



## Characters of the Bladder Cancer in Urology Department of Tanta University Hospitals

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**Abstract:** Background: Bladder cancer is a highly prevalent disease and is associated with substantial morbidity, mortality and cost. Aim of the study: to study characters of bladder cancer using the new registry system in urology department of Tanta University. Material and Methods: The study included 229 patients with recently diagnosed bladder cancer who presented to urology department from June 2018 to June 2019. Secondary bladder masses or metastatic tumors were excluded. All data were collected from the registry system of Tanta urology department. All patients were subjected to routine perioperative evaluation then underwent TURBT and all resected pieces of masses were sent to histopathological examination. Outcomes: Measurement of histopathological patterns of bladder cancer. Results and limitations: In this cross-sectional study, 62.4% of newly diagnosed patients had NMIBC. The main limitation is a good registry system that includes demographical data, perioperative information and histopathological picture. Conclusion: Bladder cancer attained the developed world characters with smoking and urbanization being the most important risk factors.

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**Keywords:** NMIBC, bladder cancer, bladder masses, TCC.

### 1. Introduction

Bladder cancer is a highly prevalent disease that affects quality of life significantly and causes morbidity and mortality. Tobacco, environmental and occupational exposures are the main risk factors for bladder cancer.<sup>(1)</sup>

Bladder cancer originates from the urothelium lining the inner surface of the bladder, and urothelial carcinomas represent the most common type. Bladder cancers with variant histology have also been described (10–25% of cases) and include squamous cell carcinoma, and adenocarcinoma.<sup>(2)</sup>

TURBT is the first step in diagnosis which also serves in staging and detecting the histological type and may be the 1st line in managing bladder cancer.<sup>(3)</sup>

### 2. Material and methods

This cross-sectional study was conducted on patients presented to Urology department of Tanta University Hospitals from June 2017 to June 2018. The study included patients with urinary bladder masses recently diagnosed by US or CT with or without IV contrast. Patients with secondary bladder masses or metastatic tumors were excluded.

The local ethical committee approved the study under the No. 32571/03/21. We obtained an informed consent from all patients on admission. All data were

collected from the registry system of Tanta urology department powered by file maker pro 2017 and data were shown as mean +/- standard deviation (SD), median and range or percentages.

The evaluation of the patients included personal history focusing on age, residency, job and smoking, medical and family history for systemic diseases, history of similar condition and history of anti-bilharzial treatment, operative history for all previous surgeries they underwent especially any endourological operation (previous bladder mass resection or transurethral resection of prostate) and history of the presenting illness. Both full general and local examinations were done to detect any associated signs of a systemic disease. Laboratory investigations included routine tests as complete urine analysis with culture and sensitivity tests, complete blood picture, bleeding and coagulation time, SGPT, SGOT, fasting and post-prandial blood sugar. Ultrasonography and spiral CT on abdomen and pelvis with and without IV contrast were done as a routine to diagnose and stage bladder cancer, evaluate preoperatively the bladder mass characteristics and to exclude upper urinary tract tumors.

All operations were performed by experienced surgeons of urology department of Tanta University hospitals. Patients were placed in the lithotomy

position with continuous epidural anesthesia. Tumors resections were performed routinely with a semi filled bladder (filled with 200mL to 300mL irrigation fluid (All resected pieces of masses were sent to histopathological examination for staging in pathology department of Tanta University.

### 3. Results

The present study included 229 patients who underwent cystoscopy and TURBT. The demographic data are shown in Table.

**Table 1: Demographic data.**

|            |                | N   | %     |
|------------|----------------|-----|-------|
| Sex        | Male           | 160 | 69.9% |
|            | Female         | 69  | 30.1% |
| Age        | 30: 49         | 42  | 18.3% |
|            | 50:69          | 135 | 59.0% |
|            | > 70           | 52  | 22.7% |
| Min. – Max | 31.0 – 86.0    |     |       |
| Mean ± SD. | 63.40 ± 11.838 |     |       |
| Median     | 66.00          |     |       |
| Residency  | Urban          | 109 | 47.6% |
|            | Rural          | 120 | 52.4% |

109 patients (47.6%) were known to be hypertensive and 93 patients (40.6%) were known to be diabetics. 36 patients (15.7%) have a history of chronic liver disease. 38 patients were known to have HCV antibodies. 18 patients (65.5%) have a positive history of bilharziasis. 171 patients (74.6%) have history of smoking. At time of admission (46.3%) were active smokers and (24.4%) were ex-smokers; defined as smoking abstinence for more than 6 months.

