

## FREQUENCY OF UROLOGICAL CARCINOMA IN PATIENTS PRESENTING WITH GROSS HAEMATURIA

HAMID H<sup>1</sup>, GHANI A<sup>2</sup>, FAROOQ K<sup>3</sup>, ULLAH R<sup>2</sup>, BEGUM F<sup>4</sup>, KHAN IA<sup>1</sup>

<sup>1</sup>Department of Urology, Bannu Medical College, Bannu, Pakistan

<sup>2</sup>Department of surgery Bannu medical College, Bannu, Pakistan

<sup>3</sup>Department of Urology Lady Reading Hospital Peshawar, Pakistan

<sup>4</sup>Department of Radiology Pakistan International Medical College Peshawar, Pakistan

\*Corresponding author's email address: [drkhalid846@gmail.com](mailto:drkhalid846@gmail.com)

(Received, 18<sup>th</sup> June 2023, Revised 16<sup>th</sup> October 2023, Published 17<sup>th</sup> October 2023)

**Abstract** Numerous studies showed that people with gross haematuria had a greater chance of acquiring urological carcinomas and those with gross haematuria had a high incidence of malignant cells. The current study was carried out to determine the frequency of urological carcinoma amongst patients presenting with gross haematuria. The current study was cross-sectional, done at the Urology Department Khalifa Gul Nawaz Teaching Hospital for six months from January 2023 to June 2023. In the current study, 170 patients were enrolled. Age, gender, place of residence, and socioeconomic level were all noted for patients. All the collected data was analyzed by using 23 version of SPSS. A total of 170 patients were enrolled in the current study. The male participants were 128 (75.29%) and female patients were 42 (24.71%). Most of the patients 82 (48.23%), were 40-50 years old. The frequency of urological carcinomas was observed in 29 (17.06%). According to the findings of our investigation, urological carcinoma is a common problem. The most prevalent causes of gross haematuria were urinary tract infections and trauma. Since urothelial tumors may be efficiently handled with a better long-term result if found early, general practitioners should order an ultrasound scan for individuals presenting with gross haematuria.

**Keywords:** Frequency; urological carcinoma; gross haematuria, urology

### Introduction

Hematuria, which is particularly obvious when the patient has significant quantities of urine, is one of the most prevalent urinary abnormalities that motivate patients to seek medical attention. According to the findings of several medical investigations, the frequency of asymptomatic microhematuria (AMH) ranges from 5-20%. Initial examinations that involve blood and urine tests are often used to assess whether or not individuals with AMH have medical renal disorders such as nephropathy and nephritis (Britton et al., 1992; Hiatt and Ordonez, 1994; Messing et al., 1992). Patients are assessed for malignant tumors of the kidney and urinary system if there is no indication of renal parenchymal disease (Davis et al., 2012). While imaging methods like ultrasonography and computed tomography (CT) urography are very successful in detecting large bladder urothelial carcinoma (UC), they are only moderately good in detecting small bladder UC, making cystoscopy the current gold standard for LT-UC diagnosis. In this situation, the excretory phase is unnecessary, although computed tomography with and without amplification in the nephrographic phase might be the most efficient

method for detecting RCC (Cowan, 2012). The most sensitive method for finding upper urinary tract UC (UT- UC) is computed tomography urography, which involves an excretory phase. However, this method has the highest radiation dosage and takes the longest to perform. Ultrasonography has the advantage of being noninvasive and affordable, even if it is less sensitive than CT urography in diagnosing RCC and UC as well as urinary stones (Tan et al., 2018). The American Urological Association's best-practice guidelines recommend cystourethroscopy for individuals with microscopic hematuria who are older than 35. The American Urological Association's recommended standard of care for individuals over the age of 35 who have risk factors is cystourethroscopy (Davis et al., 2012). Some people have argued for stringent standards for identifying a subset of people with microscopic hematuria and need to be examined by a urologist (Cohen and Brown, 2003). It is concerning that many people with hematuria are not sent to urologists for evaluation in a sufficient manner. Researchers polled 788 primary care doctors and found that only 36% stated they sent patients with microscopic hematuria

to urologists (Nieder et al., 2010). According to the research, referral rates for those with gross hematuria were only 69% to 77 %. Researchers looked at information from a health plan database. They found that only 47% of males and 28% of females recently identified with hematuria had their problem checked out by a urologist (Johnson et al., 2008). It has been shown that various factors may affect a patient's chance of developing bladder cancer. While a few investigations have undertaken so (Lotan et al., 2009; Summerton et al., 2002), few have looked at the combined influence of these factors. This study was conducted to ascertain the prevalence of urological cancer in patients presenting with gross haematuria since there was no previous research in our setting.

