

# Gonorrhea

**Gonorrhea** (gonorrhoea, gonorrhea; from Greek: gonos = semen, rhoia = flow - description of the fact that even without an erection a yellowish-white fluid flows out of the penis) is a bacterial infection caused by the gram-negative diplococcus ***Neisseria gonorrhoeae*** (gonococcus). It primarily affects the epithelium of the urogenital tract (attachment of gonococci by fimbriae) with possible dissemination by blood or lymph. It is transmitted mainly through the sexual route (the location of the occurrence on the patient's body depends on the method of unprotected sexual intercourse), transmission during the birth from an infected mother to a newborn is also possible. Transmission to children without sexual contact is caused by poor hygiene in the family. The course of the disease varies in men, women and newborns.

## Epidemiology

Gonorrhea mainly affects young sexually active individuals: symptomatic infection is more common in men (gonorrhea is often asymptomatic in women). Infections of the pharynx and anus are more common in homosexuals. It also affects newborns (conjunctivitis) and sexually abused children. Also, vulvovaginitis, especially during pregnancy.

## Incubation

90% of men develop urethritis within 5 days. The incubation period in women is usually more than 2 weeks (up to 75% remain asymptomatic).

## The clinical picture of men

### Urethritis

- urethral discharge (first serous, then purulent), burning and cutting sensation when urinating, edema, and redness of the urethral meatus
- complications - paraurethral inflammation, inflammation of the Littre glands, Cowper's glands
- inflammation can become chronic or progress to the back of the urethra (forced urination, painful erections)

It can spread in an ascending manner.

### Prostatitis

- fever
- pain when urinating and defecating
- painful erections

### Epididymitis

- the most common complications
- the epididymis is swollen, painful, stiff, and the scrotum is red
- the pain radiates along the cremasteric muscles

## The clinical picture in women

### Urethritis

- edema and redness of the urethral orifice, purulent discharge, and burning when urinating
- symptoms are not usually acute, in 50% they are not recognized and become chronic (infection spreads in an ascending manner)

### Cervicitis

- swelling of the cervix, inflammatory erosions of the cervix, discharge from the cervix (not from the vagina)
- complications: abscess of the periurethral glands, **peritonitis**, **endocervicitis**, **endosalpingitis**, **endometritis**, inflammatory diseases of the small pelvis, and infection may result in perihepatic adhesions (Fitz-Hugh-Curtis syndrome) or infertility

### Disseminated gonococcal infection

- occurs in about 1% of infected individuals
- it occurs via hematogenous spread and gonococci disseminate to the skin, tendons, and joints
- it is accompanied by fever, chills, arthritis, especially of the large joints, and hemorrhagic pustules on the acral parts of the limbs.

# The clinical picture in neonates

## Newborn *gonorrhea conjunctivitis (conjunctivitis gonorrhoeica neonatorum)*

- mother-to-newborn transmission through infected birth canals
- clinical picture: bilateral purulent discharge from the conjunctiva and swelling of the eyelids, usually the onset is within the first 24 hours of birth, but in a milder form may occur at any time in the first month of life;
- complications: corneal damage → blindness
- diagnosis: conjunctival smear culture (Gram-negative intracellular diplococci)
- traditional treatment: penicillin systemically and locally
- treatment currently recommended: ceftriaxone parenterally in a single dose
- treatment of the mother and her contacts
- antibiotic resistance is on the rise
- Prophylaxis in the past: administration of 1% silver nitrate into the conjunctival sac immediately after delivery according to Credé ("creditation")
- Prophylaxis now: Immediately after birth, 1-2 drops of Ophthalmo-Septonex are administered into the conjunctival sac of the newborn.

## Extragenital gonorrhea

- Rectum (most often) - discharge, painful defecation
- Pharynx - usually asymptomatic, tonsils may become inflamed with streptococcal angina-like symptoms
- conjunctivitis in adults is rare (occurs mainly by autoinoculation)
- *Neisseria gonorrhoeae* attacks the conjunctival sac
  - Gonorrheic conjunctivitis - purulent discharge, periorbital edema leading to corneal perforation and blindness
- Prevention: administration of an antibacterial agent (septonex, AgNO<sub>3</sub>) into the conjunctival sac of each newborn.

## Diagnosis

- Isolation of the agent is necessary!
- **Swab** - orifice of the urethra, cervix, rectum, or larynx
  - Transferring the sample to slightly heated agar to prevent heat shock and sample degradation; cultivation; microscopy
- **Serology** - determination of antibodies ( IgG , IgM , IgA ) - significant only in chronic, asymptomatic or disseminated forms of gonorrhea
- ELISA, PCR, LCR (ligase chain reaction), direct immunofluorescence
- Disseminated infections - blood culture

## Differential diagnosis

A distinction must be made between non-gonococcal urethritis (herpes progenitalis, candida, chlamydia, ureaplasma, trichomonads) and cervicitis (other STD agents).

## Therapy

Mostly outpatient treatment, bed rest is suitable, anti-inflammatory compresses are recommended for epididymitis. Furthermore, ATB - ceftriaxone, spectinomycin, ciprofloxacin, aztreonam, doxycycline. However, bacterial resistance to ATB is growing.

## Prevention

- Everyone with gonorrhea is being tested for HIV and syphilis at the same time.
- Barrier contraception, sexual abstinence
- Prevention of keratitis in newborns: administering carbetopendecin (Ophthalmo-Septonex) after childbirth.

## Epidemiology

Gonorrhea is one of the 4 most common sexually transmitted diseases in the world (along with syphilis, chlamydia, and trichomoniasis).

## The situation in the Czech Republic

The incidence of gonorrhea has a declining tendency in the Czech Republic as well as in the world. The worst situation is Prague, where there are about 23 infected individuals per 100,000 inhabitants (data from 2010). The disease most often occurs in the age group 15-34 in both men and women.

# References

## Related articles

- Sexually Transmitted Infections: Syphilis • HIV
- Urethritis: Chlamydial infections of the genitals • Mycoplasma infections of the genitals
- Vulvovaginitis • Balanitis

## External links

- Osmosis: N. gonorrhoeae (didaktické video) (<https://www.youtube.com/watch?v=A0tQcKo4KqQ>)

## Literature

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## Source

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