

# Actinomycosis

## Aktinomyces

Actinomyces and nocardia represent a transition between bacteria and fungi – they form long branching fibers. The main representatives are:

1. ***Actinomyces israeli*** – anaerobic or microaerophilic, they are located in the oral cavity (often in tonsillar crypts)
2. ***Nocardia asteroides*** – aerobic, acid resistant, saprophyte organism in soil and plants

## Actinomycosis

Actinomycosis is a chronic infection caused by *Actinomyces israeli*. Local inflammatory changes (generalization from pyemia is rare) have a dual nature:

1. **purulent colliquative necrosis** – formation of abscesses, possibly fistulas
2. **fibroproduction** – scarring

The untreated process continues to spread per continuity, neither fascia nor bone will stop it.

## Morphology

The basic morphological manifestation is a scarring inflammatory infiltrate in the form of large, rigid, inaccurately demarcated pseudotumorous formations permeated by abscesses (so-called **actinomycoma**). The presence of **drusen** formed by actinomycete fibers is important (center is compact, on the periphery the fibers are arranged radially, at the edges thickened and strongly eosinophilic - so-called **Splendore-Hoepli phenomenon** from the reaction between antigen and antibody). Drusen are also visible macroscopically as sulfur yellow granules that can leave with pus fistulas.

## Forms

According to the localization, several forms of actinomycosis are distinguished:

1. **cervicofacial** – it starts anywhere in the oral cavity and pharynx, especially in the gums of the lower jaw, inflammatory swelling and the formation of fistulas are visible on the outside, which open many abscesses on the outside
2. **intrathoracic** – most often lung infections by aspiration of actinomycetes from the oral cavity, or per continuity or hematogenously from the cervicofacial or abdominal form, actinomycosis of the lungs has the character of chronic abscess pneumonia
3. **abdominal** – it is caused by propagation from the chest or it is a primary intestinal actinomycosis probably of deglutinous origin, the appendix is most often affected, again it is a purulent and fibro productive process with the formation of adhesions between neighboring organs and with the formation of fistulas (external and internal), mesenteric vein thrombophlebitis leads to portal pyemia – there are multiple abscesses in the liver
4. **cutaneous** – rarely arises primarily (deep inflammatory infiltrate, abscesses burst through fistulas and ulcers, the process spreads deep and engulfs the fascia, muscles and other tissues), it usually arises from the collapse of deeper processes

## Diagnostics

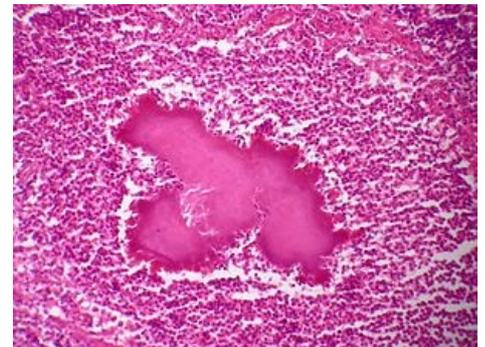
- microscopic examination or cultivation
- more often histological examination

## Therapy

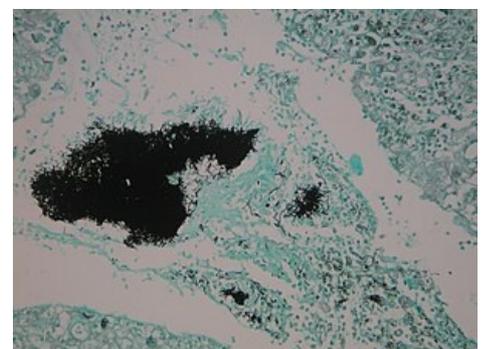
- penicillin for 6-8 weeks
- alternatives are tetracycline, chloramphenicol, macrolides, clindamycin

## Prevention

- oral hygiene, regular toothbrush replacement and dentist visits



Actinomycoma - Splendor-Hoepli phenomenon



Drusen

## Nokardiosis

- affects primarily the lungs (granuloma formation, similar to tuberculosis), compared to actinomycosis, it has a greater tendency to generalize - mainly to the brain and skin
- a combination of antibacterial (sulfonamide, cefotaxime, aminoglycosides) and surgical treatment is preferred in therapy

## Mycetoma (maduromycosis)

- chronic skin diseases in tropical and subtropical areas
- it mainly affects the lower limbs
- the causative agents are bacteria (nocardia and streptomycetes) as well as fungi

## Links

### Related articles

- Antimycotics
- Immune defense against intracellular bacteria and fungi

### Source

- PASTOR, Jan. *Langenbeck's medical web page* [online]. [cit. 2009]. <<https://langenbeck.webs.com/>>.
- DOSTÁL, Václav, et al. *Infektologie*. 1. edition. Praha : Karolinum, 2004. 338 pp. ISBN 80-246-0749-2.