**Materials and methods**

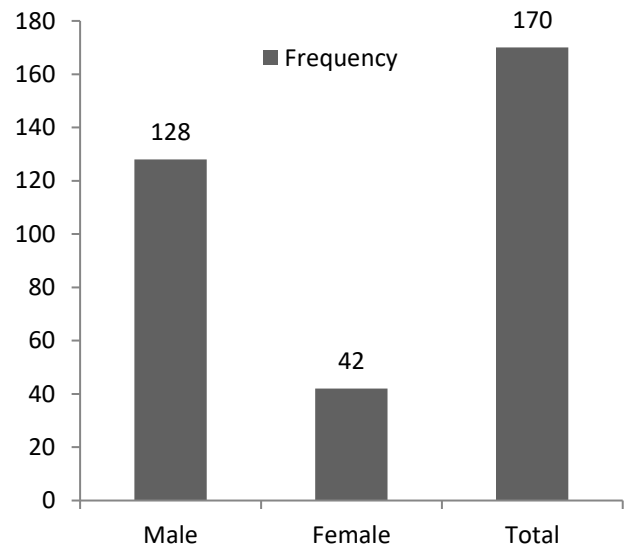
The current study was cross-sectional, done at the Urology department Khalifa Gul Nawaz Teaching Hospital for six months from January 2023 to June 2023. 170 patients were enrolled in our study based on WHO calculator sample size calculator. The inclusion criteria for our study were all the patients of both genders aged 18-60 years presenting with gross haematuria. Patients already receiving treatment for urological malignancies and those with microscopic haematuria were not selected in our study.

Age, gender, place of residence, and socioeconomic level were all noted for patients. Urine cytology, a microscopic examination, and routine urine testing were done after obtaining informed permission to confirm instances of gross haematuria and rule out the presence of malignant cells. When necessary, patients were monitored with ultrasound, X-ray KUB, CTU scan, and cystoscopy. Various factors were considered potential causes of gross haematuria, including trauma, UTI, urolithiasis, prostatic hyperplasia, and strenuous activity. Urological cancer frequency was noted. Patients' histories of haematuria episodes were looked at SPSS 23 was used to analyze all the data.

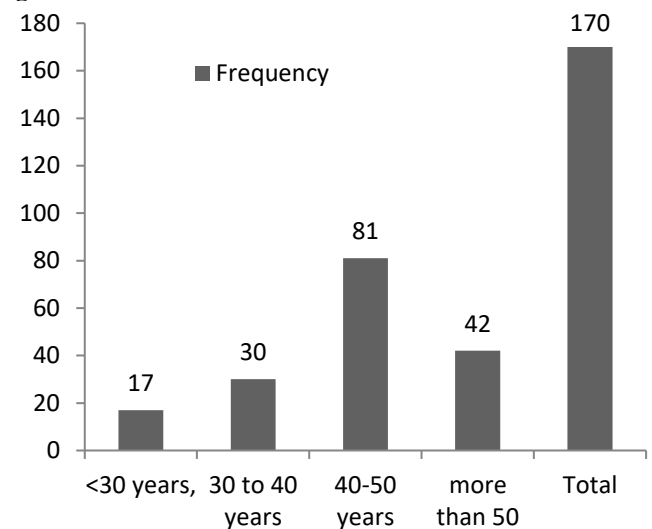
**Results**

A total of 170 patients were enrolled in the current study. The male participants were 128 (75.29%), and female patients were 42 (24.71%). (Figure 1) On the basis of age distribution, 17(10%) patients were aged <30 years, 30(17.64%) patients were from 30 to 40 years, 81(47.64%) were aged 40-50 years while the age of 42(24.70%) patients was more than 50 years. (Figure 2) Based on the causes of gross haematuria we observed that in majority of cases, urinary tract infection (UTI) was the cause observed in 53 (31.17%) patients, trauma in 40 (23.52%), urolithiasis in 32 (18.82%), prostatic hyperplasia in 29(17.05%), drugs in 8 (4.70%) and heavy activities in 8 (4.70%) patients (Table 1). The frequency of

urological carcinomas was observed in 29 (17.06%). (Figure 3)



