Chicke pox
herpes zoster

- **Clinical features**

Varicella (chickenpox): Chickenpox generally presents with a low-grade fever, malaise and a rash. The rash is firstly maculopapular then becomes vesicular (blistered) and progresses to crusted lesions over about five days.

They are most numerous on the trunk and on the face, scalp, limbs and mucous membranes of the mouth. Some cases (about 5%) are subclinical or mild in nature. Adults tend to suffer with more severe disease than children. Newborns and immunosuppressed patients are at greatly increased risk of severe chickenpox.

The case fatality rate is lower for children than for adults . One out every 100000 children with varicella , compared with 1 out of every 5000 adults . Prior to the availability of effective viral therapies , the fatality rate was up to 30% , but it is likely lower now .

Complications:

*pneumonia (viral and bacterial)
* secondary bacterial infections
*hemorrhagic complications
* encephalitis
*Infection early in pregnancy may be associated with congenital varicella syndrome

Herpes zoster (shingles):

- Herpes zoster or shingles is characterized by a predominantly unilateral vesicular eruption within a dermatome. It is often associated with severe pain that may precede lesions by 48–72 hours. The rash lasts up to several weeks depending on severity. The rash is often more widespread and persistent in immunosuppressed patients. Patients must be carefully evaluated to ensure that there is no eye involvement when the rash involves the ophthalmic area of the face. Specialist treatment is mandatory in this case as blindness can result.
- Incidence increases with age and
- children under 12 are rarely affected unless immunosuppressed.

- complication of herpes zoster in many (especially elderly) patients is prolonged pain (post-herpetic neuralgia) which may persist for months after resolution of the skin lesions.
- Lesions may appear in croups in irregular fashion along nerve pathways , are usually unilateral, deeper seated and more closely aggregated than those of chickenpox .

Sever pain and parasthesia are common

Method of diagnosis

Confirmation of the diagnosis is generally only required when the clinical picture is atypical. It is made by:

- isolation of the virus in cell cultures
- visualization by electron microscopy
- serological tests for antibodies
- immunofluorescence on lesion swab or fluid
- nucleic acid testing or PCR.

Infectious agent

- Human herpes virus 3 (alpha) or varicella
- zoster virus (VZV).

Reservoir : Humans are the only reservoir of the virus, and disease occurs only in humans.

Occurrence

- Chickenpox is a highly contagious but generally mild disease and is endemic in the population. It becomes epidemic among susceptible individuals mainly during winter and early spring. More than 90% of cases are children under 15 years of age.
- Herpes zoster (shingles) occurs in 20% of people, mostly when they are elderly due to the reactivation of latent virus from the dorsal root ganglia.

Mode of transmission

- -person to person by direct contact
- - airborne spread of vesicle fluid or secretions of the respiratory tract of chickenpox cases or of vesicle fluid of patient with HZ , indirectly through articles freshly soiled by discharges from vesicles of mucous membranes of infected people .
- Incubation period : The incubation period is from two to three weeks, usually 14-16 days.

Period of communicability

- Usually communicable for one to two days (up to five days) before the onset of the rash, continuing until all lesions are crusted. Communicability may be prolonged in patients with altered immunity. Those with zoster are considered infectious for a week after lesions appear.

Susceptibility & resistance

- Susceptibility to chickenpox is universal among those not previously infected. Over 80% of non-immune household contacts of a case of chickenpox will become infected.
- Patients who are at high risk of severe disease/complications if they do not have immunity include: infants less than one month old, pregnant women and immunosuppressed individuals including those with hematological malignancies, on chemotherapy, high dose steroids or with HIV infection.

Methods of control

A- preventive measures :

- Symptomatic management of cases: Tepid bathing or cool compresses may help to reduce itching.
- Children with chickenpox should be excluded for at least five days after the rash appears. A few remaining scabs are not a reason for continued exclusion.

Children with shingles can attend school if the lesions can be covered adequately however exclusion from swimming and contact sports should be advised for seven days after the rash appears.

