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Clinicopathological Study of Urinary Bladder Cancer

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الملخص:

الخلفية: لا يزال التصنيف النسيجي لأورام المثانة مؤشراً مهماً لاستجابة العلاج ونتائج المريض .

الهدف: كان الهدف من هذه الدراسة هو معرفة النمط النسيجي لسرطان المثانة البولية (UBC) فيما يتعلق بالعمر والجنس، وتحديد المرحلة والدرجة ووجود غزو العضلات.

المواد والمنهجية: دراسة بأثر رجعي لمدة ست سنوات لجميع الحالات المتتالية التي شخصت لسرطان المثانة في قسم علم الأمراض، في كليه الطب البشري في جامعه بنغازي (2006-2011)، وقسم المسالك البولية في مستشفى الهواري بنغازي ليبيا (2019-2020).

النتائج: شملت الدراسة 120 مريضا. تراوحت الأعمار ما بين 18-96 سنة بمتوسط 67.5 سنة. 90٪ كانوا ذكور و 10٪ إناث بنسبة ذكر 9: 1. كان سرطان الخلايا الانتقالية (TCC) هو النوع النسيجي السائد 100 (83.3٪) ، يليه سرطان الخلايا الحرشفية (16.7) 20 (SCC٪). علاوة على ذلك كانت الدرجة الثانية من سرطان المثانة البولية أكثر درجات الأورام شيوعًا حيث بلغت 77 (64.2٪). كان 98 (81.7٪) من المرضى مصابين بسرطان المثانة غير الغازي للعضلات (NMIBC) مقابل 22 (18.3٪) لديهم سرطان المثانة الغازي للعضلات (MIBC). أظهر التدريج الباثولوجي أن 33 (27.5٪) من الحالات كانت سرطانية محصورة في الظهارة البولية (PTa) بينما 67 (55.8٪) لكل منها تمثل الصفيحة المخصوصة (PT1) و 20 (16.7٪) فقط من السرطانات الغازية العضلية (PT2).

الخلاصة: TCC هو أكثر أنواع الأنسجة المرضية شيوعًا من UBC. تكون أورام المثانة أكثر شيوعًا عند الذكور مع حدوث غالبية الحالات في العقد السادس من العمر. كانت كل من TCC متوسطة الدرجة في المرحلة (PT1) ومرحلة السرطان منخفضة الدرجة (PTa) من الأنماط الشائعة نسبياً التي شوهدت في هذه الدراسة.

توصية: حيث أن تشخيص سرطان المثانة في مراحله المبكرة أفضل من تشخيص المرض المتقدم بعد الاستئصال العلاجي. يوصى باكتشاف الورم في وقت مبكر.

الكلمات المفتاحية: سرطان المثانة، الاستئصال العلاجي، دراسة سريرية.

Abstract

Background: The histologic classification of bladder tumors remains an important predictor of treatment response and patient outcome.

Aim: The present study aimed to see the histomorphological pattern of urinary bladder cancer (UBC) with regard to age and sex, and to determine the stage, grade, and the presence of muscle invasion.

Methods: A six-year retrospective study of all consecutive cases diagnosed in the Department of Pathology, Faculty of Medicine (2006-2011), and Department of Urology, Faculty of Medicine, Benghazi Libya (2019-2020). **Results:** The study included 120 patients. The ages ranged from 18-96 years old with a median of 67.5 years. 90% were males and 10% were females giving a male to female ratio of 9:1. Transitional Cell Carcinoma (TCC) was the predominant histological type 100 (83.3%), followed by Squamous Cell Carcinoma (SCC) 20 (16.7%). Grade II of urinary bladder cancer was the most common tumor grade accounting for 77 (64.2%). 98 (81.7%) of the patients had Non-Muscle Invasive Bladder Cancer (NMIBC) versus 22 (18.3%) who had Muscle Invasive Bladder Cancer (MIBC). Pathological staging showed that 33 (27.5%) cases were urothelial confined carcinoma (PTa) while 67(55.8%) each accounted for lamina propria (PT1) and only 20 (16.7%) were muscle-invasive carcinoma(PT2).

Conclusion: TCC is the most common histopathological type of UBC. Bladder tumors are more commonly encountered in males with the majority of cases occurring in the 6th decade. Both intermediate-grade TCC in stage (PT1) and low-grade carcinomas stage (PTa) were relatively common patterns seen in this study

Keywords: bladder cancer - urothelial tumors - urinary bladder.

