

COMMON CAUSES OF URINARY TRACT INFECTION IN ADULT

A SEMINAR PRESENTED

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Summary

Urinary tract infections (UTIs) are very common – particularly in women, babies and older people. Around one in two women and one in 20 men will get a UTI in their lifetime. The kidneys control the amount of water in the blood and filter out waste products to form urine. Each kidney has a tube called a ureter, which joins the kidney to the bladder. The urine leaves the kidneys through the ureters and enters the bladder. The bladder ‘signals’ the urge to urinate and urine leaves the body through a tube called the urethra. The urinary system is designed to minimize the risk of serious infection in the kidneys. It does this by preventing the urine from flowing back up into the kidneys from the bladder. Most urinary infections are confined to the bladder and, while causing symptoms, are not serious or life threatening. When bacteria enter the urinary tract and multiply, they can cause a UTI. To infect the urinary system, a micro-organism usually has to enter through the urethra or, rarely, through the bloodstream. The most common bacterium to cause UTIs is *Escherichia coli* (*E. coli*). It is usually spread to the urethra from the anus. Other micro-organisms, such as mycoplasma and chlamydia, can cause urethritis in both men and women. These micro-organisms are sexually transmitted so, when these infections are detected, both partners need medical treatment to avoid re-infection. A urinary tract infection is caused by micro-organisms, usually bacteria called *Escherichia coli* (*E. coli*). The urethra, bladder, vagina or kidneys can be affected. Even though urinary tract infections are very common, treatment with antibiotics may be needed, so seek advice from your doctor.

COMMON CAUSES OF URINARY TRACT INFECTION IN ADULT

A urinary tract infection (UTI) is an infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as a bladder infection (cystitis) and when it affects the upper urinary tract it is known as kidney infection (pyelonephritis). Symptoms from a lower urinary tract include pain with urination, frequent urination, and feeling the need to urinate despite having an empty bladder. Symptoms of a kidney infection include fever and flank pain usually in addition to the symptoms of a lower UTI. Rarely the urine may appear bloody. In the very old and the very young, symptoms may be vague or non-specific.

Causes

Uropathogenic *Escherichia coli* from the gut is the cause of 80–85% of community-acquired urinary tract infection with *Staphylococcus saprophyticus* being the cause in 5–10%. Rarely they may be due to viral or fungal infection. Healthcare-associated urinary tract infections (mostly related to urinary catheterization) involve a much broader range of pathogens including: *E. coli* (27%), *Klebsiella pneumoniae* (11%), *Pseudomonas aeruginosa* (11%), the fungal pathogen *Candida albicans* (9%), and *Enterococcus* (7%) among others. Urinary tract infections due to *Staphylococcus aureus* typically occur secondary to blood-borne infections. *Chlamydia trachomatis* and *Mycoplasma genitalium* can infect the urethra but not the bladder. These infections are usually classified as a urethritis rather than urinary tract infection.

Sex

In young sexually active women, sexual activity is the cause of 75–90% of bladder infections, with the risk of infection related to the frequency of sex. The term "honeymoon cystitis" has been applied to this phenomenon of frequent UTIs during early marriage. In post-menopausal women, sexual activity does not affect the risk of developing a UTI. Spermicide use, independent of sexual frequency, increases the risk of UTIs. Diaphragm use is also associated.

Women are more prone to UTIs than men because, in females, the urethra is much shorter and closer to the anus. As a woman's estrogen levels decrease with menopause, her risk of urinary tract infections increases due to the loss of protective vaginal flora.

Additionally, vaginal atrophy that can sometimes occur after menopause is associated with recurrent urinary tract infections

Chronic prostatitis in the forms of chronic prostatitis/chronic pelvic pain syndrome and chronic bacterial prostatitis may cause recurrent urinary tract infections in males. Risk of infections increases as male ages. While bacteria is commonly present in the urine of older males this does not appear to affect the risk of urinary tract infections.

Urinary catheters

Urinary catheterization increases the risk for urinary tract infections. The risk of bacteriuria (bacteria in the urine) is between 3 – 6 % per day and prophylactic antibiotics are not effective in decreasing symptomatic infections. The risk of an associated infection can be decreased by catheterizing only when necessary, using

aseptic technique for insertion, and maintaining unobstructed drainage of the catheter.

Catheter-related urinary tract infection (UTI) occurs because urethral catheters inoculate organisms into the bladder and promote colonization by providing a surface for bacteria adhesion and causing mucosal irritation .