-Advise adults to stay away from work for the same period

- -Avoid contact with high risk susceptible persons.
- -Aspirin should never be given to children with varicella due to a strong association with the development of Reye's syndrome.
- -If chickenpox develops in pregnancy, refer within 24 hours of rash onset.

- live attenuated varicella virus vaccin .

A ***single*** 0.5 ml Sc dose is recommended for routine immunization of children up 12 yr of age who have not had varicella .

Varicella vaccine is recommended for susceptible persons.

Priority groups for adult immunization include :

-Person who have close contact with persons at high risk for serious complications .

Persons who live or work in environments where transmission of VZV is likely

(Teachers of young children , day care employees & residents & staff members in institutional setting)

- persons who live & work in environments where transmission can occur (college students , military personnel)

**Persons more than 13 yr old require 2 dose of vaccine 4-8 weeks apart .

***Mild varicella- like rash at the site of injection or at distant sites occur in about 2%-4% of children & about 5% of adults.

**The duration of immunity is unknown , but antibodies have persisted for at least 10 yr .

2- protect high risk individuals who cannot be immunized , such as nonimmune neonates & immunodeficient, from exposure by immunizing household or other close contacts .

3- Varicella- zoster immune globulin (VZIG) , is effective in modifying or preventing disease if given withen 96 hours after exposure.

B-control of patient

contacts & the immediate environment :

- isolation : exclude children from school or public places until vesicle become dry, usually after 5 days , exclude infected adults from workplace& avoid contact with susceptible .

- concurrent disinfection : articles soild by discharge from nose & throat.

-Quarantine : usually none . However, in a hospital where susceptible children with known recent exposure may justify quarantine for a period of at least 10-21 days after exposure (up to 28 days if VZIG has been given)

- protection of contacts :

vaccine is recommended for use in susceptible persons exposure to varicella .

-VZIG given within 96 hours of exposure may prevent or modify disease in susceptible close contacts of cases .

- antiviral drugs such as acyclovir, a dose of 80 mg/kg/day in 4 divided doses is given within a week of exposure . –

investigation of contacts & source of infection : a source of infection may be a case of varicella or herpes zoster

Management of the disease

- Primary varicella infection in the healthy child is a rather benign disease that requires symptomatic therapy only. Oral acyclovir should be considered for healthy persons at increased risk of severe varicella infections.
- Adults and immunocompromised persons with chickenpox have a more complicated course than that occurring in children, and therefore, the condition necessitates a more aggressive pharmacotherapeutic approach. Intravenous acyclovir therapy is recommended for patients who are immunosuppressed or immunocompromised.
- Varicella-zoster immune globulin (VZIG) is indicated for use in highly susceptible, VZV-exposed immunocompromised or immunosuppressed populations.

epidemic measures :

- Outbreaks of varicella are common in school, day care & institutional setting which may associated with complications .
- *infectious cases should be isolated* & *susceptible contacts immunized immediately* to control an outbreak.
- Or *VZIG should be evaluated immediately for consideration if vaccine is contra indication* .

Typhoid and Paratyphoid fever

- A systemic bacterial disease with insidious onset of sustained fever, severe headache, malaise, anorexia, relative bradycardia, nonproductive cough in early stage of illness, rose spots on the trunk and constipation more often than diarrhea in adults.
- Intestinal hemorrhage or perforation can occur in 1% of cases. Case fatality rate is 10%-20% without antibiotic therapy and 1% with antibiotic use. Relapse may occur in 15%-20% of patients, but with milder form.
- Paratyphoid fever presents a similar clinical picture, but tends to be milder, and the case-fatality rate is much lower.

Case classification

- Suspected case: Any case having the following features: sustained, non-sweating fever of 38 oC or more, for 3 days or more, abdominal discomfort (abdominal pain, diarrhea or constipation). With 2 or more of the following symptoms: dry non-productive cough, relative bradycardia, anorexia, severe headache.

