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Identify The Urinary Bladder Cancer Patterns In Nasiriyah city / Thi-Qar Province – Iraq

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***Abstract*— This study aims to shed light on the generality types of urinary bladder cancer in the city of Nasiriyah / Thi-Qar Province – Iraq. The study includes cases that were registered in the Department of Pathology in Al-Hussein Teaching Hospital and Private Laboratories. Patient records were analyzed for information regarding age, sex, residence, and cancer type. A total of 114 sufferers of bladder cancer were obtained. The data taking period was from January 1, 2021 to April 30, 2022. Tumors were diagnosed mainly in the private laboratories of two consultant pathologists in Nasiriyah. The results showed 107 (93.86%) transitional cell carcinomas with a mean age of 47 years, in addition to 6 (5.26%) squamous cell carcinomas with a mean age of 69 years and 1 adenocarcinoma (0.88%) at the age of 51 years. Out of all cancer cases, males accounted for 74.56% whilst females accounted for 25.44%, indicating a male to female ratio of 4:1. Additionally, males showed a clear dominance in the totality of the histological grades. The age range with the highest number of cancer cases was between 70-79 years old (n = 37; 32.45%), while the age range with the lowest number of cases was between 23-39 years old (n = 3; 2.63%). The current study concluded that the majority types of bladder cancer in the city of Nasiriyah / Thi-Qar Province - Iraq are transitional cell carcinomas with an average age of 47 years. Among all cancers, males had the highest incidence. The greatest number of cancers was in the category age 70-79 years, and the slightest was in the category age 23-39 years.**

***Keywords*— Bladder cancer, Carcinomas, Nasiriyah**

I. INTRODUCTION

The bladder is a flexible, hollow organ located in the pelvis above the reproductive organs and in front of the rectum [1], [2]. Each year, there are over 429, 793 new sufferers of bladder cancer worldwide, with an estimated mortality rate of approximately 165,084 [3]. Bladder cancer is the ninth most common cancer in women and the second most common in men after prostate cancer. In most Arab nations, there are nearly 781 new prey of bladder cancer each year, with men at a three times higher risk of incidence than women. The majority of cases occur in people over the age of 65, with about 66% falling in this age range [4]. Nearly 70 % of bladder cancer tumors are classified as superficial, and only around 15% of these cases are likely to progress into malignant cancer, increasing the risk of death [5], [6]. Initially, about 30 % of cases are invasive, and something like 50 % of cases have a high risk of metastasis and death. The history of bladder cancer incidence is strongly correlated with exposure to biological toxic amines in industries such as dye, textile, rubber, leather, paint, and printing, as well as with tobacco and smoking, which are responsible for more than 50% of total cases [7]. In addition, recurrent urinary tract infections and age are significant risk factors, with people over the age of 70 being the most vulnerable [8]. Prior radiation to the pelvis, some chemotherapeutic drugs, such as cyclophosphamide, and certain diabetes medications, such as Pioglitazone (Actos), have been shown to increase the long-term risk of developing bladder cancer [9]–[11]. Research suggests that chronic inflammation may play a critical role in various malignancies, including bladder cancer. Inflammatory cells have been observed in the urethral microenvironment, and chronic inflammation may drive neoplastic transformation and progression of bladder cancer by activating inflammatory molecules and signals.Recent evidence also suggests that the microbiome may play a role in the development and progression of bladder cancer by stimulating chronic inflammation. In other words, chronic inflammation caused by the urinary microbiome may promote the initiation and progression of bladder cancer [12]. One challenge in studying bladder cancer is the lack of a comprehensive database of cancer cases in Thi-Qar, which required collecting data from various sources and creating a unified database.

This study aims to shed light on the generality types of urinary bladder cancer in the city of Nasiriyah / Thi-Qar Governorate – Iraq. Itgives details of the histological classification of urinary bladder cancer as stated by the

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World Health Organization and the International Society of Urology (WHO / ISUP 1998) .

II. METHODS

Study design : the demographic study was designed to track cases of bladder cancer in the city of Nasiriyah and its environs to find out the most prevalent cases and types and their association with sex, stage, creed and the patient's age. Retrospective based on data available in government and private health centers. The current study Includes the data that revealed a clear histological image of tumors of the urinary bladder by light microscopy and exclusion of data that contained incomplete information represented by the lack of one of the following criteria (age, sex, stage, and grade), or data for a sample suspected of having tumors of the bladder, as well as data were excluded For samples taken by the patient or his family.

