

Original Article

Clinicopathological Profile of Urological Malignancies at Teaching Hospital in Jaffna Peninsula of Northern Sri Lanka

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Abstract:

Urological malignancies remains significant health hazards over the years. Prostate cancer is the commonest cancer in male worldwide. There have been various studies done in other parts of Sri Lanka to establish the characteristics of urological malignancies. But the data from Jaffna is lacking.

This study was a retrospective cross-sectional study. Data of all histologically proven urological malignancies of Teaching Hospital Jaffna (THJ) between 1st of January 2018 and 1st of June 2021 were analyzed.

The most commonly identified urological malignancy was prostate carcinoma (62.3%, n=101) with mean age of 71.6 years. 98% were adeno carcinoma. 59.4% had stages equal or more than T3 and 41.6% had Gleason score of 8 or more. 59.4% of the patients presented with metastatic prostatic carcinoma.

Bladder malignancies were seen in 27.8% with the mean age of 68.6 years. Male to female ratio was 5:1, 97.7% were primary urothelial malignancies. 80% were organ confined disease. 57.8% were high grade and 35.5% were muscle invasive. Nearly 6.2% of the patients were diagnosed with renal carcinoma and mean age was 53.9 years. The male to female ratio was 2:3. 80% were clear cell renal cell carcinoma, 70% were localized. Eighty percentage diagnosed cancers had stage equal or less than T2. Nearly 3.7% of the patients had penile cancers. All of them were squamous cell carcinoma while 66.7% diagnosed cancers had stage equal or less than T2.

Prostate carcinoma was the most common urological malignancy identified in this study. Most of the renal and penile carcinoma was diagnosed at early stages in contrast with bladder and prostate carcinoma.

Key words


urooncology audit, malignancy, Jaffna

Introduction

Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country of the world. Cancer is a major public health problem worldwide. Among various types of malignancies, genitourinary malignancies, except testicular cancer are notorious for causing high mortality and morbidity. Pattern of these cancers are variable according to time, region, and ethnic groups.

According to Global Cancer Statistics 2020 the incidence of prostate cancers was 7.3%, bladder cancer was 3.0%, renal cancer was 2.2%, testicular cancer was 4.4% and the penile cancer was 0.2%. The mortality rate was 6.8%, 2.9%, 1.8%, 0.1% and 0.1% respectively. [1]

Prostate cancer is the most prevalent male malignancy in many regions of the world. However, remarkable racial and ethnic differences in the incidence have been reported, ranging from 4.4 per 100 000 to 118.2 per 100 000 persons in India and the USA, respectively. Additionally, it represents the second most common cause of cancer-related mortality in the USA and Europe. The incidence of prostate cancer has been increasing worldwide in recent

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Submitted: June 2021 Accepted November 2021



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years. [2] The GLOBOCAN project showed that prostate cancer was the second most frequently diagnosed cancer and the fifth leading cause of cancer mortality among men worldwide in 2012. The incidence rate of Prostate cancer varies more than 25-fold worldwide; generally, it is higher in Western countries and lower in Asian countries. However, there is less variation in the mortality rates worldwide compared with the incidence rates. [3]

Based on the latest GLOBOCAN data, bladder cancer accounts for 3% of global cancer diagnoses and is especially prevalent in the developed world. [3] According to GLOBOCAN data, an estimated 550,000 people were diagnosed with bladder cancer in 2018. This accounts for roughly 3% of all new cancer diagnoses. Cancer of the bladder, also known as urological cancer or urinary bladder cancer, is the 10th most common cancer in the world, and its incidence is steadily rising worldwide, especially in developed nations. [4] In United States, bladder cancer is the sixth most incident neoplasm. In South Asia, the reported rate of Bladder Cancer is estimated to be about 2.1 per 100,000, but there were no accurate estimate of the incidence of Bladder Cancer in Sri Lanka.