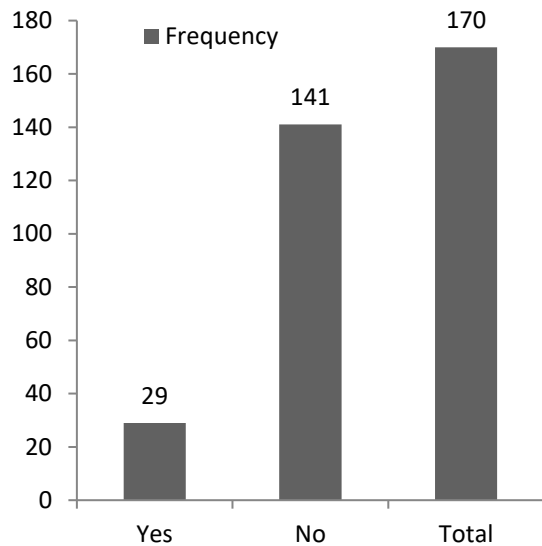
**Figure 1: Distribution of patients on the basis of gender**



**Figure 2: Distribution of patients on the basis of age**

**Table 1: Distribution of patients on the Cause of Gross haematuria**

Cause of Gross haematuria	Frequency (%)
urinary tract infection	53 (31.17%)
trauma	40 (23.52%)
urolithiasis	32 (18.82%)
prostatic hyperplasia	29(17.05%)
drugs	8 (4.70%)
heavy activities	8 (4.70%)
<b>Total</b>	<b>170</b>



**Figure 3: Frequency of urological carcinoma in patients presenting with gross haematuria**

#### Discussion

Gross haematuria is one of the most prevalent urological conditions with a significant risk of morbidity and death (Buteau et al., 2014). Numerous investigations have shown that individuals with gross haematuria are at an increased risk of getting urological carcinomas and have a higher incidence of malignant cells (Halpern et al., 2017). The current investigation aimed to determine the prevalence of urological carcinomas among patients with gross haematuria and the underlying causes of this condition. A total of 170 patients were enrolled in the current study. The male participants were 128 (75.29%), and female patients were 42 (24.71%). These findings were consistent with many other investigations (Subak and Grady, 2017; Tan et al., 2019), in which the proportion of male patients ranged from 70 to 85%, with a mean age of 45 to 65 years. In present study based on the causes of gross haematuria we observed that in the majority of cases, urinary tract infection (UTI) was the cause observed in 53 (31.17%) patients, trauma in 40 (23.52%), urolithiasis in 32 (18.82%), prostatic hyperplasia in 29 (17.05%), drugs in 8 (4.70%) and heavy activities in 8 (4.70%) patients.

According to Awan et al., abdominal injuries from accidents and pelvic fractures were the most prevalent types of trauma, which was the leading cause of gross haematuria (Awan et al., 2018). Another investigation on the prevalence of gross haematuria in males with prostate cancer was carried out by Gofrit et al. According to their findings, bladder cancer was the leading cause of gross haematuria, followed by urinary tract infections (38.5%), and radical prostatectomy (23%) (Gofrit et al., 2013). The frequency of urological carcinomas was observed in 29 (17.06%) in our study. These

findings were consistent with other research where gross haematuria was directly related to urological malignancies in 12% to 32% of cases (Hertz et al., 2019; Nieder et al., 2010).

#### Conclusion

According to the findings of our investigation, urological carcinoma is a common problem. The most prevalent causes of gross haematuria were urinary tract infections and trauma. Since urothelial tumors may be efficiently handled with a better long-term result if found early, general practitioners should order an ultrasound scan for individuals presenting with gross haematuria.

