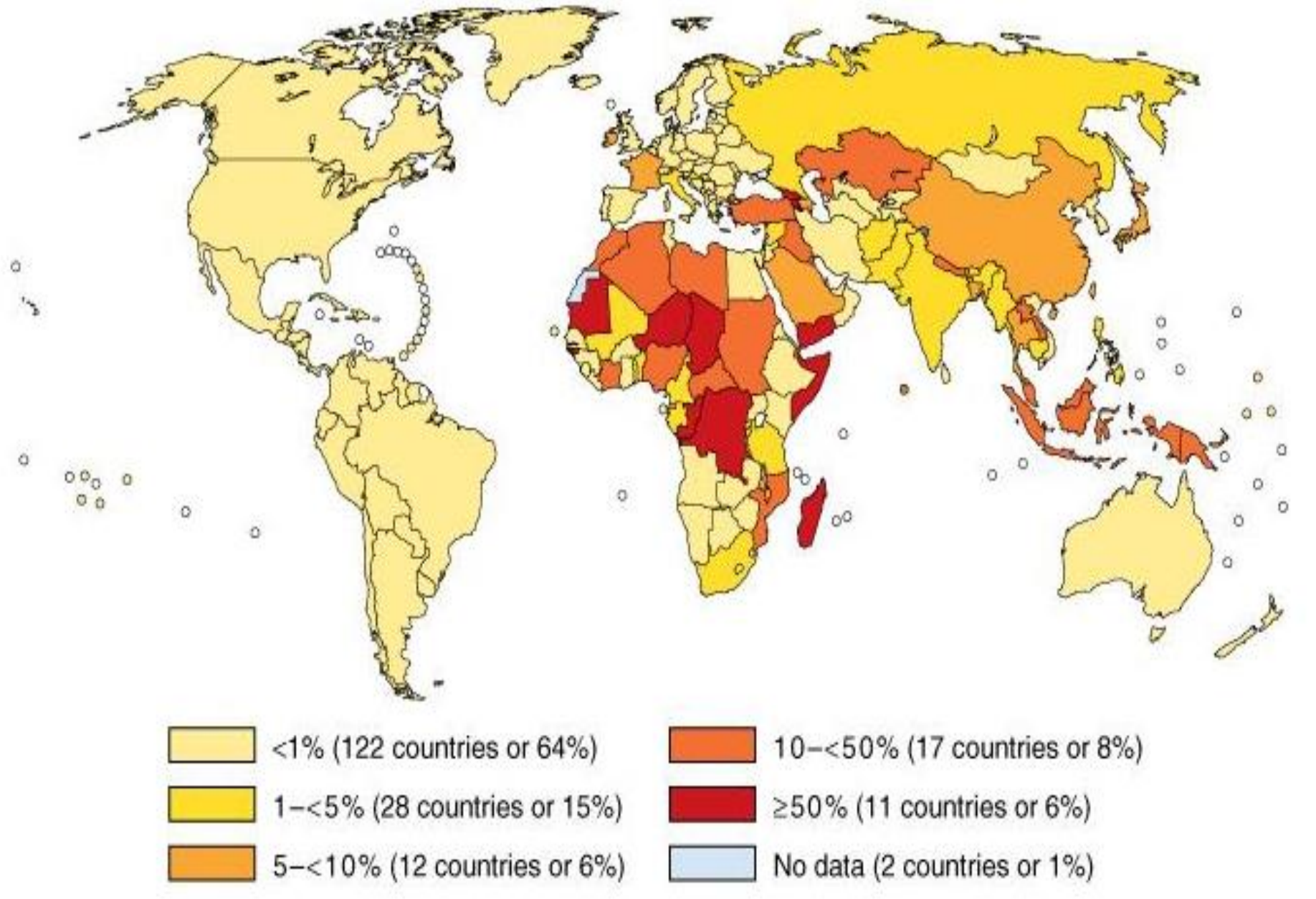
Common Viral Infections

1-Measles(Rubeola)

Measles is caused by infection with an RNA paramyxovirus which is spread by droplets . Measles remain common in developing countries, where it is associated with high morbidity and mortality. One attack confers lifelong immunity.

