

URINARY SYMPTOMS

HEMATURIA

Hematuria may be visible to the naked eye (called gross hematuria) or detectable only on examination of the urine sediment by microscopy (called microscopic hematuria).

Gross hematuria — is visible blood in urine (usually pink or red in color) The color change does not necessarily reflect the degree of blood loss, since as little as 1 mL of blood per liter of urine can induce a visible color change.

Microscopic hematuria — Microscopic hematuria refers to blood detectable only on examination of the urine sediment by microscopy.

ETIOLOGY OF HEMATURIA

Hematuria may be a symptom of an underlying disease, some of which are life threatening and some of which are treatable ([figure 1](#)).

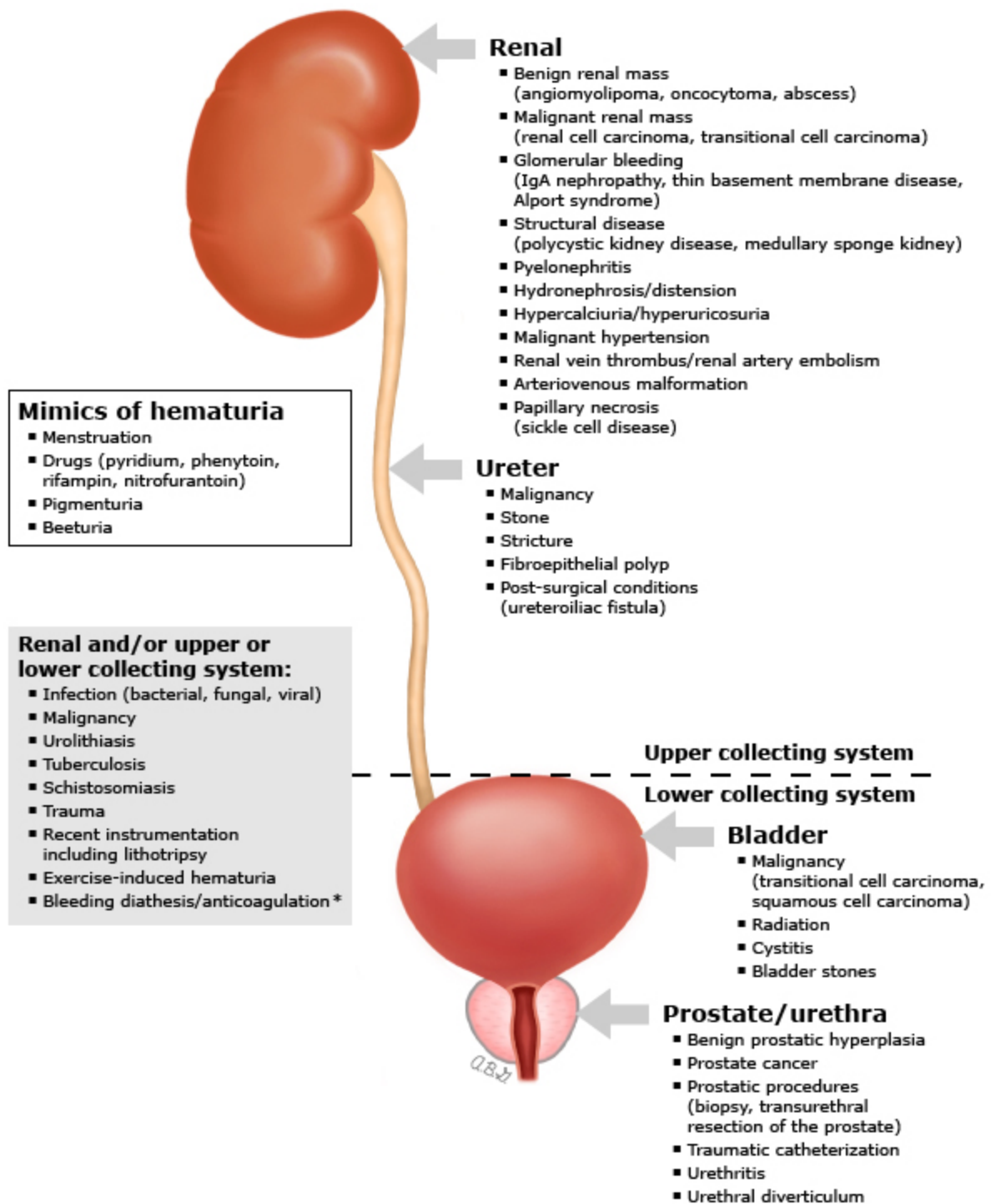
The causes vary with age, with the most common being inflammation or infection of the bladder or stones.

and, in older patients, a kidney or urinary tract malignancy or benign prostatic hyperplasia (BPH).

