

**Chicken pox
(varicella)**

Herpes zoster

Smallpox (Variola)

Session objectives

- 1 Signs and symptoms & complications
- 2 Diagnosis
- 3 Epidemiology(Infectious agent, occurrence, Reservoir, Mode of transmission, incubation period, Susceptibility & resistance)
- 4 Prevention & Control
- 5 Treatment

- Acute generalized viral disease
 - ✧ Sudden onset of slight fever ,mild constitutional symptoms & skin eruption
 - ✧ Maculo-papular few hours vesicles.... 3-4days and leaves granular scabs. The vesicles are uni-ocular and collapse on puncture.
 - ✧ Lesions commonly occur in successive crops with several stage of maturity present at the same time



Photo Courtesy of CDC | Dr. Steven J. Pasternak



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Chicken Pox - Typical Early Lesion



Photo Courtesy of CDC



Photo Courtesy of CDC | Dr. Steven J. Pasternak



Photo Courtesy of CDC | Dr. Steven J. Pasternak

Chicken Pox - Evolving Lesions



Image Courtesy of CDC - Dr. KL Hennessy



Image Courtesy of CDC - Cliff Miller



Image Courtesy of CDC - Cliff Miller

Chicken Pox - Close-Up of Day 6



Image Courtesy of CDC - Cliff Miller



Image Courtesy of CDC



Image Courtesy of CDC - Dr. David S. Hirschowitz



- ✘ More abundant on covered than exposed parts of the body
- ✘ Lesions may appear high in the axilla & on the scalp, mm of the mouth & R.T & on the conjunctivae
- ✘ They may be so few as to escape attention
- ✘ Mild & atypical infection & inapparent can occur
- ✘ Serious complications; pneumonia, secondary bacterial infections, hemorrhagic complications and encephalitis.

- ✘ Sever form can occur in adults,
- ✘ Children with acute leukemia are at high risk of severe disseminated form with CFR of 5-10 %
- ✘ Neonates (5-10days) liable to severe generalized form and have a CFR of up to 30% but with antiviral drugs the rate likely to be lower.
- ✘ Infection early in pregnancy may be associated with (CVS) in 0.7 % & if infection occurs at 13-20 weeks it may be associated with CVS in 2%.

congenital varicella syndrome (CVS)

- Damage to brain: encephalitis, microcephaly, hydrocephaly, aplasia of brain
- Damage to the eye: optic stalk, optic cup, and lens vesicles, microphthalmia, cataracts, chorioretinitis, optic atrophy
- Other neurological disorder: damage to cervical and lumbosacral spinal cord, motor/sensory deficits, absent deep tendon reflexes, anisocoria/Horner's syndrome
- Damage to body: hypoplasia of upper/lower extremities, anal and bladder sphincter dysfunction
- Skin disorders: (cicatricial) skin lesions, hypopigmentation

✕ **Herpes zoster** (shingles) is a local manifestation or reactivation of varicella infection in dorsal root ganglia. Characterized by vesicles with an erythematous base in irregular crops along nerve pathways. Severe pain & paraesthesia for at least several weeks in 15 % of patients, and may result in permanent nerve damage, or post herpetic neuralgia. The incidence of disease increase with age (mainly in 15% of adults but may be seen in debilitated children).

The diagnosis of varicella is primarily clinical.

- Vesicular fluid can be examined with a Tsanck smear, or better with examination for direct fluorescent antibody. The fluid can also be "cultured"
- Prenatal diagnosis of fetal varicella infection can be performed using ultrasound, PCR (DNA) test of the mother's amniotic fluid,

Infectious agent:

Human (alpha) herpes virus 3
(V-Z virus), a member of Herpes virus group.

Occurrence:

- ☠ World wide, in temperate climates at least 90% of the population has had chicken pox by the age of 15 years, occurs most frequently in winter & spring.
- ☠ In tropical countries higher proportion of cases occurring among adults.
- ☠ Zoster occurs more commonly in older groups

Reservoir : Humans

Mode of transmission: person-to –person by;

- 1. Direct contact**
- 2. Droplet**
- 3. airborne spread**
- 4. articles soiled**

of vesicle fl. or secretion of the RT of chicken pox case or vesicle fluid of patient with HZ

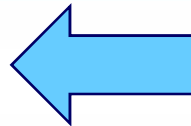
- ✓ Scabs of varicella lesions are not infectious.**
- ✓ Chickenpox is one of the most readily communicable diseases.**
- ✓ HZ has a lower rate of transmission, but contacts of HZ may develop chickenpox.**

**Incubation period: 2-3 weeks , commonly
14-16 days**

Period of communicability

Rash

**1-2 days
before**



**5 days
after and 7 days
for HZ**

Susceptibility & resistance:

- ❁ chicken pox is universal among those not previously infected
- ❁ More severe forms occur among adults
- ❁ Infection usually confers life long immunity
- ❁ Second attacks are rare
- ❁ sub clinical re-infection is common
- ❁ Viral infection remain latent & disease may occur later as HZ in about 15% of older adults & some times in children

Prevention:

1. Live attenuated **Varicella vaccine** (Varivax). A single dose of 0.5 ml sc is recommended for children age 12m-12 yrs .who have not had chicken pox . This vaccine had cumulative efficacy at 70-90 % followed for up to 6 years in preventing varicella in children. It is protective if it is given within 3 days of exposure.

