



## South East Nigerian Bladder Cancer Epidemiology in an Area with Limited Resources

**Obi Anselm**

*Department of Urology, Alex Ekwueme Federal University, Abakaliki, Nigeria*

\*Corresponding author: Obi Anselm, Department of Urology, Alex Ekwueme Federal University, Abakaliki, Nigeria; E-mail: anselm.obi@gmail.com

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### Introduction

Bladder cancer is a urological tumour that causes significant morbidity and mortality, particularly when diagnosed late.

The difficulties of late presentation and the shifting histology pattern of the ailment in a low-resource region are highlighted in this study. The goals were to figure out how demographic factors affect histological patterns in our area and to learn more about some of the characteristics of histological patterns in our area.

Using data from patient case notes, a retrospective cohort study of all instances of bladder cancer seen at our clinic between 2011 and 2015 was conducted. The data was extracted and analyzed using descriptive statistics.

A total of 18 instances of histologically confirmed bladder cancer were examined, with a male to female ratio of 2:1 and 12 men (66.7%) and 6 females (33.3%). The patients ranged in age from 19 to 78 years old. Petty traders made up the majority of the population (44 percent). Squamous Cell Carcinoma (SCCAB) was verified in 12 instances (66.7%) and Transitional Cell Carcinoma (TCCAB) in 6 cases (33.3 percent). The majority of SCCAB cases (66.7 percent) were seen in patients under 30 years of age, whereas the majority of TCCAB cases were seen in patients over 50 years of age (91.7 percent). Total, painless haematuria with concomitant clots was the most common presenting complaint (77.8%), with an average time from onset to presentation at this facility of 2 months and 3 weeks for SCCAB and 17 months for TCCAB. In 44.4% of patients, the haemoglobin level at presentation was between 6 and 8 g/dl. Flat lumps were found on abdominal ultrasonography scans and cystoscopies in the majority of cases (61.1 percent). The majority of TCCAB cases (58.3%) and SCCAB cases (83.3%) were stage I, whereas 11.1 percent were metastatic and required chemotherapy. Within the first year of follow-up, there was one case of recurrence (stage II).

In comparison to SCCAB, TCCAB is gaining traction in the region. Early detection and diagnosis are critical for effective bladder cancer therapy, and early risk factor identification and intervention are essential for prevention.

### Description

The urological malignancy Cancer of the Bladder (CAB) affects the urothelium (transitional epithelial cells) that line the urinary bladder. It

has one of the highest rates of recurrence of any cancer. Each year, an estimated 336,000 new instances of urinary bladder cancer are diagnosed worldwide, with roughly 26,000 new cases in Africa alone. CAB is the fourth most common malignancy in men and the second most prevalent urological malignancy (6.1 percent), with the greatest global fatality rates in North Africa due to schistosoma infestations. Male to female ratio is 3:1 worldwide, with greatest occurrence among 60-70 year olds. In Africa, men are far more likely than women to develop bladder cancer.

Transitional Cell Cancer (urothelial cancer) (TCCAB) is the most common histological type seen globally (90%) due to its strong association with environmental chemical carcinogens such as tobacco and occupational exposure to polycyclic aromatic hydrocarbons, with Squamous Cell Cancer of the Bladder (SCCAB) accounting for about 6%. Due to lower levels of exposure to carcinogenic chemicals and the effect of chronic schistosoma infestation in squamous metaplasia of the normal transitional epithelium in schistosoma endemic African and Middle Eastern regions (as high as 80-90 percent in some areas), SCCAB still appears to be the more prevalent pattern (as high as 80-90 percent in some areas), with the incidence highest in Egypt. Bladder cancer is the most frequent cancer among Egyptians (30.3 percent).

SCCAB was shown to be the most common histological type in north east, north west, and north central Nigeria, according to studies conducted by Eni U, et al. in Maiduguri, north east Nigeria, Ochicha O, in Kano, and Mungadi I, in Jos. Mbonu and Eni's research also found a robust relationship between high schistosoma infestation and SCCAB, which is consistent with findings from other African regions.

Adult Schistosoma hematobium infects the venous plexus of the urinary bladder and releases eggs, causing a persistent granulomatous inflammation in the mucosa and submucosa of the bladder. Squamous metaplasia of the typical transitional epithelium arises as a result of this. Bladder fibrosis is caused by chronic granulomatous inflammation, which lowers bladder compliance, resulting in urine stasis and bacteria super infection. Chronic cystitis develops as a result, which is a risk factor for SCCAB. In addition, microorganisms convert dietary nitrates and nitrites into carcinogenic nitrosamines. These carcinogens also have an effect on the metaplastic epithelium, leading in SCCAB. This is more common among paraplegics and people who have persistent urinary tract infections. Other pathways include schistosoma ova producing beta-glucuronidase, which can deconjugate and activate carcinogenic compounds in urine, as well as genetic harm.

Patients with SCCAB are substantially younger (under 50 years) than that with TCCAB in such endemic regions since the peak prevalence and intensity of early vesical schistosomiasis infection occurs between the ages of 10-20 and diminishes by 65 years. According to studies, the average age at diagnosis was 44-48 years, with the majority of the cases being fishermen and farmers living near rivers, and 50 percent of the cases tested positive for schistosoma eggs. SCCAB accounts for up to 53-65.1 percent of SCCAB involvement in various Nigerian regions, according to local studies.

Adenocarcinoma (often linked with metastases, bladder exstrophy, and chronic urachus), sarcoma (including rhabdomyosarcoma), small cell carcinoma, mixed carcinoma, and lymphoma are some of the more uncommon histological characteristics of bladder cancer.

The most prevalent presenting complaints in studies in West Africa were painless, complete hematuria in 80-90 percent of patients, storage Lower Urinary Tract Symptoms (LUTS), and metastasis characteristics.

Tobacco smoking has been linked to TCCAB as a risk factor, and quitting smoking has been demonstrated to lessen the risk of TCCAB (2-naphthylamine, a carcinogen found in cigarette smoke has been shown to increase risk of bladder cancer). There is no evidence that passive smoking causes bladder cancer. Hairdressers who use permanent hair dyes, shoe/leather workers, mechanics, bus drivers, and phenacetin users are all at danger.

Chronic vesical schistosomiasis, recurring bladder stones, bladder diverticulum, extended urethral catheterization, past radiation, usage of cyclophosphamide, incorrect chronic fertiliser exposure, and chronic cystitis are all known risk factors for SCCAB.

## **Conclusion**

The primary goal of this study was to determine the association between demographics and bladder cancer histological patterns, as

well as to identify some of the histopathological patterns characteristics in this region.

Between 2011 and 2015, the Alex Ekweme Federal Teaching Hospital, Abakaliki, a tertiary referral centre for the country's south eastern and southern regions, conducted a 5 years retrospective cohort study of all cases of histologically proven bladder cancer encountered at the hospital. The study used data from case notes and records from surgical outpatient and trauma departments of patients who had arrived with bladder cancer and were later histologically proven to have it. We gathered demographic information such as age, gender, occupation, and residence city. The major presenting complaint, as well as several linked symptoms and risk factors discovered during the clinical evaluation, were identified. The findings of diagnostic tests such as cystoscopy, abdominal ultrasonography, and histology, as well as subsequent treatment with or without recurrence or progression, were recorded. Open Epi info version 3.01 was used to evaluate the data. The data was represented using frequency tables, percentages, pie charts, and line diagrams. P-Values less than 0.05 were considered statistically significant.