Other common causes includes

Constipation

Dehydration

Holding in your urine

Feminine products

Uncomfortable underwear

Uncontrolled diabetes

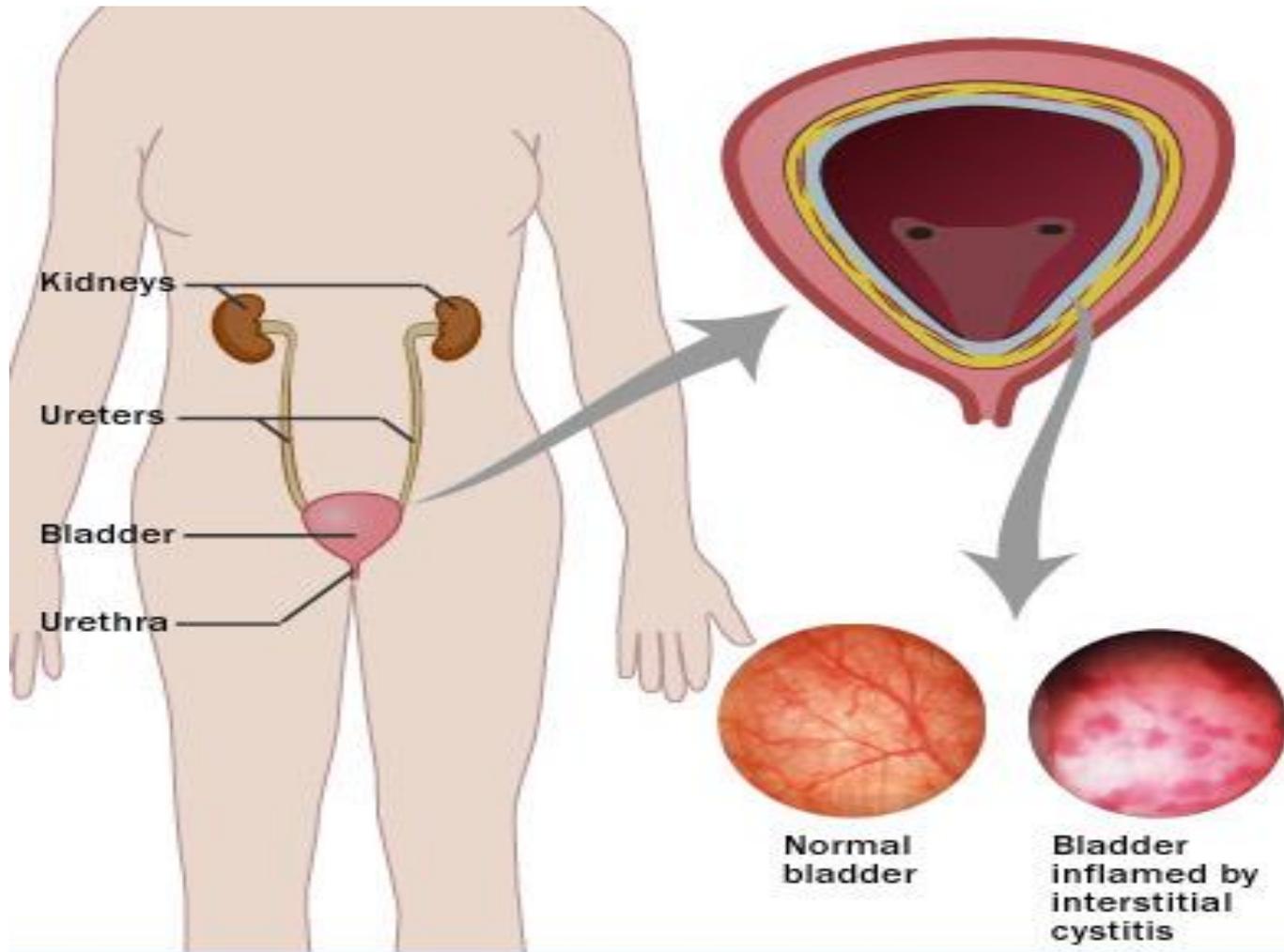
The most common UTIs occur mainly in women and affect the bladder and urethra.