Rarely, hematuria is factitious, with blood added to an unwitnessed urine specimen after voiding (eg, from a finger stick).

Factitious hematuria can be documented by the absence of hematuria in a urine specimen obtained under direct observation.

ETIOLOGY OF HEMATURIA



dysuria

Refer to discomfort, burning, or sensation of pain during micturition . patients may also complain of urethral discomfort not associated with micturition.

Most frequently, the presence of dysuria reflects a urogenital infection such as urethritis, prostatitis, epididymitis, or urinary tract infection.

Urethritis:

is usually a sexually transmitted disease that typically presented with dysuria , urethral discharge, and or pruritus at the end of urethra.

most commonly *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Mycoplasma genitalium*. *Trichomonas vaginalis*, and herpes simplex virus are also recognized causative pathogens.

Prostatitis :

Acute prostatitis is a painful inflammation within the prostate that is usually accompanied by evidence of recent or ongoing infection

Its hallmark is the acute onset of lower urinary tract symptoms(e.g, dysuria, urinary frequency ,perianal discomfort).

Acute prostatitis is most commonly bacterial in origin and caused by gram-negative rods (eg, Enterobacteriaceae, *Pseudomonas aeruginosa*, *Proteus* species) and gram-positive organisms (*Enterococci*, *Staphylococcus aureus*). Gonorrhea and chlamydia can also cause acute prostatitis in sexually active men.

Chronic prostatitis: is characterized by persistent prostatitis or recurrent urinary tract infection, chronic pelvic pain originating in the prostate. – Gram-negative rods, particularly *Escherichia coli*, are also the most common cause of chronic bacterial prostatitis. Enterococci, *S. aureus*, and streptococcal species have also been associated with chronic bacterial prostatitis.

Epididymitis

Acute epididymitis is inflammation of the epididymis characterized by pain and swelling of the scrotal that develops over the course of few days to less than 6 weeks .it's usually unilateral. It may be associated with irritative lower urinary tract symptoms, urethral discharge, and fever.

In men younger than 35 years, *C. trachomatis* is the most common organism responsible for bacterial epididymitis.

Urinary incontinence ;

is the involuntary loss of urine and affects approximately 50% of women of some point in their lifetime with increasing incidence in older age.

Classification — The main types of urinary incontinence are stress, urgency, and overflow incontinence. Many women have features of more than one type.

Stress incontinence — Individuals with stress incontinence have involuntary leakage of urine that occurs with increases in intraabdominal pressure (eg, with exertion, sneezing, coughing, laughing) in the absence of a bladder contraction . Stress incontinence is the most common type in younger women, with the highest incidence in women ages 45 to 49 years.

Mechanisms of stress incontinence include:

•**Urethral hypermobility** – Urethral hypermobility is thought to stem from insufficient support of the pelvic floor musculature and vaginal connective tissue to the urethra and bladder neck , This causes the urethra and bladder neck to lose the ability to completely close against the anterior vaginal wall. With increases in intra-abdominal pressure (eg, from coughing or sneezing) the muscular tube of the urethra fails to close, leading to incontinence (like stepping on a hose in sand).

•**Intrinsic sphincteric deficiency** – Intrinsic sphincteric deficiency (ISD) is a form of stress urinary incontinence that results from a loss of intrinsic urethral mucosal and muscular tone that normally keeps the urethra closed. In general, ISD results from neuromuscular damage and can be seen in women who have had multiple pelvic or incontinence surgeries.

Urgency incontinence — Women with urgency incontinence experience the urge to void immediately preceding or accompanied by involuntary leakage of urine . The amount of leakage ranges from a few drops to completely soaked undergarments.

"Overactive bladder" is a term that describes a syndrome of urinary urgency with or without incontinence, which is often accompanied by nocturia and urinary frequency.

Urgency incontinence is more common in older women and may be associated with comorbid conditions that occur with age . It is believed to result from detrusor overactivity, leading to uninhibited (involuntary) detrusor muscle contractions during bladder filling . This may be secondary to neurologic disorders (eg, spinal cord injury), bladder abnormalities, increased or altered bladder microbiome, or may be idiopathic .

