

Tularemia

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Hare (source of tularemia)

Originator	<i>Francisella tularensis</i>
Risk factors	handling of dead animals, ticks
Transmission	direct contact with secretions of dead animals, insect vector
Incubation time	2-10 days
Clinical picture	primary ulcerative lesions at the site of entry, swelling of the regional nodes, fever
Diagnostics	clinical picture + special methods
Therapy	antibiotic
Complication	nodal collation, pulmonary and typhoid form
Vaccination	in exposed
Incidence in the Czech Republic	100 cases per year
Classifications and references	
ICD-10	A21 (https://old.uzis.cz/cz/mkn/A20-A28.html#A21)
MeSH ID	D014406 (https://www.medvik.cz/bmc/link.do?id=D014406)
MedlinePlus	000856 (https://medlineplus.gov/ency/article/000856.htm)
Medscape	230923 (https://emedicine.medscape.com/article/230923-overview)



Skin defect after penetration of *Francisella tularensis*



Colony of *Francisella tularensis* on chocolate agar

Tularemia is a serious infectious disease caused by the bacterium *Francisella tularensis*. It mainly affects hares and field rodents, but is also transmissible to other animals and humans. Affected animals lose their shyness, stagger when moving, are sluggish and easy to catch.

Infected rodents are a reservoir of infection in the wild. The carrier is then arthropods sucking blood (mosquitoes, flies, fleas, bugs, ticks). The infection occurs through the respiratory system, digestive system, conjunctiva or skin.

Francisella tularensis is a small, gram-negative, immobile, encapsulated, pleomorphic short rod. It is an facultatively intracellular parasite. It grows poorly or not at all on most laboratory media, and special glucose-cysteine blood agar is required for isolation.

Epidemiology and symptoms

Francisella tularensis causes **tularemia** (a name derived from the California city of Tulare). The primary reservoir is rabbits, hares and ticks. **Humans** are usually infected after insect bites (mainly ticks, but also, for example, mites and mosquitoes), or on contact with tularemic animals. Human disease is characterized by focal ulcer at the site of entry into the body and enlargement of the local lymph nodes.

Only about 10-50 bacteria cause the disease if they are inhaled or injected intradermally. On the other hand, a very large inoculum (~ 10⁸ organisms) is required for oral infection. The incubation period lasts **2-10 days**. The most common is the **ulceroglandular form**. Ulceration occurs at the site of penetration into the body, accompanied by fever, chills, malaise, fatigue and lymphadenopathy. Lymph nodes tend to coalesce and form fistulas. Bacteraemia usually occurs and the bacteria then grow intracellularly in the reticuloendothelial system. Scattering with blood allows the formation of focal lesions in many organs.

Clinical forms of tularemia

1. **external** - ulceroglandular, glandular, oculoglandular, oroglandular (tularemic angina),
2. **internal** - intestinal or pulmonary form,
3. **generalized** - septic or typhoid form.

Pathogenesis

The bacterial shell gives it resistance to phagocytosis . Most symptoms are caused by cell-mediated hypersensitivity.

Diagnosis

F. tularensis is difficult to see in normal paint. The organism can be isolated from a sample of sputum or nodular aspirates. Bacteria grow very slowly and therefore must be incubated for several days. Their presence is confirmed by specific antisera.

Therapy

Streptomycin (an aminoglycoside antibiotic) is applicable to all forms of tularemia. **Fluoroquinolones** or **rifampicin** can also be used . There is a **lyophilized attenuated vaccine** to prevent tularemia.

Prognosis

Mortality from untreated patients ranges from 5-15%.

Links

Related articles

- Anthroponoses

References

- GILLESPIE, SH a KB BAMFORD. *Medical Microbiology and Infection at a Glance*. 1. vydání. London : Blackwell Science, 2000. ISBN 978-1405111737.
- BERAN, GW a KB BAMFORD. *Handbook of Zoonoses, Section A: Bacterial, Rickettsial, Chlamydial and Mycotic*. 2. vydání. Florida : CRC Press, 1994. ISBN 978-0849332050.
- University of South Carolina. *Microbiology and immunology online* [online]. ©2007. Poslední revize 2009, [cit. 05.12.2009]. <http://www.sc.edu/study/colleges_schools/medicine/education/basic_science_departments/pathology_microbiology_and_immunology/index.php>.
- BENEŠ, Jiří, et al. *Infekční lékařství*. 1. vydání. Galén, 2009. 651 s. ISBN 978-80-7262-644-1.
- CHALUPA, Pavel. Stáž z infekčního lékařství. Infekční klinika 1. LF UK a FNB, 2011.
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Reference

1. Rozsypal, Hanuš. . *Základy infekčního lékařství*. - vydání. Charles University in Prague, Karolinum Press, 2015. 572 s. s. 376. ISBN 8024629321.