Measles virus is transmitted by respiratory secretions, predominantly through exposure to aerosols (droplets). Patients are contagious from 1 or 2 days before symptom onset until 4 days after the rash appears. Infectivity peaks during the prodromal phase. The mean intervals from infection to symptom onset and rash appearance are 10 and 14 days, respectively .

Worldwide reported measles incidence rate per 100,000 population

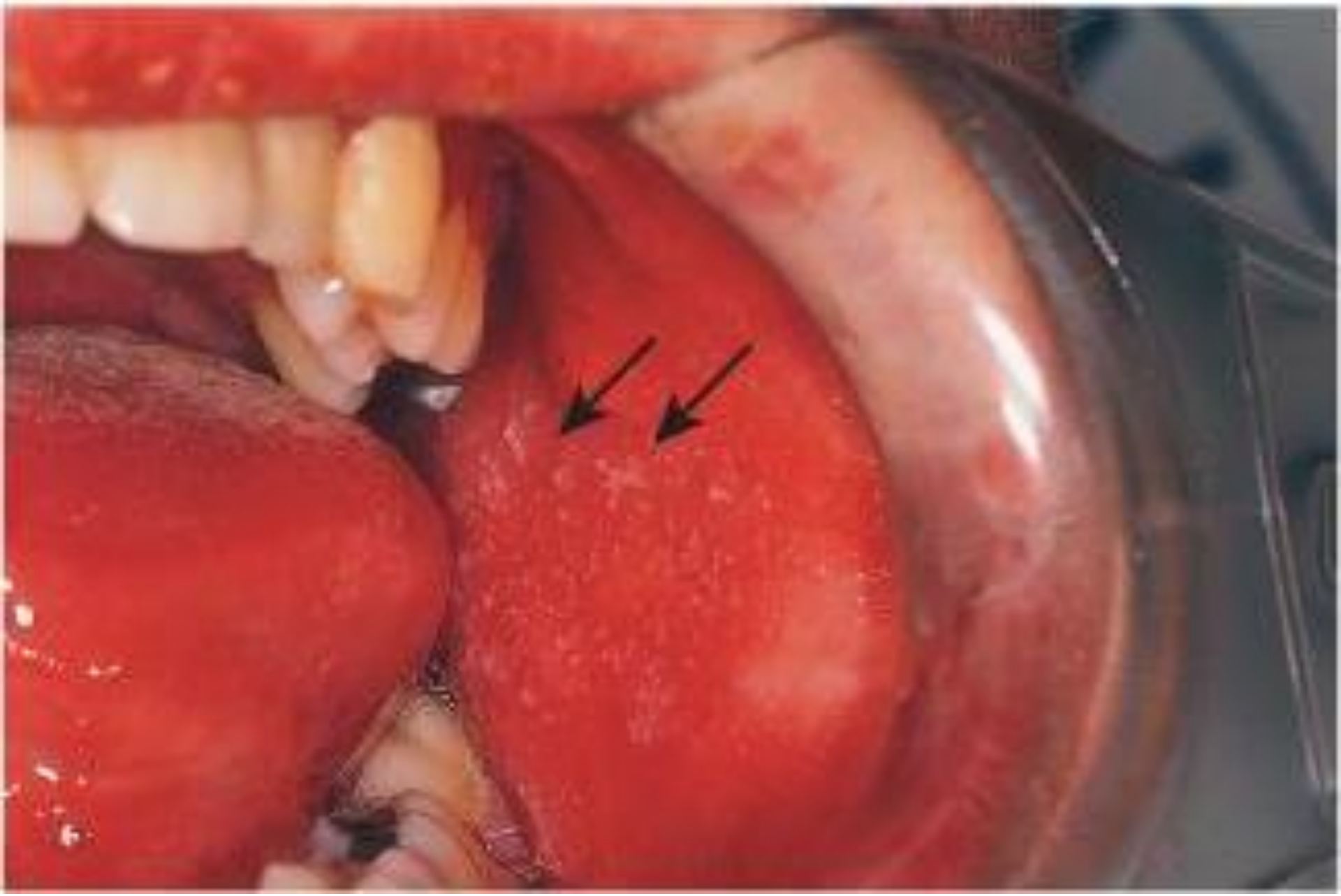


Clinical Manifestations

1-Measles begins with a 2- to 4-day respiratory prodrome of malaise, cough, conjunctivitis with lacrimation, nasal discharge, and increasing fever.

