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Patient information: Blood in the urine (hematuria) in adults (Beyond the Basics)

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BLOOD IN THE URINE OVERVIEW

Hematuria is the medical term for red blood cells in the urine. Red blood cells in the urine can come from the kidney (where urine is made) or anywhere in the urinary tract ([figure 1](#)). The urinary tract includes the ureters (the tubes that carry the urine from the kidneys to the bladder), the bladder (where urine is stored), and the urethra (the tube through which urine exits the body).

Although seeing blood in the urine can be frightening, most of the time hematuria is not life threatening. However, it is important to investigate the cause of hematuria because rarely, it is caused by a serious condition.

This article will review the potential causes, evaluation, and treatment of blood in the urine in adults. Blood in the urine in children is discussed separately. (See "[Patient information: Blood in the urine \(hematuria\) in children \(Beyond the Basics\)](#)".) More detailed information is available by subscription. (See "[Etiology and evaluation of hematuria in adults](#)".)

TYPES OF HEMATURIA

There are two main types of hematuria: gross and microscopic.

- Gross hematuria — Gross hematuria means that you can see blood with the naked eye because the urine is pink, red, purplish-red, brownish-red, or tea-colored. If you see blood in your urine, you should call your healthcare provider.
- Microscopic hematuria — Microscopic hematuria means that the urine is normal in color, but there are an increased number of red blood cells seen with a microscope. It is usually discovered when a urine sample is tested with a dipstick. The results of a dipstick test are not always accurate and should be confirmed with a microscopic examination.

CAUSES OF BLOOD IN THE URINE

A number of conditions can cause hematuria.

- Bladder infection (also called acute cystitis), which typically causes burning or pain with urination, (see "[Patient information: Urinary tract infections in adolescents and adults \(Beyond the Basics\)](#)")

- Kidney infection (also called pyelonephritis) (see "[Patient information: Kidney infection \(pyelonephritis\) \(Beyond the Basics\)](#)")
- Kidney stones, which usually present with one-sided back or flank pain that can be severe (see "[Patient information: Kidney stones in adults \(Beyond the Basics\)](#)")
- Certain kidney diseases
- Vigorous exercise or injury (for example, after falling off a bike and bruising a kidney)
- Enlargement of the prostate (called benign prostatic hyperplasia), which is a common problem in older men
- Cancer of the bladder, prostate, or kidney, more often in patients over age 50 (see "[Patient information: Bladder cancer diagnosis and staging \(Beyond the Basics\)](#)")

Sometimes, the urine appears to have blood in it because there are other red substances (pigments) in the urine. This can happen if you eat an excessive amount of beets (called beeturia), food dyes, or certain medications (such as phenazopyridine/Pyridium®).

TESTS

There are a number of tests available to determine the cause of hematuria. Most people do not need every single test.

- Urine tests — Urine tests can provide clues about the cause of hematuria. This may include a urine cytology, which uses a microscope to analyze cells from the lining of the bladder and kidney (found in the urine).
- Blood tests — Blood tests may be used to look for evidence of kidney or other diseases that can cause hematuria.
- CT scan — Computed tomography, or CT scan, is a radiologic test that examines the structure of the kidneys, ureters, and bladder. Kidney stones or abnormalities of the kidneys, ureters, and bladder can usually be seen with a CT scan. A dye is usually injected into a vein during the test, which highlights any possible abnormalities.
- Kidney ultrasound — An ultrasound of the kidney is an alternative to CT scan, and is preferred for people who are allergic to the dye used in CT. Ultrasound uses sound waves to create a picture of the kidney's structure.
- Cystoscopy — Cystoscopy is a procedure that is most often done in an office setting, but sometimes is done as a day surgery procedure. A small tube with a camera is inserted into the bladder through the urethra ([figure 1](#)). A numbing gel is applied before the tube is inserted to decrease discomfort. The vast majority of patients tolerate this procedure very well.

During cystoscopy, the physician examines the lining of the bladder to determine if there are any abnormalities. If abnormal tissue is seen, a biopsy can be taken. The biopsy is examined with a microscope to determine if abnormal or cancerous cells are present.