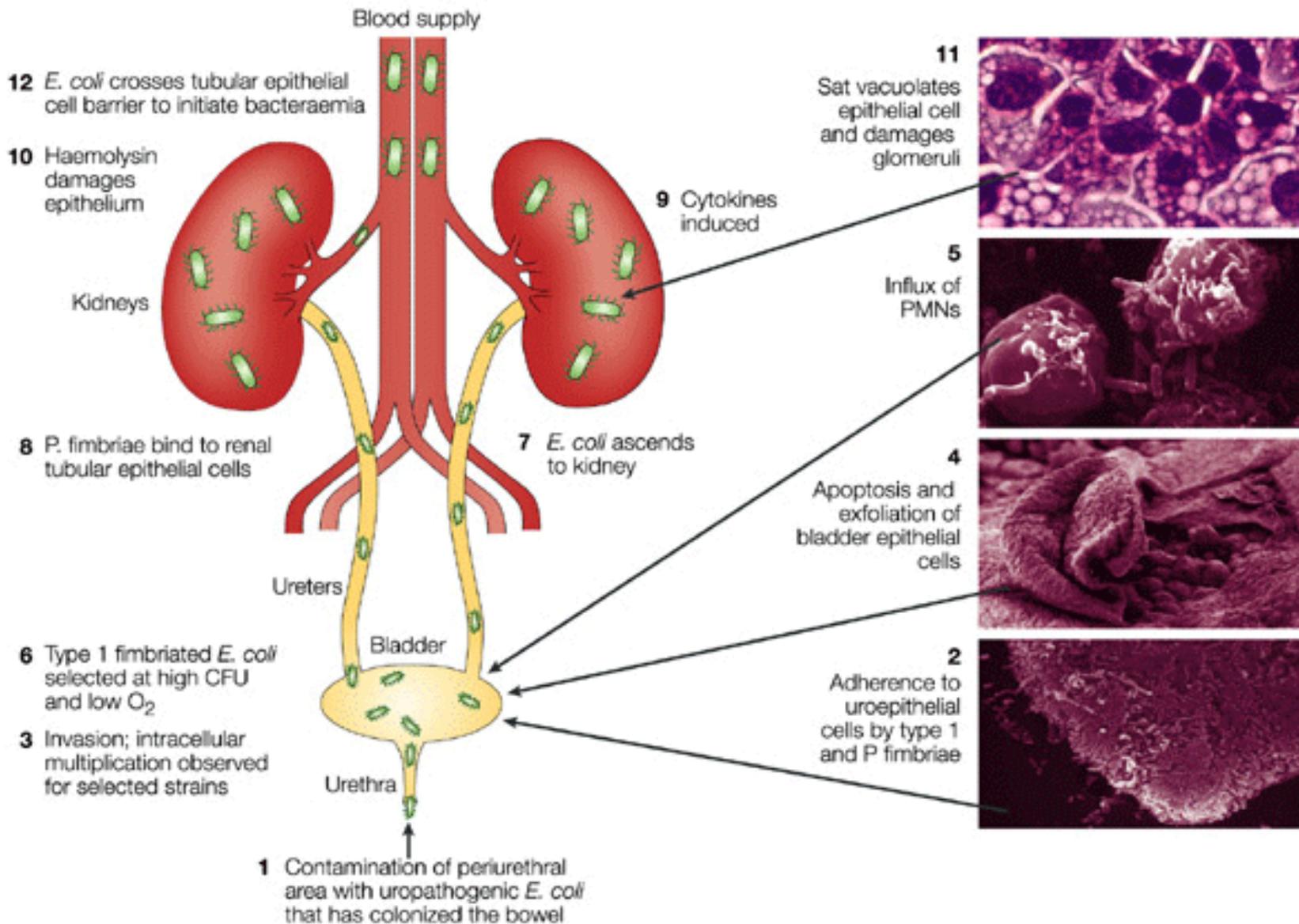
• **Infection of the bladder (cystitis).** This type of UTI is usually caused by *Escherichia coli* (*E. coli*), a type of bacteria commonly found in the gastrointestinal (GI) tract.

However, sometimes other bacteria are responsible.

Sexual intercourse may lead to cystitis, but you don't have to be sexually active to develop it. All women are at risk of cystitis because of their anatomy — specifically, the short distance from the urethra to the anus and the urethral opening to the bladder.

Infection of the urethra (urethritis). This type of UTI can occur when GI bacteria spread from the anus to the urethra. Also, because the female urethra is close to the vagina, sexually transmitted infections, such as herpes, gonorrhea, chlamydia and mycoplasma, can cause urethritis.





Types of urinary tract infection

Each type of UTI may result in more-specific signs and symptoms, depending on which part of your urinary tract is infected.

Part of urinary tract affected

Signs and symptoms

Kidneys (acute pyelonephritis)

Upper back and side (flank) pain

High fever

Shaking and chills

Nausea/vomiting

Bladder (cystitis)