2-Just before rash onset, Koplik's spots appear as tiny "table salt crystals" in the on a bright red buccal mucosa).

Koplik's spots are typically located on the buccal mucosa. The spots wane after the onset of rash and soon disappear.



Koplik's spots (arrows) seen on buccal mucosa in the early stages of clinical measles.

3-The characteristic erythematous, nonpruritic, maculopapular rash of measles begins at the hairline and behind the ears, spreads down the trunk and limbs. At this time, the patient is at the most severe point of the illness. By the fourth day, the rash begins to fade .

4-Fever usually resolves by the fourth or fifth day after the onset of rash. Lymphadenopathy, diarrhea, vomiting, and splenomegaly are common features .

5- The entire illness, which usually lasts ~10 days, tends to be more severe in adults than in children, with higher fever, more prominent rash, and a higher incidence of complications .

Measles

Measles

Diagnosis

Measles is usually diagnosed clinically.

Leukopenia is usually present unless secondary bacterial complications exist. Proteinuria is often observed .

Complications

The complications of measles can be divided into three groups, according to the site involved:

1-The respiratory tract complications: which may include .

A-Otitis media : Very common in infants with measles .

B-Pneumonia : May be primary viral pneumonia or bacterial superinfection; Pneumonia is a frequent reason for hospitalization, especially of adults .

2-The central nervous system (CNS) complications : Postinfectious encephalomyelitis occurs in about 0.05–0.1% of cases.. Symptomatic CNS disease may present with Vomiting, headache, drowsiness, convulsions, and coma .

3-The gastrointestinal tract complications : Gastrointestinal complications of measles include gastroenteritis, hepatitis, appendicitis,

Measles during pregnancy is not known to cause congenital abnormalities of the fetus. It is, however, associated with spontaneous abortion and premature delivery.

Treatment

1-Therapy for measles is largely supportive and symptom based

2-Patients with otitis media and pneumonia should be given standard antibiotics.

3-All children in developing countries in whom measles is diagnosed should receive two doses of vitamin A supplements. (The benefit being maintenance of gastrointestinal and respiratory epithelial mucosa) .

A dose of 50,000 IU is used for infants 1–6 months old; 100,000 IU is recommended for infants 7–12 months old and 200,000 IU for children >1 year old. A single dose is administered on two consecutive days.

4- Ribavirin_is effective against measles virus in vitro and may be considered for use in immunocompromised individuals .

Prevention :

Prevention is by the administration of A combined live measles, mumps, and rubella vaccine (MMR vaccine).

Most persons who do not respond to the initial dose of measles vaccine will seroconvert after receiving a second dose.

The vaccine is administered routinely for primary immunization to persons 12 to 15 months of age, usually as the MMR vaccine .

The measles vaccine is not administered earlier than 12 months because persisting maternal antibody that was acquired transplacentally can neutralize the vaccine virus before the vaccinated person can build an immune response.

A second dose of MMR is recommended when children are 4 to 6 years old .

2- Rubella (German measles)

Rubella was formerly known as German measles because it was first distinguished clinically from rubeola in Germany.

It is probable that rubella is spread by the respiratory route. The incubation period is 12 to 23 days.

Rubella virus is shed during the prodromal phase of the illness and shedding from the pharynx can continue for ~1 week after onset of rash .

The principal importance of rubella lies in its devastating effects on the fetus in utero, producing teratogenic effects (Congenital rubella syndrome).

Infants with congenitally acquired infection may excrete virus in respiratory secretions and urine for months after birth and are contagious during this time.

Clinical Manifestations

A-Postnatally Acquired Rubella

During the prodrome the patient complain of malaise, fever, and lymphadenopathy.

A pinkish rash appears on the face and trunk after about 7 days and lasts for up to 3 days .

Rubella may occur without rash. (Diagnosed by demonstrating a rise in antibody).

Complications

Recovery is almost always complete. In contrast to measles, secondary bacterial infections are not encountered with rubella . other complication are uncommon and include arthralgia, encephalitis, and Thrombocytopenia.

