

# Gross Hematuria and Prostatic Cancer in Libyan Patients

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## ABSTRACT

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### Aim:

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Gross hematuria due to prostate cancer is an important clinical presentation and it is necessary to collect, analyze and determine certain criteria and data in the diagnosis and management of prostatic cancer. The aim of the present study is to find out the frequency of gross hematuria and to correlate it with gross hematuria and serum Prostatic Specific Antigen (PSA) in prostatic cancer patients.

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### Materials and methods:

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A retrospective study was done in patients diagnosed with prostatic cancer in Hawari center for urology in Benghazi Libya from 2011 up to 2017. 60 cases were taken for the present study and data such as age of the patient, first complaint such as gross hematuria, serum PSA histopathology result, the types of therapy received (medical or surgical) were analyzed.

### Results:

25 percent cases in the present study had gross hematuria and there was a positive correlation between gross hematuria, serum PSA levels and Gleason score.

### Conclusion:

The result of this study indicates that the presentation of hematuria is not uncommon in prostate cancer and there is a mandatory need for screening of PSA and digital rectal examination (DRE) for men aged from 50-70 years old for early diagnosis and management of prostate cancer.

**Keywords:** prostate cancer, hematuria., PSA, Gleason score.

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## Introduction:

Gross hematuria is one of the clinical findings in patients with prostatic cancer. Prostate cancer is one of the major health problems that affect men's health. Gross hematuria in patients with prostate cancer is, therefore, a finding that needs to be taken into consideration in the diagnosis and management of prostatic cancer patients along with other confounding factors like smoking history, symptoms of infection, stage of the cancer. The present study is undertaken to evaluate the presence and management of gross hematuria in Libyan prostatic cancer patients. (1-4)

## Materials and Methods:

A retrospective study was done in patients diagnosed with prostatic cancer in Hawari center for urology in Benghazi Libya from 2011 up to 2017. 60 cases were taken for the present study and data such as age of patient, first complaint such as gross hematuria, serum PSA result, histopathology result, the types of therapy received (medical or surgical) were analyzed.

## Results:

The total number of patients included in the present study was 60. Out of 60 patients with prostate cancer, the gross hematuria was noticed in 15 patients in this series which is approximately 25 % of the patients, while the high PSA level was documented in all the patients.

**Table 1. The average age group of prostate cancer patients.**

Age group	Number of patients	Percentage %
51-60 years	4	7 %
61-70years	23	39%
71-80 years	19	32 %
81-90 years	12	20%
91-100 years	2	2%
total	60	100%

Out of 60 patients 4 of them were between the age 51-60 years (about 7% of patients), 23 patients were between the age of 61-70 years (about 39% of patients). 19 patients were between the age of 71-80 years (about 32%), 12 patients were between the age of 81-90 (about 20%) 2 patients were more than 90 years old (about 2%)..

**Table 2 .Common symptoms observed in patients with prostate cancer**

Symptoms	Number of patients	Percentage %
Gross hematuria	15	25%
Urine retention	5	8%
Asymptomatic	25	42%
Other symptoms	15	25%
Total	60	100%

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The number of patients presented with gross hematuria are 15 (about 25%). 25 of patients (about 42%) were ~~are~~ asymptomatic, 15 patients (25%) presented with other symptoms like voiding discomfort, symptom of bone metastasis) and 5 patients ( 8%) had urine retention as complaints.

**Table.3.Gross hematuria associated with high PSA at presentation.**

	Number of patients	percentage
Gross hematuria	15	25%
High PSA	60	100%

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Out of 60 patients about 25% of patients had gross hematuria ~~and are associated~~ and with high PSA at time of first presentation of prostate cancer ~~and showed~~ showing a positive correlation with high-PSA using Spearman's rank of correlation ( $R_s = 0.116$ ),

**Table 4. Serum PSA Level in prostatic cancer patients**

PSA	Number of patients	Percentages %
Between 4-10 ng/ml	9	16%
Between 10-20 ng/ml	14	23%
Between 20-50 ng /ml	17	28%
More than 50 ng/ml	20	33%
Total	60	100%

The highest reading of PSA is 1787 ng/ml and the lowest reading is 6.6 ng/ml; The mean PSA level was 15 ng/ml (SD =4.06)

**Table 5. Histopathology result and Gleason score:**

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Gleason score	Number of patients	Percentage %
2-6	22	36%
7	8	14%
8-10	30	50%
Total	60	100%

22 of 63 patients had a Gleason score from of 2-6(36%), 8 of patients have Gleason score 7(14%), 30 of patient the Gleason score was between 8-10 (50%) the most common Gleason score in this study was (4+5) 9.

**Table 6. Relationship between serum PSA levels and Gleason score**

Serum PSA	Low Gleason score (2-6) No %	High Gleason score (7-10)No %	Total
4-10ng/mL	4 6.6 %	5 8.3 %	9 - (15%)
10-20ng/mL	6 10%	8 13.3 %	14-(23.3%)
20-50ng/mL	5 8.3%	12 20 %	17-(28.3%)
>50ng/mL	7 11.6%	13 21.6 %	20-(33.3%)
Total	22 36.6%	38 63.3 %	60-(100%)

High PSA level are associated with high Gleason score.