Confirmed Case: A suspect or probable case with detection of S. typhi or S. paratyphi through positive culture of blood, stool, urine or bone marrow (laboratory investigation: culture of blood early in the disease; stool and urine after the first week; or bone marrow culture which provide the best bacteriologic confirmation (90%-95% recovery) even in patients who have already received antimicrobials. Because of its limited sensitivity and specificity, serologic tests (widal test) are generally of little diagnostic value.)

Carrier: any person discharging bacilli in stool or urine for more than a year following infection.

Infectious agent:

- For typhoid fever: Salmonella typhi
- For paratyphoid fever: Salmonella paratyphi A

Occurrence:

Worldwide, mostly endemic in many developing countries, especially in the Middle East.

It occurs throughout the year with seasonal increase in summer months.

Reservoir:
Humans, rarely domestic animals for paratyphoid.
Mode of transmission
Ingestion of food and water contaminated by feces and urine of patients and carriers.

Incubation period:
Depends on inoculum size and host factors; from 3 days to over 60 days (range 8-14 days). For paratyphoid is 1-10 days.

Period of communicability:
As long as bacilli appear in excreta, from first week throughout convalescence (1-2 weeks for paratyphoid).

Susceptibility and resistance

- General and is increased in individuals with gastric achlorhydria and possibly in those who are HIV- positive. Relative specific immunity follows recovery from clinical disease, inapparent infection and active immunization. In endemic areas, typhoid fever is most common in preschool children and children ages 5-19 years old.

Methods of control

Preventive measures

1-Educate the community about the importance of hand washing.
2-Dispose human feces in a sanitary manner.
3-Protect, purify and chlorinate public water supply.
4-Control fly by screening, spraying with insecticides; control fly breeding by frequent collection and disposal of garbage.
5-Clean preparation and handling of food.
6-Pasteurize or boil all milk and dairy products.
7-Good personal hygiene of patient, convalescent and carriers.
8-Encourage breast-feeding throughout infancy; boil all milk and water used for infant feeding.
9-Periodic examination of the food handlers and exclusion of chronic carriers from work until three consecutive negative stool cultures are obtained at least one month apart (for acute cases 24 hour apart).
10-Immunization of the high risk group.

typhoid fever : immunization

- for occupational exposure, travel to endemic area, living in area of high endemisity & household member of documented S . typhi carrier and
- microbiology laboratory personnel who frequently work with S . typhi .
- An oral live vaccine using salmonella typhi strain Ty 21a , live attenuated S . typhi (requiring 1 capsule by the mouth , 4 doses, 2 days apart)
- .. Time immunization should be completed by (before possible exposure) by 1 week.
- Minimum Age For Vaccination is 6 years. & older & adults
- Booster Needed Every 5 years for people who remain at risk
- A paranteral vaccine containing the polysaccharide Vi antigen (single dose). It not give for children younger than 2 year .
- Time immunization should be completed by (before possible exposure) is 1 weeks.
- Minimum Age For Vaccination is 2 years.
- Booster Needed Every 2 years.
- PTF : oral typhoid vaccine (Ty 21a) conferred partial protection against paratyphoid

Control measures

1-Suspected cases should be reported from all health care facilities to higher level.

2-Confirmed cases should be investigated using case investigation form; enteric precautions for acute cases and should be supervised until 3 consecutive negative cultures of feces at least 24 hours apart and at least 48 hours after any antimicrobials, and not earlier than 1 month after onset. If any of these is positive, repeat cultures at monthly intervals during the 12 months following onset until at least 3 consecutive negative cultures are obtained.

3-Search for unreported cases, carriers or contaminated food, water, milk or shellfish.

4- Household and close contacts should not be employed in sensitive occupations (food handlers) until at least 2 negative feces cultures, taken at least 24 hours apart, have been obtained.

Epidemic measures:

1- search for the case or carrier who is the source of infection & for the vehicle (water or food) by which infection was transmitted.
2- eliminate suspected contaminated food.
3- pasteurize or boil milk, or exclude milk supplies & other foods suspected on epidemiological evidence until safety is ensure.
4- chlorinate suspected water supplies adequately under competent supervision or avoid use. All drinking water must be chlorinated, treated with iodine or boiled before use.
5- routine use of vaccine is not recommended.