The study includes bladder cancer prey registered in the Department of Pathology in Al-Hussein Teaching Hospital and Private Laboratories in the city of Nasiriyah / Dhi-Qar Governorate – Iraq. Patient records were analyzed for information regarding age, sex, cancer type, histopathology grade, and stages. This study documentes 114 cases of urinary bladder cancer whose data have been gathered in the Histopathology Unit / Al-Hussein Teaching Hospital and independent labs, for the period from January 1, 2021 to April 30, 2022. Tumors were diagnosed mainly in private laboratories in two consultant pathologists in Nasiriyah, they received total cases including laparoscopic cystectomy, radical cystectomy, and partial cystectomy. (Exclusively from Thi-Qar Governorate). Note that the diagnosis was made by cutting several thin sections 2–3 µm thick from every mass. For routine histological diagnosis, the sections were stained with hematoxylin and eosin, the samples were examined for papillary structure, cytological characteristics, invasion of the lamina propria and muscle, inflammation, metaplasia, and dysplasia. Based on the WHO/ISUP1998 classification, the bladder cancer was subsequently categorized.

The Statistical Package for the Social Sciences version 15 (SPSS Inc., Chicago, IL, USA) was used to perform statistical analysis, including the calculation of Chi-square and p-value. A p-value of less than 0.05 was deemed statistically significant.

III. RESULTS

A total of 114 cases of bladder cancer were identified, with 107 (93.86%) classified as transitional cell carcinoma and a mean age of 47 years, 6 (5.26%) as squamous cell carcinoma (SCC) with a mean age of 69 years, and 1 (0.88%) as adenocarcinoma with an age of 51 years, as illustrated in Table 1. Males accounted for 74.56% of all bladder cancer cases, whilst females made up 25.44%, resulting in a male to female ratio of 4:1. Moreover, there was a noticeable male predominance in entire histological grades. the mainstream studies indicate that around 75% of patients with bladder cancer initially present with non-muscle invasive disease. At the time of diagnosis, 10-15% of patients with muscle-invasive bladder cancer have already developed metastases, and approximately half of those treated with cystectomy will experience relapse. Despite currently available multimodality therapy, 25% of newly diagnosed bladder cancer patients have muscle-invasive or metastatic disease, which has a low overall survival rate. In this study, 55.40% of urinary bladder cancer masses were graded as high grade, while according to tumor staging, stages 1, 2, 3, and 4 were classified as non-muscle invasive bladder cancer, with stage T2 being the most common. Additionally, our findings show that 44.70% of urinary bladder cancer masses are low grade tumors. The grades and stages of bladder cancer are presented in Table 2 and demonstrated in Figs. 1-3. The age distribution of the 114 bladder cancer cases is presented in Table 3, with the rising number of cases occurring in the age set of 70-79 years (n=37; 32.45%) and the lowest in the age group of 23-39 years (n=3; 2.63%). The age of individuals diagnosed with bladder cancer ranged from 23 to 98 years. The average age for both male and female individuals with bladder cancer was 48 years .

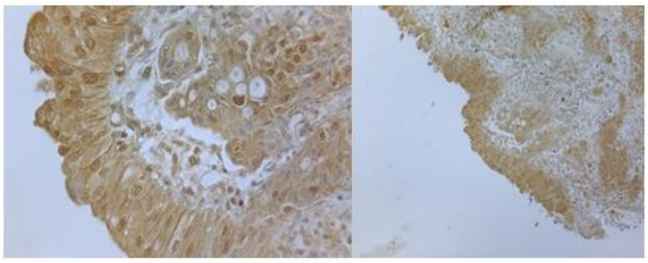

Fig 1: This image shows a high -grade papillary urinary bladder cancer with a papillary configuration and urothelial cells . The image was captured using Hematoxylin and interleukins 32 stain (10x-40x).