Renal cancers are the third common urological malignancies. Though renal cell carcinoma (RCC) accounts for 2% of global cancer diagnoses and deaths, it has more than doubled in incidence in the developed world over the past half-century, and today is the ninth most common neoplasm in United States (US). [5] The American Cancer Society's most recent estimates for kidney cancer in the United States for 2021 are: about 76,080 new cases of renal cancer (48,780 in men and 27,300 in women) will be diagnosed and about 13,780 people (8,790 men and 4,990 women) will die from this disease. [6]

Testicular cancer is not common: about 1 of every 250 males will develop testicular cancer at some

point during their lifetime. The average age at the time of diagnosis of testicular cancer is about 33. This is largely a disease of young and middle-aged men, but about 6% of cases occur in children and teens, and about 8% occur in men over the age of 55. Because testicular cancer usually can be treated successfully, a man's lifetime risk of dying from this cancer is very low: about 1 in 5,000. [5]

There have been very few studies regarding the incidence on urological malignancies in Jaffna. The recent studies explained that the incidence of prostate cancers in Jaffna was 4.23%. But in Sri Lanka it was 6.3%. Being the 2nd most common malignancy in male the data regarding other urological malignancies are lacking. It is therefore important to ascertain how common this problem is. This will help plan screening programs for the public. It will also help make the healthcare system and workers more aware of the extent of the problem and thus full fill the gap regarding the data.

Teaching Hospital Jaffna (THJ) is a tertiary care institution providing medical services to all five districts in northern province (Jaffna, Mannar, Killinochchi, Mullaitivu and Vavuniya), a large number of patients undergo surgical treatment in this hospital when compared with other hospitals in the northern part of Sri Lanka. So we have selected THJ as a suitable institution for our study.

Objectives of this study were to identify the pattern of urological malignancies treated in Teaching Hospital Jaffna, including the prevalence of urological malignancies, the pattern of urological malignancies according to age and gender distribution, histological types of urological malignancies.

Method

This study was a retrospective cross-sectional study. Data of all histologically proven urological malignancies diagnosed in Teaching Hospital

Jaffna between January 2018 and June 2021 were analyzed.

Ethical clearance was obtained from the Ethical Review Committee, THJ, Sri Lanka. All the identified histopathology reports and record books were traced down to collect the necessary details from the Department of Pathology of THJ. Information related to the histological type of cancer, clinical staging and grading will be obtained from Histopathological report. Demographic data of patients retrieved from patient information system and relevant patient related records.

Collected data was analyzed, processed and saved with the help of statistical package for social studies (SPSSV23)

Results:

A Total of 162 patients were included in this study, out of which 149 were males and remaining were females. Mean age of the study population was 69.23 years.

During our study period the most commonly identified urological malignancy was prostate carcinoma (62.3%, n=101) and least commonly identified urological malignancy was penile cancer (3.7%, n=6). Figure 1 shows the percentage of patients encountered in each type of urological malignancy.

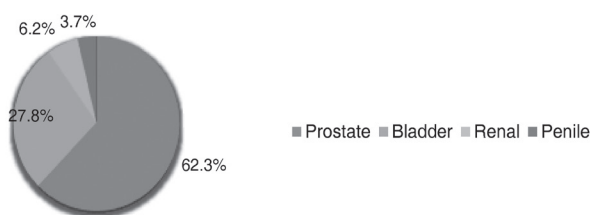


Figure 1 - Percentage of patients encountered in each type of urological malignancy

Pattern of urological malignancies according to age categories is shown in Figure 2. Most of the patients who had a urological malignancy were between ages 71 - 80 years. Mean age of Prostate cancer was 71.6 years. Mean age of bladder cancer, renal cancer and penile cancer were 68.6 years, 53.9 years and 62.2 years respectively.

