

Hematuria- Urological Disorder- A Review

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Abstract:

Hematuria is common Urological disorder. Microhematuria is often a symptomatic and has a prevalence of 4–5% in routine clinical practice. The basic diagnostic evaluation consists of a thorough history and physical examination, measurement of inflammatory parameters and renal function tests, and ultrasonography of the kidneys and bladder.

Key Words: Hematuria, Micro hematuria, macrohematuria

Introduction:

Hematuria is define as presence of abnormal quantity of red blood cell (RBCs) in urine.⁽¹⁾ Clinically, it divided as gross or microscopic hematuria⁽¹⁾ and macrohematuria⁽²⁾.

The hematuria may be visible from a concentration as low as 1 mL blood per liter of urine⁽²⁾.

Microhematuria:

Microhematuria, also called microscopic hematuria is a medical condition in which urine contains small amounts of blood; the blood quantity is too low to change the color of the urine (otherwise, it is known as gross hematuria)⁽³⁾.

In microhematuria, there is a microscopic increase in red blood cell content above the physiological threshold. The threshold is given as either ≥ 3 or >3 red blood cells per high-power field in microscopic assessment of the urinary sediment in two out of three correctly collected urine samples⁽²⁾.

Asymptomatic microscopic hematuria (AMH) is a relatively common incidental finding in apparently healthy individuals, with reported rates of 9–18% in large screening studies⁽⁴⁾.

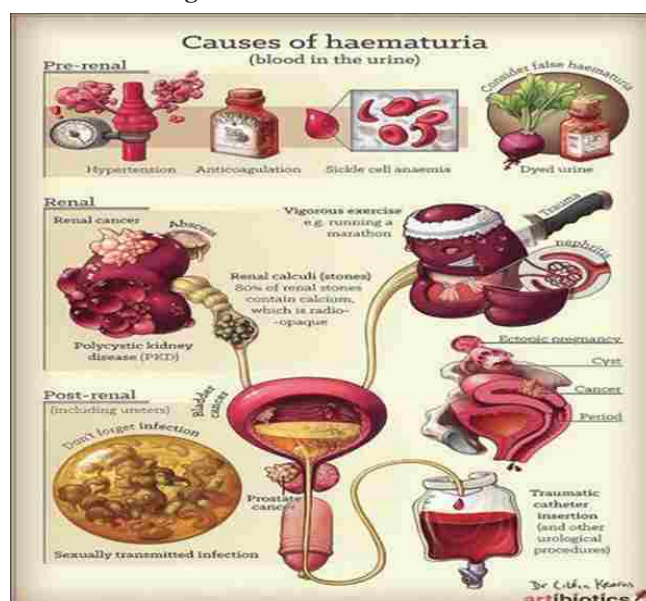
Prevalence of microscopic hematuria in general population ranges from 0.19% to 16.0%.⁽⁵⁻⁷⁾

Macrohematuria:

The hematuria may be visible from a concentration as low as 1 mL blood per liter of urine. The color and the intensity of the color correlate with the amount of blood content: fresh arterial blood (bright red, ranging from pink to ketchup-colored) can be distinguished from venous blood (dark red, Bordeaux red) and from old blood (dark brown or black). Rarely, urine may be colored red or dark owing to myoglobinuria (due to rhabdomyolysis) or hemoglobinuria (due to hemolysis). A diagnosis of hematuria is confirmed by demonstration of red blood cells in the urinary sediment as shown by qualitative and quantitative microscopy⁽⁸⁾.

Cause of Hematuria:

Figure 1. Cause of hematuria⁽⁹⁾



Causes of Hematuria⁽¹⁰⁾

Hematuria can be caused by a number of different things, some of which are bladder or kidney stones; kidney disease; urinary tract infection, cystitis (bladder infection), or pyelonephritis (kidney infection); cancers of the urinary tract (kidney, bladder, prostate); trauma, injury, or urinary tract instrumentation; rigorous exercise; benign prostatic hyperplasia (enlarged prostate); and blood thinners (aspirin, warfarin, etc.). Hematuria can be confused with other urine discoloration caused by something other than blood in the urinary tract, such as foods like beets, bleeding from menstruation, blood from the gastrointestinal system, or medications.

Test for Diagnosis Hematuria:

- CT scan.- A special kind of X-ray scan can help find stones, tumors, and other problems in your bladder, kidneys, and ureters.
- Kidney ultrasound.- This test uses sound waves to create a picture of your kidney.
- Cystoscopy- Your doctor threads a small tube with a camera into your bladder through your urethra. They might take tissue samples (biopsy) to check for unusual or cancerous cells.
- Kidney (renal) biopsy-A technician looks at a sample of kidney tissue under a microscope for signs of kidney disease⁽¹¹⁾.

If testing shows blood but no protein⁽¹²⁾

- Blood test for kidney function
- Cystoscopy (a procedure to look inside the bladder)
- Imaging test such as CT scan, MRI or ultrasound to look at the inner and outer parts of the kidney, ureters and bladder.

Laboratory Evaluation

Repeat Urine Testing⁽¹²⁾

Urinalysis⁽¹³⁾

- It is simple and efficient tool for urine analysis to diagnose renal and urological disease
- Typically, the urine dipstick test for blood initially identifies patients with microscopic hematuria. The sensitivity of urine dipstick test for blood varies from 91% to 100%, and specificity varies from 65% to 99%.

Urine cytology

Checking voided urine for abnormal cells is not very sensitive (66%-79%), but is highly specific (95%-100%) for bladder cancer^(5,13,14)

Urine culture⁽¹⁾

It is prudent to obtain a urine culture in patient with hematuria, particularly from those with irritative voiding symptom or a history of urinary tract infection.

Medications⁽¹⁵⁾

Certain medications can cause hematuria. These include:

- penicillin
- aspirin
- blood thinners like heparin and warfarin (Coumadin)
- cyclophosphamide, which is a drug used to treat certain types of cancer

Herbal treatment For hematuria⁽¹⁶⁾ Single herb

Aloe vera (Gheekumari) – take ½ teaspoon of Aloe vera pulp every morning. Use it for a week

Bitter guard (Karela)- Take bitter guard juice twice a day

Cranberry juice- Drink cranberry juice twice a day

Adhatoda vasica- Use one table spoon pest of leaves of Adhatoda vasica with half glass of water once a day.

Land Caltrops- Extracted two table spoon juice of land caltrop plant with a cup of buttermilk once a day.

Sandalwood- Add 5gm sandalwood powder in the cup of water keep it for a night and drink it in the morning.

Multiple Herb

Decoction Of Bletilla root and Ginseng Noto root, use it twice a day.

Take equal amount of spinach and coconut Juice, and drink it twice a day.

Conclusion:

Hematuria is a common urological disorder in patients in the public health care systems. In this review paper we focus on the hematuria, types of hematuria, cause, diagnostic evaluation and treatment. It is helpful to diagnose the patient of micro hematuria and macrohematuria.

Source of Support: Nil

Conflict of Interest: Nil

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