

BLOOD IN URINE (HEMATURIA)

Written by U.S Immigration News
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Urine is normally light yellow in color. Blood in urine can be visible (gross hematuria) or be detected when red blood cells are seen in the urine when it is tested (microscopic hematuria). When there is blood in the urine, it may appear pink, red or cola-colored. The root cause of both microscopic and gross hematuria should be investigated as it may be a pointer to an underlying condition.

How does blood get in the urine?

Blood gets into the urine from the urinary tract (UT). The tract consists of the kidneys, ureters, bladder, and the urethra. Urine is made when blood is filtered as it passes through a tightly woven network of small vessels (glomerulus) located in the kidney. Blood can originate from the vessels, growths along the tract, damage to the tract, infection, or as a part of a generalized problem affecting the body. In men, secretions from the prostate gland come out through the urethra and can, therefore, also be a source of blood in the urine.

What causes blood in the urine?

Infection: Infection in the urinary tract (UTI) is the commonest cause of blood in urine. The urine in this case will also have white blood cells when tested. The infection can occur anywhere along the tract.

Inflammation: Inflammation of the glomerulus (glomerulitis) can cause microscopic hematuria. Glomerulitis can be consequent to an infection which could be either bacteria (like after Strep throat) or viral. It can also occur as part of a generalized disease that affects blood vessels (vasculitis).

Immune-mediated disease: Immune diseases occur when the body recognizes components of itself as foreign and tries to attack those 'foreign' components. Immune-mediated glomeruli destruction occurs in certain diseases like Immunoglobulin A nephropathy.

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Inherited diseases: In the sickle cell disease, abnormally-shaped red cells block small vessels leading to loss of blood supply in that location (infarction) and cell death (necrosis). In the kidney this causes papillary necrosis which presents as hematuria. It can occur also in people with sickle cell trait. Some diseases that affect blood clotting such as Hemophilia can also cause hematuria.

Kidney disease: Cysts in the kidney can present with bleeding. Cysts can be acquired or inherited.

Prostate problems: Enlargement, cancer, and infection of the prostate can cause hematuria.

Stones: Stones are formed in the kidney or bladder when minerals such as calcium precipitate in urine. Stones do not constitute trouble except when they block the urine passage or are passed in urine.

Strenuous exercise: Can cause hematuria especially in runners.

Medication: Blood thinners like Aspirin and Coumadin can cause both microscopic and gross hematuria.

Tumors: Growth anywhere along the urinary tract can present as cancer. It could be cancer in the kidney or bladder.

Trauma: Blunt injury such as blows, contact sports, accidents and so on can cause direct trauma to the kidney and present with hematuria.

Others: Do not forget that blood from menstruation or the female genital tract can cross into urine and be seen on testing as hematuria.

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Red urine does not always mean hematuria

Not all red urine implies blood. The naked eye, however, cannot differentiate this so the decision should be left to testing done by your doctor. Moreover, certain foods like beets and berries can cause red urine. Some medications like rifampin also do the same.

How does hematuria present?

Hematuria can be painless or painful. Absence of pain does not indicate a less serious cause. In fact most hematuria caused by sinister problems like cancer is painless.

Pain occurs when stones are being passed and also with infection. Both can also present with a burning sensation.

Other symptoms will depend on the underlying cause of the hematuria.

When should I be concerned about hematuria?

All hematuria should be investigated but certain circumstances should create more sense of urgency namely:

History of smoking

Family history of kidney disease or other inherited diseases involving the kidney

Age: Risk of cancer increases with age. There are, however, some childhood cancers that could

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affect the kidney.

Hematuria following an episode of sore throat or viral illness

Persistent or recurrent hematuria

Pain or fever with associated hematuria

Hematuria associated with changes in mental status or problems with passing urine.

Diagnosis

Testing begins with simple test strip (dipstick) that can be done in the doctor's office. Further analysis is done in the laboratory under the microscope. A lot of information can be obtained by simple urine testing. Radiological tests like ultrasound, CT scan, or MRI can be done as the need arises to evaluate the kidney. Cystoscopy, where an instrument is passed up through the urethra to look in the bladder by a specialist, is used to check the bladder.

Take home message

Hematuria may be a pointer to an underlying condition

Diagnosis is simple. Work-up for the cause is stepwise and should not be delayed.

A detailed history including food eaten and family history can help narrow down the cause and prevent unnecessary testing.

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