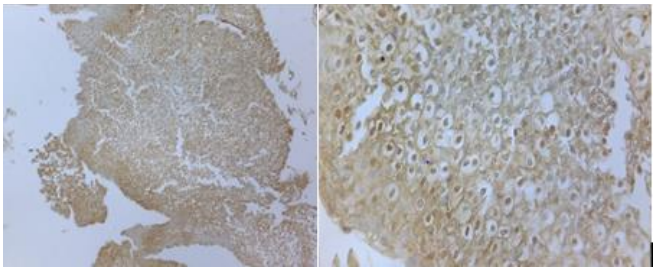

Fig 2: This image shows a low -grade urinary bladder cancer with a urothelial cells. The image was captured using Hematoxylin and interleukins 32 stain (10x-40x).

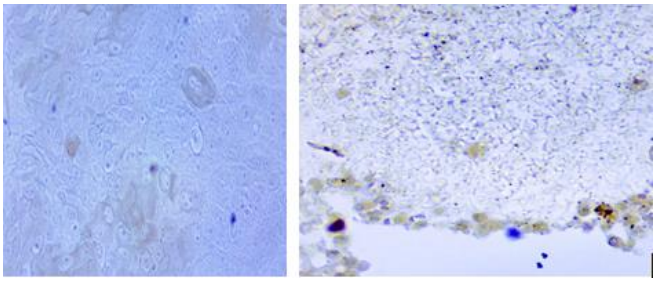

Fig 3: This image shows a normal urinary bladder tissue. The image was captured using Hematoxylin and interleukins 32 stain (10x-40x).

TABLE 1: THE DISTRIBUTION OF URINARY BLADDER CANCERS.

Type	No (%)	Mean (year)	Age range
Transitional cell carcinoma	107 (93.86)	47	23-98
Squamous cell car	6 (5.26)	69	50-82
Adenocarcinoma	1 (0.88)	51	-

TABLE 2: DEMONSTRATED THE GRADES AND STAGES OF URINARY BLADDER CANCER.

Histopathological grade and staging	High	Low
Non	19	28
T1	7	7
T2	11	2
T2a	4	-
T2b	3	-
T3	1	-
T4	2	1
Total Percentage	55.30	44.70

TABLE 3: DISTRIBUTION OF 114 CASES OF URINARY BLADDER CANCER, DEPENDING ON THE AGE RANGE OF INDIVIDUALS.

Age group (years)	Male		Female	
	No.	*%*	*No.*	*%*
23--39	2	1.75	1	0.88
40--49	6	5.26	4	3.51
50--59	21	18.42	1	0.88
60--69	22	19.30	7	6.14
70--79	24	21.05	13	11.40
80--98	10	8.77	3	2.63
Total	85	74.56	29	25.44

IV. DISCUSSION

Most of the proportion of bladder tumors or urinary bladder cancer in such study emerge from the epithelium . The popular type was transitional cell carcinoma accounting for 93.86% of cases, and squamous cell carcinoma (SCC) accounting for 5.26% of cases. The ratios for urinary bladder cancer were remarkably similar to those reported from neighboring Saudi Arabia as well as from Yemen. However, the numbers were lower in some African countries such as; Nigeria and Tanzania [13].

In developed countries, more than 90% of urinary bladder cancer cases are composed of squamous cell carcinoma, adenocarcinoma, and other uncommon types of bladder cancer, with the remaining 10% consisting of different types [14]. Vaidya et al. [15] in Nepal, the proportion of transitional cell carcinoma (TCC) cases was reported to be as high as 97.6%. Mubarak et al. [16] A study conducted in Pakistan reported a frequency of 94.3% transitional cell carcinoma (TCC) cases. Similarly, a recent analysis of the cancer registry in the Netherlands revealed that more than 90% of urothelial cancers were observed in a population cohort of over 28,000 patients [17]. Kong et al. [18] from Malaysia also recorded TCC to be present in 90.4% [14], [18]. Almost all of these results are consistent with the current study, which found that the percentage of transitional cell carcinoma was 93.86%.

Local study about bladder cancer found that Thirty-five percent (35.34%) of the tested isolates had the infection , according to the Nehmaa, [19] findings to Patients with bladder cancer. While, the listed from the schistosemiasis endemic African countries are dissimilar. Although TCC as yet a superior tumor, the recurrence percentage notify in the Nigerian study is as low as 61.5%. [20]. Rambau et al. [21] a study conducted in Tanzania accounted a higher prevalence of squamous cell carcinoma (55.1%) than transitional cell carcinoma (40.5%)Itis consistent with the known association between squamous cell carcinoma and endemic schistosomiasis.