- **Rash of rubella on the skin of a child's back .**

B-Congenital Rubella

Maternal infection during pregnancy may affect the fetus, particularly if infection is acquired during the 1st trimester of pregnancy.

Congenital rubella syndrome is charecterised by the presence of fetal cardiac defetct, eye lesions (paricularlty cataracts), mental handicap, and deafness. There may also hepatomegaly, pneomonitis, and myocarditis.

Treatment

There is no specific antiviral therapy. Few patients suffer discomfort severe enough to warrant symptomatic medication, headache and myalgia or arthritis may be controlled by analgesics.

Prevention

Prevention is with a live vaccine (see measles).

3-Mumps

Mumps is an acute systemic viral infection that occurs most commonly in children. It is usually self-limited .

Mumps is highly contagious and can be transmitted by droplets. Incubation period averages 18 days.

Because virus can be isolated from saliva for 5 to 7 days before and up to 9 days after the onset of clinical symptoms, an infected individual is potentially able to transmit mumps for a period of about 2 weeks.

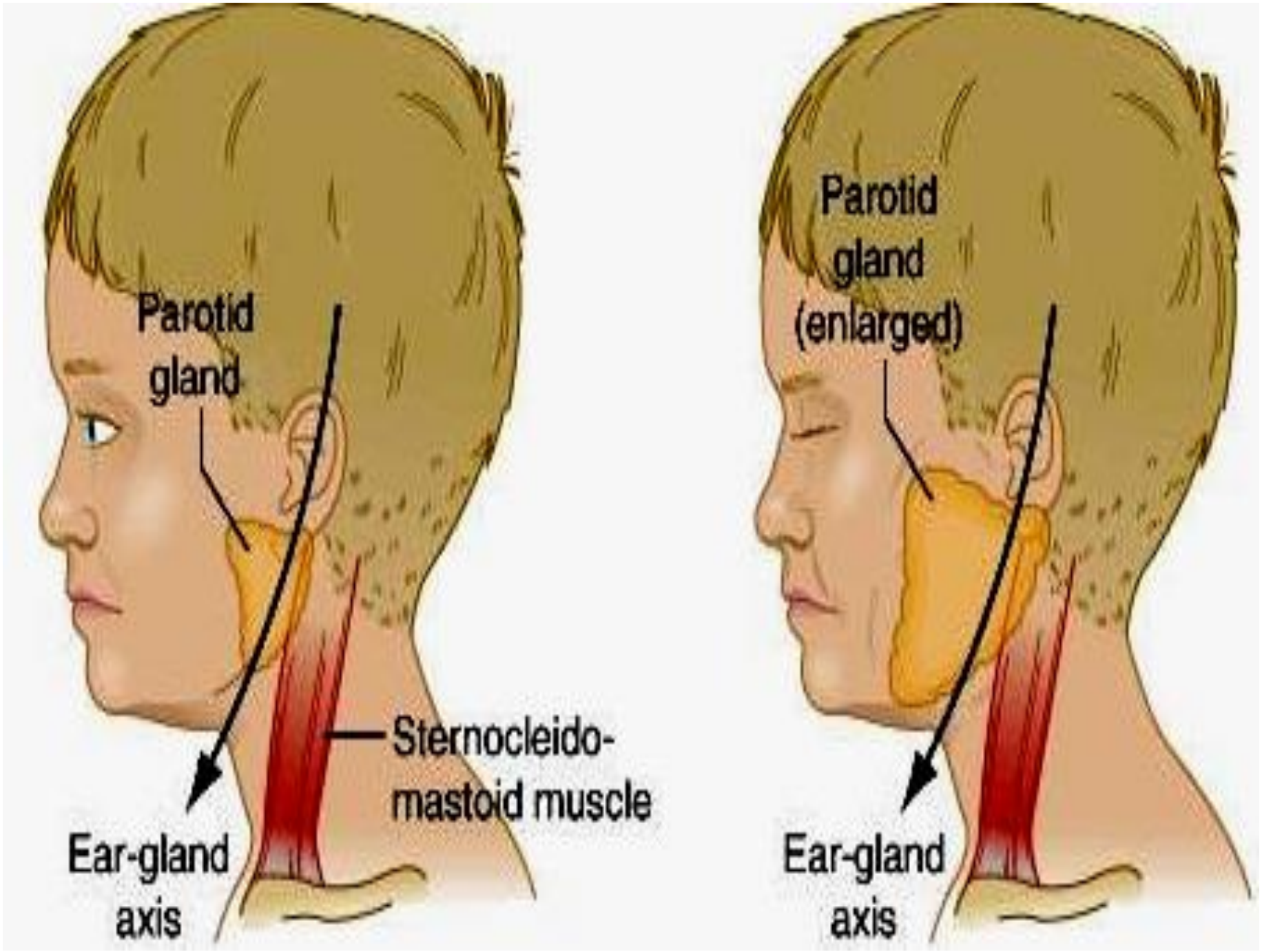
Clinical features:

Mumps is predominantly an infection of school–aged children and young adults.

There is a fever , headache and malaise , followed by the development of parotid gland swelling .

Painful parotid gland enlargement progresses over a period of about 3 days, followed by resolution of the parotid pain and swelling within about 7 days .

Less common features are orchitis, meningitis , pancreatitis, myocarditis, and hepatitis .


Parotid gland
Sternocleido-mastoid muscle
Ear-gland axis
Parotid gland (enlarged)
Ear-gland axis

Mumps

Diagnosis

Diagnosis is usually clinical.

Management :

Treatment is symptomatic. Prednisolone up to 40 mg orally for 4 days may be used to relieve the discomfort of orchitis.

Prevention

Prevention is with a live vaccine (see measles).

4-Varicella-zoster virus infections

Varicella-zoster virus (VZV) causes two distinct clinical entities:

1-Varicella (chickenpox) and

2- Herpes zoster (shingles)

Primary infection with this virus causes Varicella (chickenpox). After the primary infection, herpes Zoster remain dormant in nerve ganglia, and reactivation causes shingles.

Transmission occurs readily by the respiratory route , however, The mechanism of reactivation of VZV that results in herpes zoster is unknown.

1-Varicella (Chickenpox)

Clinical features:

After an incubation period of 14-21 days there is a brief prodromal period of fever, headache, and malaise. The rash, mainly on the face, scalp and trunks, begins and then develops into vesicles, which heal with crusting .

Complications include pneumonia , and CNS involvement.

Diagnosis:

Diagnosis is usually clinical.

- **Numerous varicella lesions at various stages of evolution**

Management :

1-Good hygiene includes daily bathing.

2-Secondary bacterial infection of the skin can be avoided by good skin care, particularly with close cutting of fingernails.

Pruritus can be decreased with topical dressings or the administration of antipruritic drugs.

3-Administration of aspirin to children with chickenpox should be avoided because of the association of aspirin derivatives with the development of Reye's syndrome.

Acyclovir therapy (800 mg by mouth five times daily for 5–7 days) is recommended for adolescents and adults with chickenpox of 24 h duration.

Likewise, aciclovir therapy may be of benefit to children <12 years of age if initiated early in the disease (<24 h) at a dose of 20 mg/kg every 6 h.

Because of the risk to both mother and fetus during pregnancy . pregnant women , exposed to VZV should receive prophylaxis with zoster-immune immunoglobulin (ZIG) and treatment with acyclovir if they develop chickenpox.

2-Herpes zoster (Shingles).

Clinical features

Herpes zoster is characterized by a unilateral vesicular eruption within a dermatome (dermatome is an area of skin supplied by one spinal nerve), often associated with severe pain.

Pain and tingling precede the rash by a few days.

- **shingles**

Management :

Patients with herpes zoster benefit from oral antiviral therapy, as evidenced by accelerated healing of lesions and resolution of zoster-associated pain with acyclovir, valacyclovir, or famciclovir.

Acyclovir, now off patent, is administered at a dosage of 800 mg five times daily for 7–10 days.

Valacyclovir, the prodrug of acyclovir, accelerates healing and resolution of zoster-associated pain more promptly than acyclovir.

The most common complication postherpetic neuralgia which can be severe and lasts for years. Treatment is with carbamazepine or Phenytoin .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