**Table 2: Main risk factors.**

| Risk factors            | No.           | %   |      |
|-------------------------|---------------|-----|------|
| History of Bilharziasis | 18            | 7.9 |      |
| Smoking                 | Active smoker | 106 | 46.3 |
|                         | Ex-smoker     | 65  | 24.4 |

All patients presented with hematuria. 8 patients (3.5%) presented by Uremic manifestation due to bilateral hydronephrosis managed by bilateral PCNs till stabilization of renal function. The different presentations are shown in the following table.

**Table 3: Presentations of bladder cancer.**

| Presenting symptoms  | N   | %    |
|----------------------|-----|------|
| Hematuria            | 229 | 100  |
| Frank hematuria      | 169 | 73.8 |
| microscopic          | 60  | 26.2 |
| LUTS                 | 10  | 4.4  |
| Hydronephrosis       | 78  | 34.1 |
| Uremic manifestation | 8   | 3.5  |

All patients underwent visualizing cystoscopy to assess the bladder mass then TURBT was done. With no bladder mass found, we proceeded with random bladder biopsies from highly sites according to

preoperative imaging. The cystoscopic features are presented in the following table.

Using the clinical, imaging and histopathological data, the TNM staging was recorded to help decide the best management plan for each patient.

**Table 4: Cystoscopic data.**

|                        | No. | %     |
|------------------------|-----|-------|
| <b>Shape (n=229)</b>   |     |       |
| Papillary              | 176 | 76.9% |
| Cauliflower            | 27  | 11.7% |
| Nodular                | 13  | 5.6%  |
| Ulcerative             | 5   | 2.1%  |
| No evident mass        | 8   | 3.4%  |
| <b>Size (n=229)</b>    |     |       |
| ≤ 3cm                  | 128 | 55.9% |
| > 3cm                  | 101 | 44.1% |
| <b>Site (n=229)</b>    |     |       |
| RT. Lateral            | 70  | 30.6% |
| LT. lateral            | 82  | 35.8% |
| Post. Wall and trigone | 65  | 28.4% |
| Ant. wall              | 3   | 1.3%  |
| Dome                   | 9   | 3.9%  |

**Table 5: TNM staging.**

| TNM     | Frequency | Percent |      |
|---------|-----------|---------|------|
| TisN0M0 | 4         | 1.7%    |      |
| TaN0M0  | 25        | 10.9%   |      |
| T1N0M0  | 114       | 49.8%   |      |
| T2N0M0  | T2aN0M0   | 9       | 3.9% |
|         | T2bN0M0   | 14      | 6.1% |
| T3N0M0  | 51        | 22.3%   |      |
| T4N0M0  | 5         | 2.2%    |      |
| T4N1M0  | 7         | 3.1%    |      |
| Total   | 229       | 100.0%  |      |

Regarding The microscopic pictures of the masses, we reviewed the histopathological reports and the data are summarized as follow: 217 patients (94.8 %) as TCC, 10 patients (4.4%) as SCC and 2 patients (0.9%) as adenocarcinoma.

#### 4. Discussion

Globally, many studies discussed characters of bladder cancer. Ploeg, M. et al<sup>(4)</sup> showed that bladder cancer is the 9th in worldwide cancer incidence. It is the 7th most common malignancy in men and 17th in women.<sup>(4)</sup> In Europe, there were an estimated 118,000 cases and 52,000 deaths in 2016.<sup>(5)</sup>

In Egypt, determining of the exact incidence and prevalence of bladder cancer has many obstacles due to lack of registry system all over the country with a trial held by Salem, H.K.<sup>(6)</sup> at Kasr Al Aini Hospitals. So, we tried in this study to establish a new registry system in Tanta urology department and uro-oncolgy unit which helped us to determine and analyze characters of bladder masses in our department.