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1. INTRODUCTION

Globally, many studies have shown that bladder cancer is the ninth most common malignancy [1]. Approximately 90% of bladder cancers are urothelial carcinomas (UCs) that arise from the inner epithelial cells lining the bladder [2]. It is well known that tobacco smoking is a major risk factor accounting for up to 50%-65% of urothelial bladder cancer. However, occupational-related risks accounted for 20%-25% of urothelial bladder cancer of which transitional cell carcinoma (TCC) was the most common type [3].

Previous studies have revealed that UBCs have various histologic features pattern based on the growth pattern of the intraepithelial lesion [4,5]. Roughly three-fourths of UBC are non-muscle invasive [6]. Men are affected more often than women (3-4:1) [7]. The natural history of these bladder cancers is that of recurrence and progression to higher grades and stages [8]. The present study aimed to analyze the histological pattern of urinary bladder cancer with regards to age and sex and to determine the grade, stage, and presence of muscle invasion over a 6-year period.

2. METHODS

This retrospective study was carried out in Paraffin-embedded specimens retrieved from the pathology archives at the Pathology Department in Benghazi University during the 6-year study period between 1st January 2006 and 31st December 2011, and archival data from the Department of Urology, Faculty of Medicine, Benghazi Libya (from 1st January 2019 to 31st December 2020) was included in the study. Patients who underwent transurethral resection of bladder tumor (TURBT) and radical cystectomy. Specimens were studied by routine paraffin processing and hematoxylin and eosin stain. Demographic data including patients' age, sex and histopathologic diagnosis collected from pathology reports. The urinary bladder cancer cases were divided based on histological patterns into non-invasive and invasive carcinoma. The quantitative variables such as age are expressed as median and qualitative variables such as histopathological diagnosis are represented by frequencies and percentages.

3. RESULTS

The total number of patients included in this study was 120 patients with a median age of 67.5 years (range 18- 96). The age peak was between 61 and 70 years (37.5%) as shown in Fig. 1. Only 7.5% of patients were under the age of 40 years. The male-to-female ratio was about 9:1. Table 3 shows that Transitional Cell Carcinoma was the dominant histopathological subtype 100 (83.3%), while SCC represented 20 (16.7%). Among the studied cases, intermediate grade II urinary bladder carcinoma was found to be the most common with 77 (64.2%) followed by high grade I with 32 (26.7%), and grade III comprised 11 (9.2%). In pathological staging, 33(27.5%) cases were urothelial confined carcinoma (PTa) while 67 (55.8%) lamina propria invasive carcinoma (PT1) and 20 (16.7%) muscle-invasive carcinoma (PT2).