In this study, it isobserved that the likelihood of men developing urinary bladder cancer is four times higher than that of women. This finding is consistent with the facts in the Cancer Statistics 2019, which indicates that the male-to-female ratio for this cancer type ranges between 1:3 and 1:5 worldwide [22]. In contrast, a higher male-to-female ratio of 1:9 was reported in Jordan. Additionally, this study, as well as global data, consistently indicate a significant male preponderance across all types of urinary bladder cancer. This trend may be attributed to the fact that males are more likely to engage in agricultural and industrial activities, which can increase their exposure to carcinogenic factors [14]. In our study, we examined 114 patients diagnosed with urinary bladder cancer, and the median age at the time of diagnosis was found to be 48 years. This age is significantly lower than that observed in developed countries, where the median age at diagnosis is typically 73 years. [14]. Most cases of urinary bladder cancer (more than 70%) were exists in patients over 50 years of age and less than 30% in younger adults. This is consistent with most results shown by Bilim et al . [6] from Japan.

As per recent studies and the American Cancer Society's key statistics on bladder cancer for 2021. The histological grading of bladder cancer is subject to various limitations associated with subjective evaluation, particularly when performed on biopsy material. Moreover, the characteristics of a neoplasm can differ from one area to another, leading to the possibility of a cystoscopy biopsy indicating a low-grade malignancy, whereas the surgical specimen reveals something more severe. Our research found that 55.30% of urinary bladder cancer masses were classified as high-grade, while 44.70% were categorized as low-grade. This distribution is comparable to a study conducted in Nepal, which statement that more than half of the cases (52.2%) were classified as high-grade. In variance the study from El-Siddig et al. [23] has statement that two-thirds of cases to be in low-grade category and only one-third cases were high grade .

In our investigation, a significant number of urinary bladder cancer cases were classified as high-grade, which can be largely attributed to the patients' advanced age at the time of diagnosis. This observation is consistent with findings from a study achieved in Jordan (Amman city) by Al Khader et al. [24] , which crossed that advanced age was remarkably associated with high tumor grade where 58.2% and 5.1% of high-grade tumors were found in the age clique 65-84 and >84 years, respectively. While , Out of the 30 instances in total, Jawed [25] noted a total of 30 instances, out of which 11 were classified as grade I (low), 16 as grade II, and 3 as grade III (high) carcinoma..

Current study reveals, the tumor stages t1 and t2 were the most frequently occurring, while Another study has reported that the majority of urinary bladder cancer cases (75-80%) occurred without penetrate the bladder muscle wall of the. Such non-invasive tumors can be treated with the help of a telescopic procedure for removing the cancer (known as transurethral resection of bladder tumor [TURBT]), followed by instillation of chemotherapy or vaccine-based therapy directly into the bladder [26].

In Iraq, particularly in Thi-Qar, the incidence of urinary bladder cancer tends to increase with advancing age, and a notable variation was observed across different age groups. However, the current investigation had some limitations as it relied on recorded data, which posed certain challenges in interpreting the findings due to incomplete information regarding patient history, tumor staging, and treatment management. It is important to acknowledge that such difficulties are unavoidable in retrospective studies, especially in a country like Iraq where medical services are provided by both the Ministry of Health and private hospitals. Nevertheless, the data collected from this study can contribute to formulating a better understanding of the national prevalence of urinary bladder cancer.

V. CONCLUSION

The current project concludes that the distrpution type of bladder cancer in the Nasiriyah city / Thi-Qar Governorate -/Iraq are transitional cell carcinomas with an average age of 47 years.Un addition to squamous cell carcinomas with an average age of 69 years and adenocarcinomas with an average age of 51 years, respectively. Among all cancers, males had the highest incidence. The age bracket with the highest incidence of cancer sufferers isfound to be between 70 to 79 years, whereas the age group of 23-39 years had the lowest occurrence of cancer cases.

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ETHICAL CONSIDERATION

Scientific and ethical research standards based on the Declaration of Helsinki were adhered to, and approval of the ethics committee of the health institution was obtained prior to the start of the study from the Ethics Committee of the College of Medicine and Science at Thi-Qar University No. (909/2022) and (960/2022), respectively, as well as from the Department of Health in Thi-Qar No. (655). 2022) and Ministry of Health form No. (02/2021).

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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