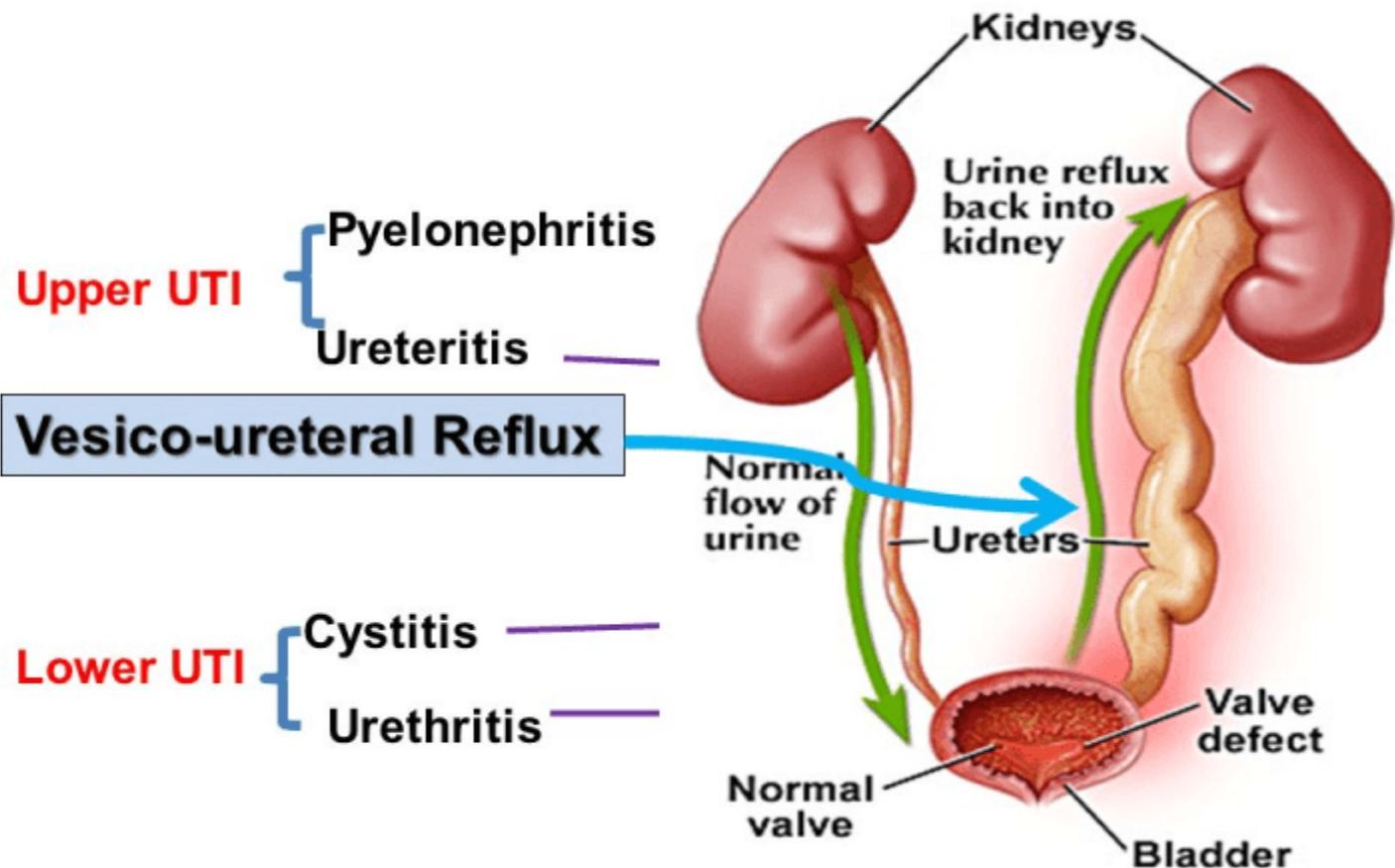
Pelvic pressure

Lower abdomen discomfort

Frequent, painful urination

Blood in urine

Urinary Tract Infection



Prevention

To help prevent urinary tract infections:

- **Drink several glasses of water each day.** Fluids discourage the growth of bacteria by flushing out your urinary tract. Drinking cranberry juice may deter bacterial growth by decreasing the ability of bacteria to stick to the urethra.
- **Wipe from front to back.** To prevent the spread of intestinal bacteria from the rectum to the urinary tract, women always should wipe toilet tissue from front to the back after having a bowel movement.
- **Decrease the spread of bacteria.** Urinate after sexual intercourse to flush bacteria from your urethra. If you keep getting infections, you should talk to your doctor about using antibiotics after sex to lower the risk of developing UTI

Treatment

Doctors treat lower and upper urinary tract infections with antibiotics. Laboratory testing can determine the best antibiotic for treatment. Most uncomplicated lower tract infections are treated with a three-day course of antibiotics, although women who are pregnant, or who have diseases such as diabetes that suppress the immune system, usually need to take antibiotics for longer.

People with upper tract infections are usually treated with a 10 to 14 day course of antibiotic therapy. Those with severe upper tract infections may require hospital treatment with antibiotics given through a vein (intravenously). This is especially true if nausea, vomiting and fever increase the risk of dehydration and prevent the person from taking oral antibiotics.

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