

Examine the Frequency of Urological Carcinomas in Patients Presented With Gross Haematuria

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ABSTRACT

Aim: To examine the prevalence of urological carcinomas and causes of gross haematuria.

Study Design: Prospective study

Place and Duration of Study: Department of Urology, Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur from 1st January 2019 to 30th June 2020.

Methodology: Two hundred and thirty five patients of both genders with ages above 10 years presented with blood in urine were enrolled in this study. Patients detailed demographic including age, sex, residence and socio-economic status were recorded. Urine routine examination and urine cytology and microscopy were done to examine haematuria for excluding malignant cells. Patients were followed by ultrasound, X-ray kidney, ureter and bladder (KUB), computerized tomography (CT) scan and cystoscopy when requires. Causes of gross haematuria and frequency of urological carcinomas were recorded.

Results: There were 190 (80.85%) were males while 45 (19.15%) were females. Majority of patients 110 (46.81%) were ages 40 to 50 years. Urinary tract infection was the most frequent cause found in 58 (24.68%) patients followed by trauma and urolithiasis in 51 (21.7%) and 40 (17.02%) patients. Urological carcinomas were found in 38 (16.17%) patients.

Conclusion: Frequency of urological carcinomas was high. Urinary tract infection and trauma were the most frequent causes of gross haematuria.

Keywords: Gross haematuria, Urological carcinoma, Urinary tract infection, Trauma, Urolithiasis

INTRODUCTION

Hematuria often occurs in outpatient adults^{1,2}. Despite the lack of guidelines for the treatment of hematuria^{3,4}, million patients are treated by urine dipsticks and microscopy as part of routine primary care.^{5,6} The frequency of urinalysis for a prime purpose of cancer screening is uncertain. Reference series emphasises the potential for positive test results for occult cancer and current recommendations on hematuria stress the need for structured urological research related to this risk with bladder endoscopy (cystoscopy), pictures and probably other diagnostic tests and procedures. The extent of the cancer risk varies greatly, however, and the consistency of evidence that informs practise causes uncertainty⁷⁻⁹.

Hematuria often has a dramatic appearance in the urine as blood that is grossly noticeable. The classic presentation of urinary stone disease is symptomatic gross hematuria, with associated flank pain or renal colic, while unpatient gross hematuria has a greater correlation with cancer. Any episode of gross hematuria in an adult needs immediate urological examinations, considering the reasonably high likelihood for cancer tests or other clinically relevant underlying conditions (>10 percent in some referral series of >7, and >25 percent)^{8,10}.

Several causes are known in development of gross haematuria, in which trauma, urinary tract infection, urolithiasis and prostatic hyperplasia are the most frequent¹¹. The incidence rate of urological tumours in

patients with gross haematuria is very high due to incorrect assessment of gross haematuria by general practitioner¹². The present study was conducted aimed to examine the prevalence of urological carcinomas in patients with gross haematuria also determine the causes of gross haematuria.

MATERIALS AND METHODS

This prospective study was conducted at Department of Urology, Ghulam Muhammad Mahar Medical College Teaching Hospital, Sukkur from 1st January 2019 to 30th June 2020. A total 235 patients of both genders with ages above 10 years presented with blood in urine (gross haematuria) were enrolled in this study. Patients detailed demographic including age, gender, residence and socio-economic status were recorded. Patients with microscopic haematuria and those already on intervention of urological malignancies were excluded. After taking informed consent urine routine examination, urine cytology and microscopic examination were performed to confirm the cases of gross haematuria and to exclude the malignant cells. Patients were followed by ultrasound, X-ray KUB, CTU scan and cytoscopy when requires. Causes of gross haematuria such as trauma, urinary tract infection, urolithiasis, prostatic hyperplasia and heavy activities were examined. Frequency of urological carcinomas was recorded. Patients were investigated of previous episodes of haematuria. All the data was analyzed by SPSS 24.

RESULTS

There were 190(80.85%) were males while 45(19.15%) were females. 20(8.51%) patients were ages <30 years.

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47(20%) patients had ages 30-40 years, 110(46.81%) were ages 40-50 years, 58(24.68%) patients were ages above 50 years. Majority of patients 148(62.98%) patients had rural residency while 87(37.02%) had urban residency. 132(56.17%) patients had low socio-economic status, 103(43.83%) patients had middle socio-economic status (Table 1).

According to the causes of gross haematuria we found that urinary tract infection (UTI) was the most frequent cause found in 58 (24.68%) patients followed by trauma, urolithiasis, prostatic hyperplasia, drugs and heavy activities in 51 (21.70%), 40 (17.02%), 30 (12.77%), 13 (5.53%) and 5 (2.13%) patients respectively (Fig. 1)

Urological carcinomas were found in 38(16.17%) patients. In which 10 (26.32%) patients had first episode of GH and 30(73.68%) patients had two or more episodes (Table 2).

