

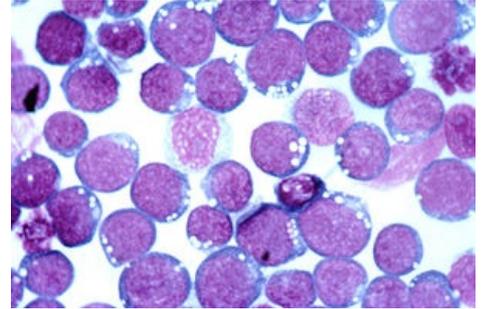
# EBV

**Epstein-Barr virus** (EBV) belongs to herpes viruses (DNA viruses). It is the cause of infectious mononucleosis and hairy leukoplakia of the tongue. At the same time, it is involved in malignancies and its role in the pathogenesis of chronic fatigue syndrome is being considered.

## EBV

family: *Herpesviridae*  
subfamily: *gamma*  
group: *gamma 1, Lymphocryptovirus*

dsDNA virus. Also known as HHV4 (human herpesvirus 4), gamma Herpes virus 4. In 1964, isolated from Burkitt's lymphoma tissue line cells. It has two phases of the life cycle - latent (in B-lymphocytes) and productive, "lytic" (in epithelial cells).



Epstein-Barr virus (EBV)

## Diseases induced by EBV

Infectious mononucleosis. Oral hairy leukoplakia of the tongue occurs in immunodeficient, especially HIV-positive. Chronic fatigue syndrome.

It is also associated with Burkitt's lymphoma, primary brain lymphoma, Hodgkin's lymphoma and nasopharyngeal carcinoma.

## Infectious mononucleosis

### Epidemiology

Transmission by sick and healthy people with inapparent infection either by direct contact (saliva) or by droplet route. Young people (15-20 years old) get sick most often, which is why they call it "kissing disease". Incubation period 2-7 weeks. The disease leaves long-term immunity (up to 90% of the European population has a positive antibody titer).

### Pathogenesis

The virus infects oral and pharyngeal epithelial cells. It then infects B-lymphocytes, which produce heterophile antibodies (used in diagnostics). Infected B-lymphocytes are recognized and destroyed by cytotoxic T-lymphocytes. Infectious mononucleosis is characterized by the presence of activated T-lymphocytes (cytotoxic, helper and NK-cells) in the blood - **atypical mononuclear cells**. The infection is associated with the activation and hyperplasia of lymphoreticular tissues throughout the body. After infection, part of the virus population remains in the body for life and the virus is able to reactivate.

### Clinical picture

Infectious mononucleosis has classic symptoms:

- Sore throat - enlarged tonsils covered with whitish patches, pain when swallowing.
- Fever.
- Lymphadenopathy - splenomegaly (in 75% of patients), hepatomegaly (in 50% of patients).
- Holzel's sign - small petechiae on the upper palate.
- Bass symptom - swelling of the eyelids.

### Complications

- Myocarditis
- Meningoencephalitis / neuritis
- Hemolytic anemia
- thrombocytopenia
- Spleen rupture - requires urgent surgery, especially due to massive bleeding into the abdomen.

### Diagnostics

Charakteristic clinical picture.

Laboratory findings:

- Mononuclear cells predominate in the blood count of leukopenia, which turns into leukocytosis.
- In the liver, elevation tests ALT, AST, LDH.

- Heterophilic antibodies in serum - Paul-Bunnell reaction (agglutination of equine erythrocytes - AKE, hemolysis of bovine erythrocytes - OCH).
- Specific antibodies - anti-VCA (viral capsid antigen, acute phase), anti-EA (early antigen, persist 2-3 months), anti-EBNA-1 (EB nuclear antigen, late phase, IgG persist lifelong).

## Therapy

Symptomatic - antipyretics, short-term corticosteroids (3-5 days) when severe airway obstruction is present. Liver diet and saving regime.

Antibiotics as prevention of bacterial superinfection. Aminopenicillins are contraindicated due to the development of a strong exanthema. This is not an allergy, but probably a reaction of heterophile antibodies (see above) with an aminopenicillin molecule (amoxicillin, ampicillin).

## Links

### Related articles

- Burkitt lymphoma
- Hodgkin lymphoma

### Extern links

- EBV (english wikipedia) ([https://en.wikipedia.org/wiki/Epstein%E2%80%93Barr\\_virus](https://en.wikipedia.org/wiki/Epstein%E2%80%93Barr_virus))

## Literature

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- BENEŠ, Jiří, et al. *Infekční lékařství*. 1. vydání. Galén, 2009. 651 s. ISBN 978-80-7262-644-1.
- LEHOVCOVÁ, Alena a Stanislava HONZOVÁ. Sérologie EBV z hlediska klinického imunologa. *Lékařské listy*. 1999, roč. 1999, vol. 42, s. 15, ISSN 0044-1996.



Rash of amoxicillin use during EBV infection