladder cancer increases along with it. The index case presented with high grade muscle invasive bladder cancer at the time of diagnosis without any known risk factors. The 5-year survival of urothelial bladder cancer is better in young patients (93.8 %) as compared to older people (85.1 %). Cigarette smoking is responsible for development of bladder cancer in majority of patients followed by exposure to occupational carcinogens. Role of genetic alterations in development of bladder cancer is still under research and process of urothelial bladder carcinogenesis is unanswered in young individuals.

## 1. Introduction

Urothelial bladder cancer is a rare presentation in young individuals, preferably below 40 years of age with reported incidence rate of around 0.1% to 0.4% in the first two decades of life and majority of patients are above 60 years of age at the time of diagnosis<sup>[1]</sup>. Worldwide, bladder cancer ranks at 11<sup>th</sup> position with incidence 3%, mortality around 2.1% and 5-year prevalence

around 22.07%<sup>[2]</sup>. In India, bladder cancer ranks at 17<sup>th</sup> position with incidence 1.6%, mortality 1.3% and 5-year prevalence around 3.57%<sup>[3]</sup>. In developed countries, Squamous cell carcinoma of the bladder is a rare cause of bladder cancer with accountability of 2.7% of all bladder cancer cases<sup>[4]</sup>. Around 59% of bladder cancer cases are caused by schistosomiasis where it is endemic<sup>[5]</sup>. The sub-classification of squamous cell carcinoma of the bladder is bilharzial and nonbilharzial which depends upon the

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causative agent, Schistosomiasis hematobium [6,7]. About 30% of newly diagnosed bladder cancer patients present with muscle invasive bladder cancer (MIBC) or later they progress to MIBC [8]. It is extremely rare below 30 years of age and only limited case studies are reported where bladder cancer was diagnosed in young adult and paediatric patients [9,10]. Various chemical carcinogens have been identified which are responsible for bladder cancer, out of which cigarette smoking is responsible for near about 50% of cases and 20% of cases are caused by occupational exposure [11].

## 2. Case Report

A 36 year old gentleman with no co-morbidity with Eastern Cooperative Oncology Group Performance Status 1 (ECOG PS - I) presented to our clinic with post [TURBT] Trans Urethral Resection of Bladder Tumor procedure. He had a history of occasional hematuria for the last 15 days. His home town is located in a remote village which is far away from the city. He is a farmer by occupation and his 3 generations were involved in farming business. No relevant family, past, surgical and medical history. He had no addiction. He consulted a nearby local general practitioner for hematuria and he had been advised ultrasound of abdomen with pelvis. Ultrasound was suggestive of bladder tumor of size 3x2 cm at postero-lateral wall of urinary bladder. With this report, he had been referred to urologist. Urologist advised him to do Contrast Enhanced Computed Tomography [CECT] of thorax, abdomen and pelvis. CECT picked up a lesion of size 2.8x2.2 cm located at left postero-lateral wall of urinary bladder with extension at left vesico-uretric junction with no uretric obstruction. No pelvic or retroperitoneal lymphadenopathy with no distant metastasis. He had been advised TURBT and he underwent the procedure. Post TURBT histopathology demonstrated a high grade muscle invasive urothelial carcinoma with carcinoma in situ component at fundus of bladder and prostatic urethra.

Patient was visited to our clinic with the report. Systemic examination was unremarkable. Case was discussed in our Institutional Multidisciplinary Tumor Board and plan was decided to go ahead with upfront surgery. Board advised him a surgical procedure of Radical Cysto-prostatectomy with bilateral pelvic lymph node dissection with ileal conduit or neo bladder. Patient had opted for ileal conduit. He underwent the surgical procedure (Figures 1, 2). Prostate was also removed along with the specimen as prostatic urethra had focus of carcinoma. Ileal conduit was prepared for urinary diversion (Figure 3). From 3<sup>rd</sup> postoperative day, oral feeding was started. Post operative course was uneventful

and he was discharged on 8<sup>th</sup> postoperative day. Final histopathology was suggestive of high grade residual urothelia carcinoma of size 2x2 cm with thickness 1 cm located at left postero-lateral wall with invasion into the serosal fat. Prostate, seminal vesicles, bilateral uretric and urethral cut margins were free from tumor and bilateral pelvic lymph nodes (right -0/6, left 0/11) were free from metastasis. Case was re-discussed in the tumor board and adjuvant chemotherapy had been advised to him. He had completed chemotherapy without any major adverse effects. Now he is in follow up with us as per our institutional follow up protocol and after 1 year of completion of treatment, he is still disease free.