Fig. 1: Frequency of various causes of gross haematuria
Table 1: Descriptive statistics of all the patients

Variable	No.	%
Gender		
Male	190	80.85
Female	45	19.15
Age (years)		
<30	20	8.51
30 - 40	47	20.0
41 – 50	110	46.81
>50	58	24.68
Socioeconomic status		
Low	132	56.17
Middle	103	43.83
Residence		
Urban	87	37.02
Rural	148	62.98

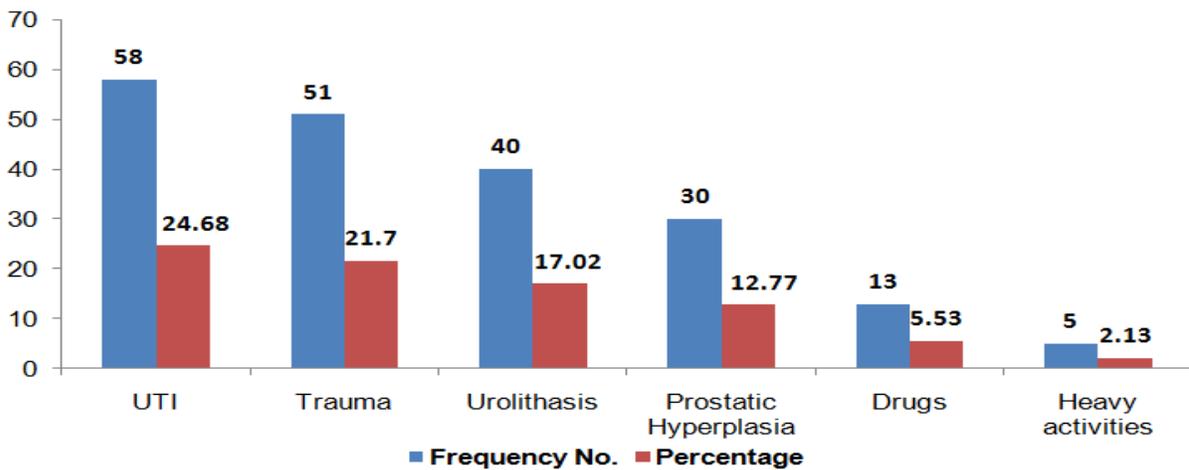


Table 2: Frequency of urological carcinomas in gross haematuria patients

Urological carcinoma	No.	%
Yes	38	16.17
No	197	83.83

DISCUSSION

Gross haematuria is one of the most common urological disorders associated with high rate of morbidity and mortality.¹³ Many of studies demonstrated that patients with gross haematuria were on high risk in developing urological carcinomas and the incidence rate of malignant cells in gross haematuria patients is quite high¹⁴. The present study was conducted to examine the prevalence of urological carcinomas in patients with gross haematuria and also examine the causes of gross haematuria. In this regard 235 patients with blood in urine were included. Majority of patients 80.85% were males while 19.15% were females with average age of 58.75 years. These results were comparable to many of previous studies in which male patients population was high 70 to 85% and the average ages of patients were 45 to 65 years^{15,16}.

In our study majority of patients 56.17% had low socio-economic status and 43.83% patients had middle socio-economic status. 62.98% patients belong to rural

areas while 37.02% had urban residency. A study conducted by Awan et al¹⁷ reported that majority of patients 60% had rural residency with low income status presented with gross haematuria.

In present study we found that urinary tract infection (UTI) was the most frequent cause found in 58(24.68%) patients followed by trauma, urolithiasis, prostatic hyperplasia, drugs and heavy activities in 51(21.70%), 40(17.02%), 30(12.77%), 13 (5.53%) and 5(2.13%) patients respectively. Awan et al¹⁷ reported trauma was the most frequent cause of gross haematuria, in which abdominal injuries, due to accidents and pelvic fractures were most common. Another study conducted by Gofrit et al¹⁸ regarding frequency of gross haematuria in patients with prostate cancer. In their study they reported that bladder cancer was the most frequent cause of gross haematuria followed by urinary infection 38.5% and 23% in patients received radical prostatectomy.

In this study urological carcinomas was observed in 16.17% patients. 10(26.32%) patients had first episode of gross haematuria and 30(73.68%) patients had two or more episodes. These results were similar to some previous studies in which urological tumors were directly associated to gross haematuria 12% to 32%^{19,20}. We found that patients with rural residence and low income had high

frequency of urological carcinomas. These results were comparable to some other studies²¹⁻²².

CONCLUSION

Gross haematuria is the commonest urological problem and directly responsible for developing urological carcinomas. We concluded that frequency of urological carcinomas was high. Urinary tract infection and trauma were the most frequent causes of gross haematuria.