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**Table .7. Management used for prostate cancer**

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Type of management	Number of patients	Percentage
TUR-P	26	43%
Surgical castration	12	20%
Hormonal therapy	16	27%
Radical prostatectomy	2	3.3%
Radiotherapy	4	6.7%
Total	60	100%

TURP- trans urethral resection of the prostate

More than 63% of patients required surgical intervention. i.e. more than 43% of patients had TURP for management of hematuria, while 20% of patients underwent surgical castration, and more than 27% of patients received hormonal therapy, 6% of patients received radiotherapy and two cases underwent radical prostatectomy.

**Discussion:**

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**Prostate cancer is the second most common malignancy affecting men aged 50-70years.**

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**This tumor is highly aggressive when detected late and has poor prognosis. (1-3).**

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**Therefore, early screening of men with gross hematuria for prostatic cancer may help early**

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**detection and treatment. It was found that more than 25% of the patients diagnosed with**

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**prostate cancer had gross hematuria. The hematuria was due to prostate bleeding.(3)**

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**Cystoscopy, trans-rectal prostatic biopsy, transurethral resection of the prostate (TURP),**

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**and histopathological findings were carried out for the diagnosis in most of cases.(3)**

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Most of the patients had high PSA (>6.5 ng/ml) and therefore, PSA screening was included for

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early detection and monitoring management of prostate cancer. Various treatments for gross

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hematuria in prostate cancer patients were suggested which and included medical and surgical

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management such as hormonal manipulation, TUR-P, radiotherapy and radical prostatectomy.(4-

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In 64 % of the patients a significant correlation between histopathology findings (with high

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Gleason score) and serum PSA levels. (7-10) were observed. Gross hematuria was reported to be

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more frequent in elderly patients which affected their quality of life.(4-6).

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The mean age of patients in our study was 73 and in other studies 74.3. In our study more than 63% of patient required surgical intervention for management of hematuria as compared to the other study reported by Ofer etal (2013).(3)

In our study, all patients who had bone metastasis had a PSA value of > 20 ng/mL, and in only 1 patient (0.46%) with bone metastasis PSA concentration was around 50ng/mL. There was no statistically significant correlation between PSA level and tumor grading by Gleason score and between Gleason score and bone metastasis. (6-8)

There was a significant correlation between serum- PSA levels and the Gleason score. The finding of high PSA levels in Libyan prostate cancer patients in our study and other studies supports the recommendation that serum PSA level should be checked in every patient above 50 years old for early detection and management prostate cancer.

**Conclusion:**

107 Complete investigation of any patient admitted with gross painless hematuria must be  
108 indicated to rule out prostate cancer.

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110 There is mandatory need for screening of PSA and DRE for men aged from 50-70 years  
111 old for early diagnosis and management of prostate cancer.

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113 Prostate cancer is sometimes symptomatic disease and gross hematuria is not uncommon  
114 presentation and prostate cancer should be suspected.

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116 The most common diagnostic modality for prostate cancer is currently trans-rectal  
117 ultrasound with guided biopsy.

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119 Medical treatment can be effective in some cases.

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121 Diagnosis of gross hematuria can be accomplished in most cases by cystoscopy. The  
122 management of these patients was difficult. Transurethral surgical intervention is often  
123 needed. Surgery is very effective in alleviating gross hematuria.

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## References:

1. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2018. *CA Cancer J Clin.* 2018 Jan;68(1):7-30. doi: 10.3322/caac.21442. Epub 2018 Jan 4.
2. D'Amico M, Albala, John Reynard, Simon Brewster, Suzanne Biers. Prostatic cancer epidemiology, etiology, prostate specific antigen and prostate cancer screening. Oxford American handbook of urology.2011;6:188-208.
3. Ofek N Gofrit, Ran Katz, Amos Shapiro, Vladimir Yutkin, Galina Pizov, Kevin C. Zorn et al. Gross hematuria in patients with prostate cancer: etiology and management. *International Scholarly Research Notices.*2013;Article ID 685327, 4 pages.
4. Bhalerao ML, Bergstralh EJ, Iocca A, Scherer B, Zincke H. Use of Gleason score, prostate specific antigen, seminal vesicle and margin status to predict biochemical failure after radical prostatectomy. *J Urol.*2001;165:119-25.
5. Karthikeyan Nilatha Pai, Gauri Salgaonkar, Ranjini Kudva and Padmaraj Hegde. Diagnostic correlation between Serum PSA, Gleason Score and bone scan results in prostatic cancer patients with bone metastasis. *BRITISH BIOMEDICAL BULLETIN.*2015; ISSN-2347-5447.
6. Wolf AM, Wender RC, Etzioni RB, Thompson IM, D'Amico AV, Volk RJ. American Cancer Society guideline for the early detection of prostate cancer: update 2010. *CA Cancer J Clin.* 2010; 60:70-88.
7. Barrack R, Barrass, R. Thurairaja, J. McFarlane, and R. A. Persad. Haematuria in prostate cancer: new solutions for an old problem. *BJU International.*2006;97(5)900-902.
8. Alan J. Wein, Louis R. Kavoussi, Alan W. Partin, Craig A. PETERS. Prostate cancer tumor markers, Prostate Biopsy, Pathology of Prostatic neoplasia, diagnosis and staging of Prostate Cancer. *Campbell-Walsh Urology eleventh edition.*2016;3:2543-2608.