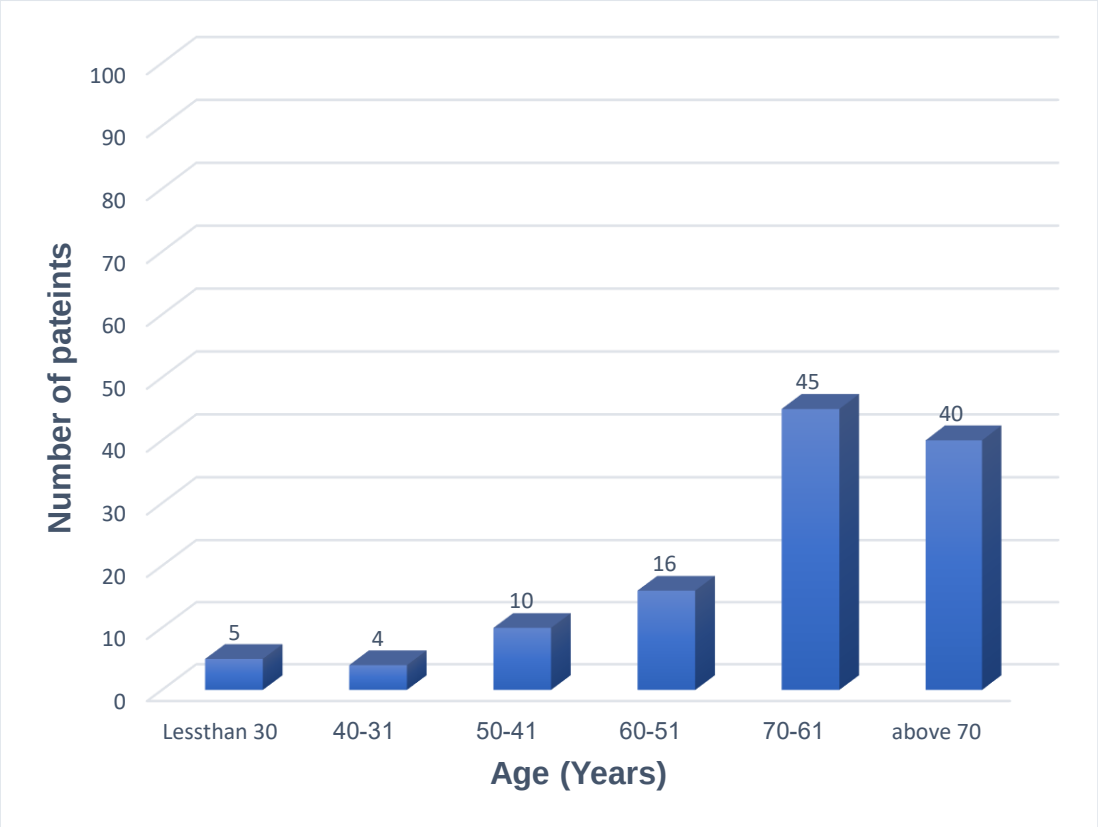


Figure 1: Distribution of patients according to age groups

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Table 1: Patient demographics and clinical and pathologic findings in UBC

	Number	Total (%)
Age Median (range)	67.5 (18-96)	
Sex Male Female	 108 12	 90% 10%
Histopathology TCC SCC	 100 20	 83.3% 16.7%
Pathologic Stage PTa PT1 PT2	 33 67 20	 27.5% 55.8% 16.7%
Grade I II III	 32 77 11	 26.7% 64.2% 9.2%
Muscle invasive Muscle non invaded Muscle invasion	 98 22	 81.7% 18.3%

4. DISCUSSION:

This study is based on an analysis of the clinicopathological characteristics of bladder tumors in transurethral resection of bladder tumor (TURBT) and radical cystectomy. In this study, the majority of patients were in their sixth to seventh decades of life, which was fairly concordant with local and the median age of patients with bladder cancer was 67.5 years. This was in accordance with other studies where bladder neoplasms are primarily encountered in men aged 50 to 70 years [9, 10, 11, 12]. Nevertheless, a slightly lower mean age of occurrence of 33.2 years was documented in another related study by Comperat *et al* [13]. The present study has revealed that urinary bladder cancer is more common in males as compared to females. Overall, the male-to-female ratio was 9:1. The sex ratio in the current study was in good agreement with other studies, which have all shown a male-to-female predominance [14,15].

In the present study, we found TCC is the most common type of UBC in more than 83.3% of the studied cases. This result was in good agreement with Laishram RS et al and Raphael S et al, which have shown that TCC is the most common malignant bladder tumor [16,17].

In the current study, SCC represented only 16.7% of malignant bladder tumors. On the other hand, our findings are contrary to other studies where SCC was the most common pattern of bladder cancer[18,19]. The cause for this discrepancy is associated with the various risk factors and environmental factors involved in the etiology of bladder cancers. Additionally, it could be explained in terms of diagnostic approach and/or possibly being due to the effects of hereditary factors.

Tumor grading and staging of UBC currently are highly correlated with recurrence and progression, and also have a great prognostic significance. Our data revealed that in UBC, most of the cases were in the Intermediate grade (grade II) at 77(64.2%) followed by low grade (grade I) at 32(26.7%) and only 11(9.2%) cases were High grade (grade III). A similar finding was also reported where 66 were low grade and 44 were high grade [20].

In this study, we found that early pathological stages (PTa and PT1) accounted for 83.3% while late-stage cancer accounted for 16.7%. This is similar to the findings of Vaidya et al where early-stage cancer (pTa and pT1) accounted for 73% [21]. The patients' pathological reports showed that in most of the studied cases of UBC, 98 (81.7%) of the patients had Non-Muscle Invasive Bladder Cancer (NMIBC), while only 22 (18.3%) had Muscle Invasive Bladder Cancer (MIBC). This is in agreement with published data which has shown that about 70-75% of bladder cancers are non-muscle invasive bladder cancer (NMIBC) [22,23].

5. CONCLUSION:

In conclusion, this study has shown that bladder tumors are more commonly encountered in males with the majority of cases occurring in the 6th decade. Transitional cell carcinoma of bladder cancer was the commonest histological type observed. Both intermediate-grade TCC in stage (PT1) and low-grade carcinomas stage (PTa) were relatively common patterns seen in this study.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Recommendation

As the prognosis of early-stage bladder cancer is better than that of an advanced disease after curative resection, it is recommended that the tumour should be detected earlier.

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