Who should get chickenpox vaccine and when?

Some people should not get chickenpox vaccine or should wait.

Who should get chickenpox vaccine and when?

Routine

Children who have never had chickenpox should get 2 doses of chickenpox vaccine at these ages:

1st Dose: 12-15 months of age

2nd Dose: 4-6 years of age (may be given earlier, if at least 3 months after the 1st dose)

People 13 years of age and older (who have never had chickenpox or received chickenpox vaccine) should get two doses at least 28 days apart.

Some people should not get chickenpox vaccine or should wait.

- People have ever had a life-threatening allergic reaction to a previous dose of chickenpox vaccine or gelatin or the antibiotic neomycin.
- People who are moderately or severely ill at the time the shot is scheduled should usually wait until they recover before getting chickenpox vaccine.
- Pregnant women should wait to get chickenpox vaccine until after they have given birth. Women should not get pregnant for 1 month after getting chickenpox vaccine

2. Protect high risk individuals from exposure by **immunizing** household and close contacts. .
3. **VZIG** is effective in preventing or modifying the disease .if given within 96 hours of exposure

Control :

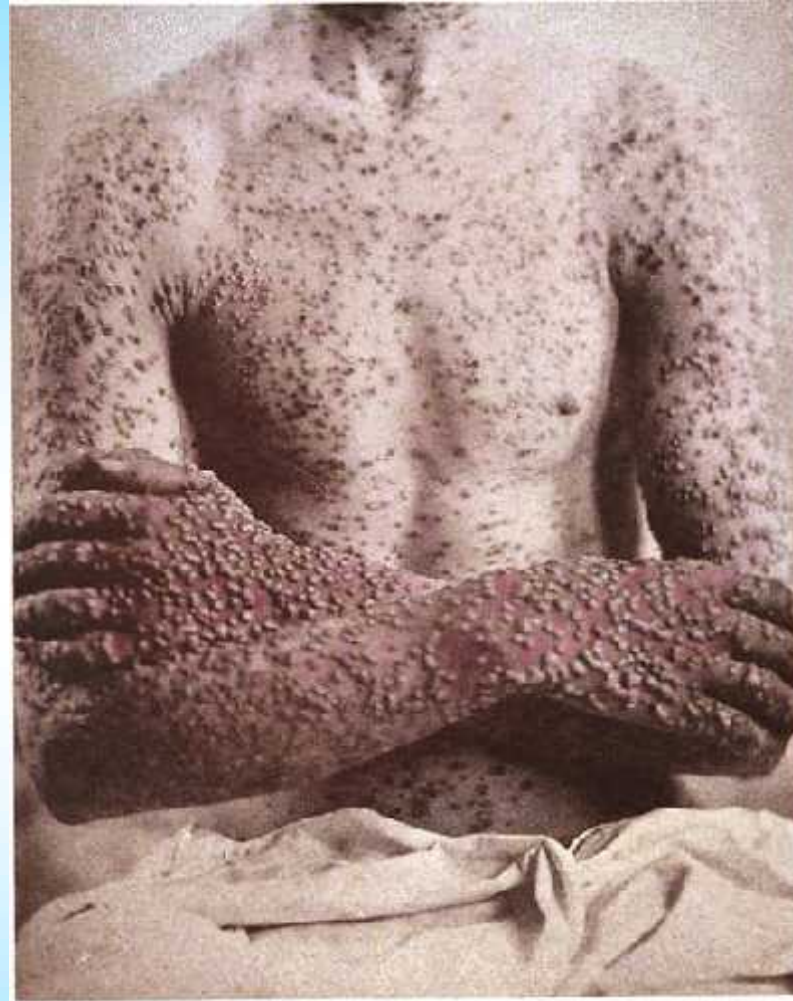
1. Reporting is not necessary
2. **Isolation** :Exclude children from school for 5 days after appearance of rash
3. Disinfection of articles soiled by discharge from nose & throat
4. **Protection of contact:**
 - ❖ VZIG given within 96 hrs of exposure
 - ❖ Varivax vaccine given within 3 days of exp.
 - Newborns of mothers exposed who develops varicella 5 days before or 2 days after delivery (VZIG).

- VZIG given to pregnant does not prevent CVS
 - ❖ Acyclovir (antiviral drugs) if given within week of exposure
- 5. Treatment:** symptomatic and antiviral drugs like Vidarabine, Zovirax (Acyclovir), if taken within 24 hours of rash onset, a dose of 80 mg/kg/day in 4 divided doses for 5 days.