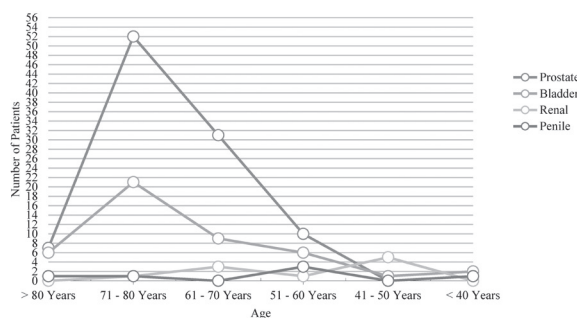


Figure 2 - Pattern of urological malignancies according to age categories

Prostate cancer and penile cancer were confined to males while male to female ratio of bladder cancer and renal cancer were 5:1 and 2:3 respectively.

A Total of 101 (62.3%) had prostate cancer and 98% had adenocarcinoma while 2% had ductal carcinoma. 84.2% had stages equal or more than T2 and 41.6% had Gleason score of 8 or more. 62.4% had prostate cancer ISUP grade 3 or more. nearly 59.4% of the patients presented with metastatic prostatic carcinoma and 40.6% patients had localized prostate cancer. Histological pattern of prostate cancer is shown in Table 1.

Table 1 - Histological pattern of prostate cancer

Prostate Cancer		
	No of patients	Percentage (%)
Type		
Adenocarcinoma	99	98.0
Ductal carcinoma	2	2.0
ISUP Grade		
1	21	20.8
2	17	16.8
3	17	16.8
4	25	24.8
5	21	20.8
Gleason score		
≤ 6	28	27.8
7	31	30.7
8	23	22.8
≥ 9	19	18.8
Stage		
T1	16	15.9
T2	25	24.8
T3	18	17.8
T4	42	41.6
Metastasis		
Metastatic	60	59.4
Localized	41	40.6

Bladder malignancy was seen in 27.8% of which 97.7% were primary urothelial malignancies and 2.3% were mucinous adenocarcinoma. Nearly 80% was organ confined disease while 20% had metastatic bladder cancer. high grade bladder cancer was seen in 57.8% and 35.5% were muscle invasive. Nearly 77.7% diagnosed bladder cancers had stage equal or less than T2. Histological pattern of bladder cancer is shown in Table 2.

Table 2 - Histological pattern of bladder cancer

Bladder Cancer		
	No of patients	Percentage (%)
Type		
Urothelial carcinoma	44	97.7
Mucinous adenocarcinoma	1	2.3
Grade		
High	26	57.8
Low	18	42.
PUNLMP	1	0.2
Stage		
Ta	20	44.4
T1	9	20.0
T2	6	13.3
T3	1	2.2
T4	9	20.0
Metastasis		
Metastatic	9	20.0
Localized	36	80.0

A Total of 10 (6.2%) of the patients were diagnosed with renal carcinoma during this study period, of which 80% were clear cell renal cell carcinoma and 20% were papillary renal cell carcinoma. around 70% had localized renal cancer while 30% had metastatic renal cancer. 50% were high grade. 80% diagnosed cancers had stage equal or less than T2. Histological pattern of renal cancer is shown is Table 3.

Table 3 - Histological pattern of renal cancer

Renal Cancer		
	No of patients	Percentage (%)
Type		
Clear cell renal cell CA	8	80
Papillary renal cell CA	2	20
Grade		
Low	5	50
High	5	50
Stage		
T1	3	30
T2	5	50
T3	2	20
Metastasis		
Localized	7	70
Metastatic	3	30

Penile cancer was seen in 3.7% (n=6) of the patients. All of them had squamous cell carcinoma, 66.7% diagnosed cancers had stage equal or less than T2. Histological pattern of penile cancer is shown is Table 4.