Mixed incontinence — Women with symptoms of both stress and urgency incontinence are described as having mixed incontinence.

Overflow incontinence — Overflow incontinence typically presents with continuous urinary leakage or dribbling in the setting of incomplete bladder emptying. Associated symptoms can include weak or intermittent urinary stream, hesitancy, frequency, and nocturia. When the bladder is very full, stress leakage can occur or low-amplitude bladder contractions can be triggered resulting in symptoms similar to stress and/or urgency incontinence.

Overflow incontinence is caused by detrusor underactivity or bladder outlet obstruction.

•**Detrusor underactivity** – Detrusor underactivity may be caused by impaired contractility of the detrusor muscle . Impaired urothelial sensory function may also contribute. Studies suggest that detrusor contractility and efficiency decrease with age . Severe detrusor underactivity occurs in about 5 to 10 percent of older adults . Other etiologies of detrusor underactivity include smooth muscle damage from chronic or severe acute sustained overdistention of the bladder,

•**Bladder outlet obstruction** – Bladder outlet obstruction in women is generally caused by external compression of the urethra. This can occur with fibroids that obstruct the urethra, advanced pelvic organ prolapse (ie, beyond the hymen), or overcorrection of the urethra from prior pelvic floor surgery.

Urinary tract infection;

Is an inflammatory reaction of the urinary tract epithelium in response to pathogenic micro organisms most commonly bacteria. As in women, the most common causes of urinary tract infection in men are enteric gram-negative pathogens, such as *E. coli*.

Urinary tract infections (UTIs) include cystitis (infection of the bladder/lower urinary tract) and pyelonephritis (infection of the kidney/upper urinary tract).

"lower urinary tract symptoms"

The term "lower urinary tract symptoms" (LUTS) is nonspecific. It has been used as a general term to refer to any combination of urinary symptoms or as a more specific term to refer to those symptoms primarily associated with overactive bladder (frequency, urgency, and nocturia). An international consensus conference defined LUTS to include symptoms relating to storage and/or voiding disturbances common among aging males.

Storage — Storage symptoms, experienced during the bladder filling and storage phase of micturition, include:

- Urgency – A sudden compelling desire to pass urine that is difficult to defer.
- Daytime frequency – A patient's perception that he voids too often by day.
- Nocturia – The need to wake at night one or more times to void.
- Incontinence – Involuntary leakage'
- Abnormal bladder sensation.

Voiding — Voiding symptoms are those experienced at the time of urine flow and include:

- Slow stream – The individual's perception of reduced urine flow, usually compared with previous performance and sometimes compared with observations of other males. Splitting or spraying of the urine stream may be reported.

- Intermittent stream or intermittency – Urine flow that stops and starts, on one or more occasions, during micturition.
- Hesitancy – Difficulty in initiating micturition, resulting in a delay in the onset of voiding after the individual is ready to pass urine.
- Straining to void – An abdominal muscular effort used to initiate, maintain, or improve the urinary stream.
- Terminal dribble – Prolongation of the final part of micturition, when the flow has slowed to a trickle/dribble .
- Dysuria – Pain, burning sensation, or general discomfort at the time of passing urine.

Post-micturition — Post-micturition symptoms include:

- A sensation of incomplete emptying after passing urine.
- Post-micturition dribble – The involuntary loss of urine shortly following urination, usually after leaving the toilet.

We use the term **acute complicated urinary tract infection (UTI)** to refer to an acute UTI with any of the following features, which suggest that the infection extends beyond the bladder

- Fever ($>99.9^{\circ}\text{F}/37.7^{\circ}\text{C}$) – This temperature threshold is not well defined and should be individualized, taking into account baseline temperature, other potential contributors to an elevated temperature, and the risk of poor outcomes should empiric antimicrobial therapy be inappropriate.
- Other signs or symptoms of systemic illness (including chills or rigors, significant fatigue or malaise beyond baseline).
- Flank pain.
- Costovertebral angle tenderness.
- Pelvic or perineal pain in men, which can suggest accompanying prostatitis.

By this definition, pyelonephritis is a complicated UTI, regardless of patient characteristics. In the absence of any of these symptoms, we consider patients with UTI to have acute simple cystitis and manage the patient differently.