VARICELLA VIRUS
(Chickenpox)

By Caitlin Cecil
Earliest reports of vesicular rashes date to ancient civilization
1888 Relationship found between herpes zoster and varicella zoster and proven in the 1950s
Finding Treatments:
1974 Live attenuated vaccine virus
1980s aciclovir
1986 DNA sequence established
On April 10th 2012, a young girl at the age of 4 with acute lymphoblastic Leukemia was exposed to her cousin who had been ill for 2 days and began to see symptoms of varicella zoster. After 13 days, the episode was then reported to the child’s oncologist. She was then prescribed 7 days of oral acyclovir and then began her chemotherapy. Twenty-two days after the Varicella exposure, she was taken to the ED for fever and abdominal pain. She was to discontinue chemotherapy. She soon returned 2 days later with a Varicella rash where she was treated with intravenous acyclovir and antibiotics. Soon after she developed severe multiorgan failure and died on May 7th. It was concluded by polymerase chain reaction testing that Varicella was present and no other diagnoses were found for her acute illness.
ETIOLOGIC AGENT

- Ubiquitous human alphaherpes virus
- Nonmotile
- No staining characteristics
- Diameter of 150-200 nm
- Grows slowly in human diploid fibroblasts
VIRULENCE FACTORS

• Nucleocapsid surrounding double stranded DNA for protection from phagocytosis of WBCs
• Glycoprotein spikes help to attach to host cell and be engulfed to take over by receptor mediated endocytosis
DESCRIPTION & PATHOPHYSIOLOGY

- Latency established in dorsal root ganglia
- Virus reactivation results in the virion transport down sensory nerves
- Characterized by itchy, vesicular eruptions or a rash along with a fever
- The spots usually first appear on the back of the head and ears and travel down the trunk and extremities
- Lesions vary from 10 to several hundred
TRANSMISSION

- Through aerosols carrying cell-free VZV particles
- Occurs from skin vesicles to respiratory tract
- Can also occur by contact of vesicular fluid of infected person
- Can be transmitted through transplacental passage during maternal infection
- Incubation period is 10 to 21
  - Average 14 days
• Diagnosis is simple if red bumps are present
• Other tests can be done if in doubt or suspicious if more serious conditions are present
• If in doubt a Tzanck smear or culture of vesicular fluid can be done
PREVENTION & TREATMENT

- In mild cases, frequent bathing, calamine lotion and oatmeal bathing can be used for relief
- Acetaminophen used for fever
- Acyclovir recommended for 12 years or older
- For prevention, a live attenuated vaccine from the Japanese Oka strain is recommended to children 12 months and older
  - Can also be used for immunocompetent adults
Antelope Valley

STATISTICS

West Philadelphia

Cases/1000 population

Year

Vaccine coverage

Cases/1000 population

Year

Vaccination coverage

Overall incidence

Before the introduction to the VZV vaccine in 1995 there were an estimated 4 million cases of Varicella annually in the United States.

- Most cases were in children under 15 years of age.
- Between 1995 and 2005 there has been an overall decrease of 90%.
- The previous slide shows two different areas in the United States and how Varicella has decreased over time since the vaccine has been put into effect.
Chicken pox is a mild but very contagious virus

Less than one out of every ten thousand children have a fatal experience with Varicella

23 out of every 10,000 cases Varicella causes pneumonia

Varicella stays in the body for life and can resurface as shingles later in life
REFERENCES