Table 4 - Histological pattern of penile cancer

Penile Cancer		
	No of patients	Percentage (%)
Type		
Squamous cell carcinoma	6	100
Stage		
T1	1	16.7
T2	3	50.0
T3	2	33.3

Discussion:

Prostate carcinoma was the most common urological malignancy identified in this study. Most of the renal and penile carcinoma were diagnosed at early stages in contrast with bladder and prostate carcinoma. Most of the bladder cancer and renal cancer were confined to the organ while majority of the prostate cancer were metastatic in nature. The trend of urological malignancies treated in Teaching Hospital Jaffna, Sri Lanka was similar to the cancer audit of an

urology unit from a Teaching Hospital in Sri Lanka done in 2019. [7]

Majority of men with localized prostate cancer were asymptomatic. There is no active screening programme in Sri Lanka for prostate cancer. Thus detecting prostate cancer at early stages remains challenging.

Urothelial carcinoma constituted 97.7% of bladder malignancies. This is slightly higher compared to 89% of bladder malignancies being urothelial carcinoma in the study conducted in Colombo South Teaching Hospital, Sri Lanka [7]. Although this is higher than the western world it is much less compared with 74.1% in China [8]. Most of the renal cancers were diagnosed relatively at early stages similar to other studies done in Sri Lanka. [7] This may be due to wide spread availability of ultrasound scan. Similar to other studies conducted in Sri Lanka penile cancer was rare among urological malignancies in this study. [7]

This study emphasizes on the need of awareness and health education regarding urological malignancies among the general public. According to the National Cancer Registry of Sri Lanka prostate cancer and bladder cancer are the 5th and 9th common cancers among men in Sri Lanka. [8] Even though urological malignancies play a significant role in the cancer world, there are other non-urological malignancies such as breast, oropharyngeal, lung and colorectal malignancies are commonly encountered. Comparison between the patterns of urological malignancies with other malignancies treated in Sri Lanka need to be further studied to effectively plan out health education and screening of various malignancies in future.

Although the main limitation of this study is that it is confined to a single hospital in Sri Lanka, Teaching Hospital Jaffna is the one and only Teaching Hospital in Northern Province of Sri Lanka where patients from other districts in Northern Province also obtain treatment. So the results obtained from this study can be considered as a representation of Northern Province, Sri Lanka. However this may not be representative of the whole population of Sri Lanka.

References:

1. Sung, H., Ferlay, J., Siegel, R. L., et al. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, 71(3), 209–249. doi.org/10.3322/caac.21660
2. Saika, T., Miura, N., Fukumoto, T., et al. (2018). Role of robot-assisted radical prostatectomy in locally advanced prostate cancer. *International Journal of Urology*, 25(1), 30–35. doi.org/10.1111/IJU.13441
3. Torre, L. A., Bray, F., Siegel, R. L., et al. (2015). Global cancer statistics, 2012. *CA: A Cancer Journal for Clinicians*, 65(2), 87–108. doi.org/10.3322/CAAC.21262
4. Bray, F., Ferlay, J., Soerjomataram, I., et al. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 68(6), 394–424. doi.org/10.3322/CAAC.21492
5. Padala, S. A., Barsouk, A., Thandra, K. C., et al. (2020). Epidemiology of renal cell carcinoma. *World Journal of Oncology*, 11(3), 79–87. doi.org/10.14740/WJON1279
6. American Cancer Society. (2020). Home | American Cancer Society - Cancer Facts & Statistics. Web. [https://cancerstatisticscenter.cancer.org/#/!](https://cancerstatisticscenter.cancer.org/#/)
7. Ambegoda, A. L. A. M. C., Jayawardene, M. D., Kumara, M. G. S. R., et al. (2020a). Cancer audit of an urology unit from a teaching hospital in Sri Lanka–2019. *Sri Lanka Journal of Surgery*, 38(1), 01. doi.org/10.4038/sljs.v38i1.8671
8. Li Kaiven, Lin Tianxin, Xue Wei., et al. (2015). Current status and treatment of bladder cancer in China - analysis of Chinese bladder cancer consortium database. *Asian J Urol* 2015;1:63-66 doi.org/10.1016/j.ajur.2015.04.016
9. Cancer incidence and mortality data 2015. National cancer control programme. Web. <https://www.nccp.health.gov.lk>