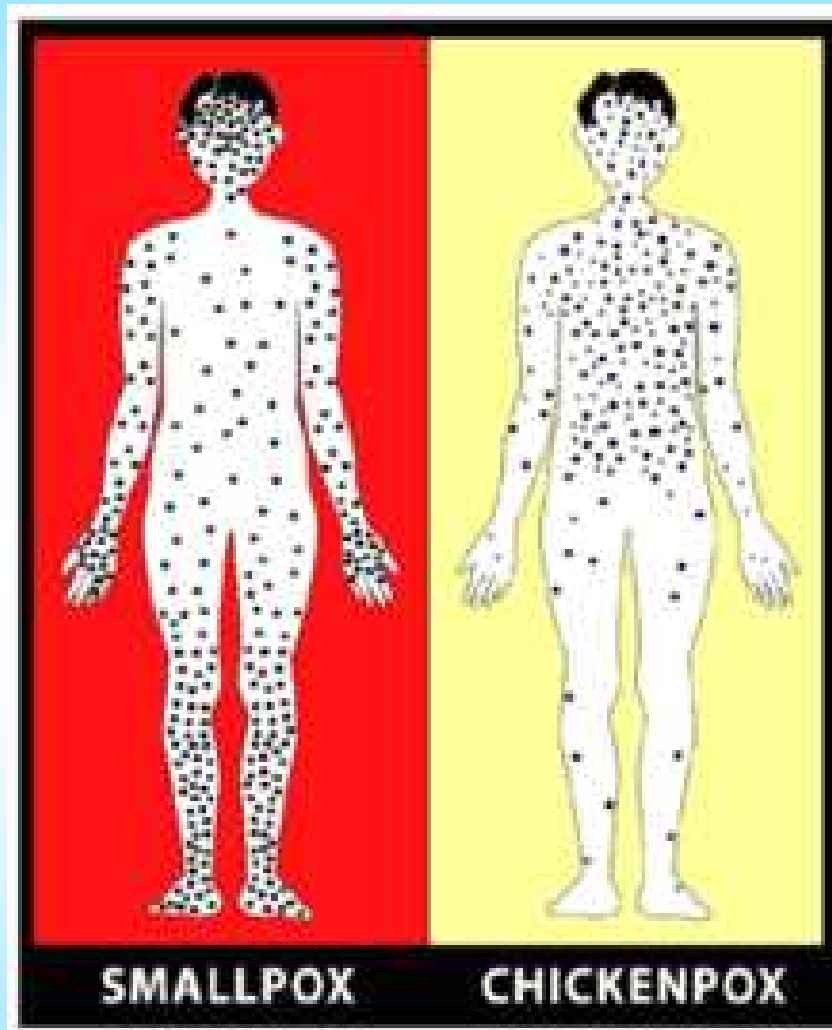
Smallpox (Variola)

- Last naturally acquired case in the world occur in October 1977 in Somalali
- Global eradication was certified two years later by WHO
- All known variola virus stocks are held under security in two laboratories in CDC center Atlanta Georgia & Russia
- It is systemic viral disease
- Sudden onset ,fever malaise, prostration, severe backache ,&occasional abdominal pain &vomiting (2_4 days)

- 2-4 days fever began to fall → deep seated rash developing in which individual lesions containing infectious virus macules
 - papules → vesicles → pustules → crusted scabs, which fell off after 3-4 weeks.
- Usually multilocular, no collapsing vesicles of small pox.
- Appeared on the successive stages of maturity
- Abundant on the exposed parts (centrifugal distribution).



Man with smallpox, illustrating the characteristic peripheral distribution of the rash



SMALLPOX

CHICKENPOX

Two types of smallpox were recognized during the 20th century :

- ★ Variola minor (alastrim) CFR <1%
- ★ Variola major (ordinary) CFR 20-40 % (among unvaccinated). Fatalities usually occur at 5th & 7th day of the disease.
- ★ In the previously vaccinated the rash stage was significantly modified.

Infectious agent:

Variola virus a species of orthopox virus.

Occurrence :

Formerly a world wide disease .it is eradicated.

Reservoir :

Naturally human, officially ,only in designated laboratories freezers.

Mode of transmission :

Air borne, droplet spread or skin inoculation. The conjunctiva & placenta were occasional portals of entry. secondary attack rate among unvaccinated population was about 50%. Vesicles and scabs from the lesions are infective

Incubation period: 7_19 days.

Communicability: From the first day of the development of the earliest lesion to the disappearance of all scabs; about 3 weeks.

Susceptibility:

Among unvaccinated is universal.

Method of control:

Immunization with variola virus vaccine even within 4 days from exposure, isolation of cases and quarantine of contacts with daily monitoring of temp. and its regarded as global emergency condition.

THANK YOU