REFERENCES

- Moyer VA. US Preventive Services Task Force Screening for bladder cancer: US Preventive Services Task Force recommendation statement. *Ann Intern Med* 2011;155:246-51.
- Chacko KM, Feinberg LE. Laboratory screening at preventive health exams: trend of testing, 1978–2004. *Am J Prev Med* 2007;32:59-62.
- Loo RK, Lieberman SF, Slezak JM, Landa HM, Mariani AJ, Nicolaisen G, et al. Stratifying risk of urinary tract malignant tumors in patients with asymptomatic microscopic hematuria. *Mayo Clin Proc* 2013;88:129-38.
- Davis R, Jones JS, Barocas DA, Castle EP, Lang EK, Leveillee RJ, et al. American Urological Association Diagnosis, evaluation and follow-up of asymptomatic microhematuria (AMH) in adults: AUA guideline. *J Urol* 2012;188:2473-81.
- Siegel RL, Miller KD, Jemal A. Cancer statistics, 2016. *CA Cancer J Clin* 2016;66(1):7–30.
- Abouassaly R, Alibhai SM, Shah N, Timilshina N, Fleshner N, Finelli A. Troubling outcomes from population-level analysis of surgery for upper tract urothelial carcinoma. *Urology* 2010;76(4):895–901.
- Lughezzani G, Burger M, Margulis V, et al. Prognostic factors in upper urinary tract urothelial carcinomas: a comprehensive review of the current literature. *Eur Urol* 2012;62(1):100–14.
- Vasdev N, Kumar A, Veeratterapillay R, Thorpe AC. Hematuria secondary to benign prostatic hyperplasia: Retrospective analysis of 166 men identified in a single one stop hematuria clinic. *Curr Urol* 2013; 6(3): 146-9.
- Walker S, Hyde C, Hamilton W. Risk of uterine cancer in symptomatic women in primary care: case-control study using electronic records. *Br J Gen Pract* 2013;63(614):e643-8.
- Enyo AK. Lymphoma of the urinary bladder. *Adv Urol* 2014;2014:327917.
- Desai V, Isharwal S, Pooli A, Lele S, Feloney M. Chronic lymphocytic leukemia of the bladder: an atypical etiology of gross hematuria. *Ther Adv Urol* 2014;6(5):198-200.
- Friedlander DF, Resnick MJ, You C, Bassett J, Yarlagadda V, Penson DF. Variation in the intensity of hematuria evaluation: a target for primary care quality improvement. *Am J Med* 2014; 127(7):633–40.
- Buteau A, Seideman CA, Svatek RS, Youssef RF, Chakrabarti G, Reed G. What is evaluation of hematuria by primary care physicians? Use of electronic medical records to assess practice patterns with intermediate follow-up. *Urol Oncol* 2014; 32(2):128–34.
- Halpern JA, Chughtai B, Ghomrawi H. Cost-effectiveness of common diagnostic approaches for evaluation of asymptomatic microscopic hematuria. *JAMA* 2017; 177(6):800–7.
- Subak LL, Grady D. Asymptomatic microscopic hematuria-rethinking the diagnostic algorithm. *JAMA* 2017; 177(6):808–9.
- Tan WS, Ahmad A, Feber A, Mostafid H, Cresswell J, Fankhauser CD. Development and validation of a haematuria cancer risk score to identify patients at risk of harbouring cancer. *J Intern Med* 2019; 285(4):436–45.
- Awan SD, Bhatti AN, Fakhr A, Awan NA, Fiyaz H. Frequency of urological carcinomas presenting as gross haematuria in punjab pakistan and recommendation for its early diagnosis. *Pak Armed Forces Med J* 2018; 68 (2): 363-8.
- Gofrit ON, Katz R, Shapiro A, et al. Gross hematuria in patients with prostate cancer: etiology and management. *Surgery* 2013; 2013
- Hertz AM, Janssen KM, George EI, Brand TC. Time to resolution of microscopic hematuria after robotic radical prostatectomy. *Urol Prac* 2019; 6(5): 322–6.
- Nieder AM, Lotan Y, Nuss GR, Langston JP, Vyas S, Manoharan M, et al. Soloway are patients with hematuria appropriately referred to Urology? a multi-institutional questionnaire based survey. *Urol Oncol Seminars Original Investigations* 2010; 28(5): 500–503.
- Mbeutcha A, Rouprêt M, Kamat AM, et al. Prognostic factors and predictive tools for upper tract urothelial carcinoma: a systematic review. *World J Urol* 2017;35(3):337–53.
- Guo RQ, Hong P, Xiong GY, et al. Impact of ureteroscopy before radical nephroureterectomy for upper tract urothelial carcinomas on oncological outcomes: a meta-analysis. *BJU Int* 2018;121(2):184–193.