Figure 1. Radical Cystectomy specimen (Dorsal View)



Figure 2. Radical Cystectomy specimen (Ventral View)



Figure 3. Ileal Conduit with uretric transposition

### 3. Discussion

The incidence of urothelial bladder cancer (UBC) is 15-20 times higher in people with age above 70 years as compared to people with age range between 30-50 years<sup>[12]</sup>. The incidence is 15-20 times more in males as compared to females<sup>[13]</sup>. The higher prevalence in males is because of smoking habits and higher occupational exposure to risk factors<sup>[14]</sup>. Most of the time, patients with UBC present with hematuria which may be painless and macroscopic<sup>[10]</sup>. Hence, there will be a diagnostic delay for a period of 6-12 months. Ultrasound imaging is reliable and most sensitive tool for detecting UBC. Urine cytology has very low sensitivity and it carries less important role in diagnosing UBC. Computed Tomography is useful in assessing upper urinary tract and distant metastatic foci. Several case studies reported that UBC below 20 years of age has different clinical and pathological features as compared to others<sup>[11]</sup>. As the age increases, the incidence of high grade UBC increases along with it and in young patients it is low stage and low grade. According to Wang, the 5-year survival of UBC is better in young patients (93.8%) as compared to older people (85.1%)<sup>[15]</sup>. The index case presented with occasional painless hematuria. However, he reported immediately to the treating medical team after noticing it and underwent the investigations and procedure as suggested.

Several studies were conducted to find out the genetic alterations responsible for development of UBC in young patients who does not have any risk factors and presented with lower stage and low grade tumors. Wild et al<sup>[16]</sup> and Owen et al<sup>[17]</sup> reported that genetic alterations are extremely rare under 20 years of age. The recurrence rate of UBC is less in younger individuals as compared to elderly people. Na et al.<sup>[18]</sup> reported the recurrence rate of 7.1% in patients below 40 years of age as compared to 38% in patients with age above 60 years. Most of the young patients present with UBC with non-muscle invasive disease with lower progression, low grade and lower recurrence rate. Paner et al. demonstrated in his review of younger patients with UBC with age below 30 years, only 3.0% had muscle-invasive disease and only 1.7% had high-grade tumor<sup>[19]</sup>. However, aggressive bladder cancer has been reported in children - a 31-month-old and a 14-year-old<sup>[20,21]</sup>. The index case had no known risk factors and he had been diagnosed with high grade disease at the time of initial diagnosis.

Cigarette smoking is by far the most prevalent risk factor for developing UBC. Polycyclic Aromatic Hydrocarbon (PAH) exposure is responsible for 15-20% of bladder cancer cases. In rest of the cases, other

occupational carcinogens and genetic alterations are the causative agents. Radical cystectomy is the definitive curative treatment option for patients with muscle invasive bladder cancer, recurrent high grade superficial bladder cancer and high-grade T1 disease. In the postoperative period, young patients may suffer from infertility and impotence. Nerve sparing surgery along with preservation of prostate and seminal vesicle should be an option in young patients. Neobladder urinary diversion is the preferred surgical option which helps in maintaining body image and quality of life. In the index case, prostatic urethra was involved by the disease, so he underwent prostatectomy and he does not have issue of impotency in the postoperative period. Thus, it is a rare presentation of high grade muscle invasive bladder cancer without any known risk factors in a 36 year old gentleman.

### 4. Conclusions

Bladder cancer oncogenesis is still unclear in young adults due to lack of precise research studies. High grade muscle invasive bladder cancer is rare below 40 years of age and preservation of fertility with maintenance of quality of life are prime important factors while doing radical cystectomy in young patients.

### Disclosures

#### Human subject

Informed consent was obtained from the patient for being included in the study.

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