

Group A streptococcal infection

Streptococcal infections are among *the most common bacterial infections*. Streptococci are **obligately pathogenic, facultative pathogenic** and **saprophytic** microorganisms. We classify them according to the degree of hemolysis – **α-hemolytic** (incomplete, partial hemolysis on agar) and **β-hemolytic** (complete, complete hemolysis), according to the serological differentiation of capsular antigen C into A and B.

Group A streptococci are the cause of 90% of streptococcal infections. Bacteria produce a number of *toxins*: erythrogenic toxin, streptolysin O a streptolysin S (causes hemolysis and is toxic to myocardial fibers and hepatocytes), streptokinase (fibrinolysis), hyaluronidase (invasive factor of streptococci), etc. Against some toxins, Ig is formed that can be used in diagnostics – ASLO (antistreptolysin O) – they decrease in a few weeks after infection. Group A streptococci *cause various diseases*: – **skin and mucous membrane involvement, protracted seropurulent rhinitis, scarlet fever, impetigo, tonsillopharyngitis** in young children.

The most common infections caused by group A streptococci include:

- angina pectoris
- scarlet fever
- erysipelas
- impetigo contagiosa

Complications of angina and scarlet fever

- Multiple submandibular nodes, retrotonsillar, paratonsillar abscess, otitis, mastoiditis, sinusitis,
- more rarely – bacteremia, metastatic foci – purulent arthritis, endocarditis, meningitis, brain abscess, osteomyelitis and mediastinitis. Transfer of infection to the mediastinum is a rare but very dangerous complication with a high mortality rate.
- without therapy – risk of late complications – **rheumatic fever** or **glomerulonephritis**.

Rheumatic fever

- Most often after group A streptococci, 1-4 weeks after infection (in about 3% of those infected),
- the course of the original infection may be inapparent (without obvious symptoms),
- acute immunologically conditioned multisystemic inflammation,
- often affects the heart – **chronic changes in the valves**,
- *main manifestations*: **migrating polyarthritides, pancarditis, subcutaneous nodules, erythema marginatum and Sydenham's chorea** – st. Welcome, chorea minor (neurological disorder – unconscious untargeted rapid movements),
- *secondary symptoms*: secondary symptoms – **fever, joint pain, increased CRP...**,
- *diagnosis*: **Jones criteria** – history of streptococcal infection, presence of at least two manifest main or secondary symptoms,
- *pathogenesis*: hypersensitivity reaction, Ig against M protein of streptococci cross-react with glycoproteins of heart muscle, joints etc.,
- relapses.

Complications of streptococcal skin infections

- Rarely, septic complications, possibly also glomerulonephritis,
- rheumatic fever rarely,
- acute glomerulonephritis.

Links

Related articles

- **Genus Streptococcus**: Streptococcus pyogenes
- Streptococcus agalactiae
- Streptococcus pneumoniae
- Streptococcus mutans
- **Streptococcal infections**: Group A streptococcal infections
- Fever
- Angina fever
- Erysipelas
- Impetigo
- Infections caused by viridating streptococci
- Complications and treatment of streptococcal infections
- Rheumatic fever

References

- BENEŠ, Jiří. *Study materials* [online]. ©2007. [cit. 2009]. <<http://www.jirben.wz.cz/>>.

Recommended literature

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- ŠAŠINKA, Miroslav – ŠAGÁT, Tibor – KOVÁCS, László, et al. *Pediatrics*. 2. edition. Herba, 2007. ISBN 978-80-89171-49-1.