Bladder cancer is typically diagnosed in older individuals, with a mean age at diagnosis of 69 years as it is mentioned by Lynch CF et al and Scosyrev, E.<sup>(7)</sup> and in Salem, H.K.<sup>(6)</sup> the mean age was  $52 \pm 8.6$  years.<sup>(6-8)</sup> In this study the mean age of the patients is  $63.4 \pm 11.838$ . This may be explained by wide range of age between patients in the study as there were about 22.7% of patients above 70 years and 18.3 younger than 50 years old.

The present data revealed a 3:1 male to female ratio of bladder cancer cases of the study, which concurs with other major studies from Egypt.<sup>(9,10)</sup> This gender gap might be a reflection of differences in the magnitude of environmental or lifestyle exposures related to bladder cancer etiology, such as Bilharzial infection, smoking, and exposure to occupational and agriculture-related chemicals.

The microscopic type of the bladder mass in Egypt show dramatic change as follow: SCC has been known the most common cancer cell type in Egypt in the 1960s and represented 59%-81% of all bladder cancer cases.<sup>(11-13)</sup>

In another study from the National Cancer Institute in 2007, TCC represented 65.6% and SCC 28.4%.<sup>(14)</sup> Also Salem, H.k. et al,<sup>(6)</sup> found that the proportion of patients with TCC histologic features increased from 20% to 66%; however, the proportion patients with SCC histologic features decreased from 73% to 25%. In present study there is obvious change in the pattern of TCC and SCC which become very close the global pattern as TCC represent 94.8% of cases and SCC represent 4.4% of cases.

About residency, in 1980's and 1990's most of the cases were from rural areas with 81% of cases according to El-Bolkainy MN. et al,<sup>(11)</sup> which show

also a huge difference in this recent study with increased incidence in the urban area up to 47.6% which may be reflected also with the change of the microscopic types predominant and risk factors such as environmental exposure and Bilharzial control programs.

Bilharziasis infection also showed great change. Prior to the 1964 completion of the Aswan High Dam, approximately 60% of people in North and South Egypt were infected with *S. haematobium*.<sup>(15)</sup> El-Khoby et al, in 2000<sup>(15)</sup> reported a significant reduction in prevalence 0.45% in Nile Delta all of these studies depend on presence of bilharzial egg in the urine, but in the present study there was not any bilharzial egg in the specimen and the 7.1% of patients who have bilharziasis depend on history of anti-bilharzial drug and ELISA which may be an old infection.

First evaluated in the 1950s, tobacco smoking is the best established risk factor for bladder cancer in both men and women.<sup>(16)</sup> Chyou et al,<sup>(17)</sup> Alberg et al,<sup>(18)</sup> both held cohort study on incidence of bladder cancer in smokers it was about 60; 63% 67, 39% respectively. In the present study, the percentage of smokers either active or Ex-smokers was about 74.6% in all cases of the study with strong relation with TCC patients.

Hematuria in the present study was the main symptom of all the cases either frank or microscopic, patients who are diagnosed with bladder mass without frank hematuria is subjected to urine analysis to detect microscopic hematuria. All of those cases (26.2%) have microscopic hematuria with HPF which is more than the percentage mentioned by Khadra, M. H which was 20.4% and in older study the percentage were less than 9% of bladder cancer cases which could be attributed to accidently discovered cases in the governmental campaign which is held during the duration of the study to detect HCV patients in which abdominal and pelvic ultrasound is ordered.

In the present study, the endoscopic picture of the bladder mass and its relation with microscopic picture is very close to the recent studies and EAU guidelines<sup>(19,20)</sup> as most of the cases in the study with single solitary papillary tend to be NIMBC and most of the cauliflower and nodular huge masses were muscle invasive.

#### Conclusion

Bladder cancer is one of the major morbidity causes in our country and geographical region. The main obstacle to get an idea about the behavior of the bladder cancer is a good registry system that includes demographical data, perioperative information and histopathological picture. In this cross-sectional study, 62.4% of newly diagnosed patients had NMIBC.

Prevalence of Bilharziasis showed a great decrease subsequently, causing a great shift in the pattern of pathology of bladder cancer in Egypt from SCC to TCC. Smoking remains a major risk factor in development of bladder cancer.

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