#### References

- Awan, S. U. D., Bhatti, A. N., Fakhr, A., Awan, A. N., and Fiyyaz, H. (2018). FREQUENCY OF UROLOGICAL CARCINOMAS PRESENTING AS GROSS HAEMATURIA IN PUNJAB PAKISTAN AND RECOMMENDATION FOR ITS EARLY DIAGNOSIS. *Pakistan Armed Forces Medical Journal* **68**.
- Britton, J. P., Dowell, A. C., Whelan, P., and Harris, C. M. (1992). A community study of bladder cancer screening by the detection of occult urinary bleeding. *The Journal of urology* **148**, 788-790.
- Buteau, A., Seideman, C. A., Svatek, R. S., Youssef, R. F., Chakrabarti, G., Reed, G., Bhat, D., and Lotan, Y. (2014). What is evaluation of hematuria by primary care physicians? Use of electronic medical records to assess practice patterns with intermediate follow-up. In "Urologic Oncology: Seminars and Original Investigations", Vol. 32, pp. 128-134. Elsevier.
- Cohen, R. A., and Brown, R. S. (2003). Microscopic hematuria. *New England Journal of Medicine* **348**, 2330-2338.
- Cowan, N. C. (2012). CT urography for hematuria. *Nature Reviews Urology* **9**, 218-226.
- Davis, R., Jones, J. S., Barocas, D. A., Castle, E. P., Lang, E. K., Leveillee, R. J., Messing, E. M., Miller, S. D., Peterson, A. C., and Turk, T. M. (2012). Diagnosis, evaluation and follow-up of asymptomatic microhematuria (AMH) in adults: AUA guideline. *The Journal of urology* **188**, 2473-2481.
- Gofrit, O. N., Katz, R., Shapiro, A., Yutkin, V., Pizov, G., Zorn, K. C., Duvdevani, M., Landau, E. H., and Pode, D. (2013). Gross hematuria in patients with prostate cancer: etiology and management. *International Scholarly Research Notices* **2013**.
- Halpern, J. A., Chughtai, B., and Ghomrawi, H. (2017). Cost-effectiveness of common diagnostic approaches for evaluation of asymptomatic microscopic hematuria. *JAMA internal medicine* **177**, 800-807.

- Hertz, A. M., Janssen, K. M., George, E. I., and Brand, T. C. (2019). Time to Resolution of Microscopic Hematuria after Robotic Radical Prostatectomy. *Urology Practice* **6**, 322-326.
- Hiatt, R. A., and Ordonez, J. D. (1994). Dipstick urinalysis screening, asymptomatic microhematuria, and subsequent urological cancers in a population-based sample. *Cancer epidemiology, biomarkers & prevention: a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology* **3**, 439-443.
- Johnson, E. K., Daignault, S., Zhang, Y., and Lee, C. T. (2008). Patterns of hematuria referral to urologists: does a gender disparity exist? *Urology* **72**, 498-502.
- Lotan, Y., Capitanio, U., Shariat, S. F., Hutterer, G. C., and Karakiewicz, P. I. (2009). Impact of clinical factors, including a point-of-care nuclear matrix protein-22 assay and cytology, on bladder cancer detection. *BJU international* **103**, 1368-1374.
- Messing, E. M., Young, T. B., Hunt, V. B., Roecker, E. B., Vaillancourt, A. M., Hisgen, W. J., Greenberg, E. B., Kuglitsch, M. E., and Wegenke, J. D. (1992). Home screening for hematuria: results of a multi-clinic study. *The Journal of urology* **148**, 289-292.
- Nieder, A. M., Lotan, Y., Nuss, G. R., Langston, J. P., Vyas, S., Manoharan, M., and Soloway, M. S. (2010). Are patients with hematuria appropriately referred to Urology? A multi-institutional questionnaire based survey. In "Urologic Oncology: Seminars and Original Investigations", Vol. 28, pp. 500-503. Elsevier.
- Subak, L. L., and Grady, D. (2017). Asymptomatic microscopic hematuria—rethinking the diagnostic algorithm. *JAMA Internal Medicine* **177**, 808-809.
- Summerton, N., Mann, S., Rigby, A. S., Ashley, J., Palmer, S., and Hetherington, J. W. (2002). Patients with new onset haematuria: assessing the discriminant value of clinical information in relation to urological malignancies. *British journal of general practice* **52**, 284-289.
- Tan, W. S., Ahmad, A., Feber, A., Mostafid, H., Cresswell, J., Fankhauser, C. D., Waisbrod, S., Hermanns, T., Sasieni, P., and Kelly, J. (2019). Development and validation of a haematuria cancer risk score to identify patients at risk of harbouring cancer. *Journal of internal medicine* **285**, 436-445.
- Tan, W. S., Sarpong, R., Khetrpal, P., Rodney, S., Mostafid, H., Cresswell, J., Hicks, J., Rane, A., Henderson, A., and Watson, D. (2018). Can renal and bladder ultrasound replace computerized tomography urogram in patients

investigated for microscopic hematuria? *The Journal of urology* **200**, 973-980.

#### Declarations

#### Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

#### Ethics approval and consent to participate

Not applicable

#### Consent for publication

Not applicable

#### Funding

Not applicable

#### Conflict of Interest

Regarding conflicts of interest, the authors state that their research was carried out independently without any affiliations or financial ties that could raise concerns about biases.



**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. © The Author(s) 2023