Varicella Zoster (Shingles)

Revision Dates

Case Definition	August 2011
Reporting Requirements	August 2011
Remainder of the Guideline (i.e., Etiology to References sections inclusive)	June 2005

Case Definition

Confirmed Case

Clinical illness[1] with or without laboratory confirmation* of infection:

- Isolation or direct antigen detection of varicella zoster virus (VZV)** from an appropriate clinical specimen (e.g., swab from fresh lesion, CSF, eye fluid aspirate)[2]

OR

- Detection of VZV nucleic acid (e.g., PCR) in an appropriate clinical specimen (e.g., CSF)[2]

OR

- Seroconversion or significant change between acute and convalescent varicella zoster IgG titre by any standard serologic assay in the absence of recent administration of any blood product or immunization with varicella or shingles vaccine[3]

OR

- Positive serologic test for varicella zoster IgM antibody in the absence of recent immunization with varicella or shingles vaccine[3].

[1] Unilateral vesicular eruption with a dermatomal distribution which may or may not be accompanied by acute neuritis and/or post herpetic neuralgia. Disseminated VZ may occur in immunocompromised individuals.

[2] Refer to the Provincial Laboratory for Public Health (PLPH) Guide to Services for current specimen collection and submission information.

[3] If case was recently immunized, serology should be confirmed with a second confirmatory test.

* Similar laboratory findings can be found in patients with chickenpox (varicella) or varicella zoster (shingles).

** Shingles is also referred to as herpes zoster. Varicella Zoster refers to the virus that causes varicella and reactivation of varicella virus results in herpes zoster.

Reporting Requirements

1. **Physicians, Health Practitioners and others**
   Physicians, health practitioners and others listed in Sections 22(1) or 22(2) of the *Public Health Act* shall notify the Medical Officer of Health (MOH) (or designate) of all confirmed cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two days).

2. **Laboratories**
   All laboratories, including regional laboratories and the PLPH shall in accordance with Section 23 of the *Public Health Act*, report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two days) to the:
   - Chief Medical Officer of Health (CMOH) (or designate),
   - MOH (or designate) and
   - Attending/ordering physician.

3. **Alberta Health Services and First Nations Inuit Health**
   - The MOH (or designate) of the zone where the case currently resides shall forward the preliminary Notifiable Disease Report (NDR) of all confirmed cases to the CMOH (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
   - For out-of-zone reports, the MOH (or designate) first notified shall notify the MOH (or designate) of the zone where the client currently resides by mail, fax or electronic transfer and fax a copy of the positive laboratory report within 48 hours (two days).
   - For out-of-province and out-of-country reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two days) including:
     - name,
     - date of birth,
     - out-of-province health care number,
     - out-of-province address and phone number,
     - attending physician (locally and out-of-province) and
     - positive laboratory report (faxed).

Etiology

Varicella zoster is a virus (Human [alpha] *herpesvirus* 3), a member of the *Herpesvirus* group, not to be confused with Herpes simplex.

Clinical Presentation

Varicella zoster is often called herpes zoster, zoster or shingles. It has been recognized since ancient times, however, it was often confused with smallpox. Varicella zoster virus (VZV) becomes latent after a primary infection (chickenpox) or vaccination. Anyone who has had chickenpox or varicella vaccine can develop varicella zoster. The virus remains dormant or inactive and only when it reactivates does zoster occur. About 15–20% of individuals who have had chickenpox will develop varicella zoster at some time during their lives (1). The incidence of post-vaccination varicella zoster is currently unknown.

The first symptom of varicella zoster is typically pain ranging from mild to severe caused by acute neuritis due to the reactivation of VZV in the dorsal root ganglia. Within a few days swelling or redness of the skin appears along with clusters of clear vesicles which develop into blisters. They do not normally cross the midline (non-disseminated) but may be disseminated in individuals who are immunocompromised (e.g., HIV infected) or have malignant tumors. Disseminated varicella zoster rarely occurs in healthy individuals. Maternal varicella zoster does not pose a risk for severe varicella in the neonate.

The most common areas affected are those supplied by the trigeminal nerve and thoracic ganglia leading to lesions around the chest, abdomen, and eyes. Complications such as bacterial infections, corneal opacification, and postherpetic neuralgia (constant or intermittent pain after the skin has healed) can cause lingering problems and may occasionally be debilitating.

The incidence of varicella zoster and postherpetic neuralgia both increase with age. Approximately 30% of the elderly suffer postherpetic neuralgia. There is some evidence that almost 10% of children under treatment for malignant neoplasm are prone to develop varicella zoster, as are persons with HIV.

Diagnosis

The diagnosis of varicella zoster is generally made by history and physical examination. Laboratory tests are not routinely required, but may be useful in complicated cases. These include visualization of the virus by electron microscopy, demonstration of viral antigen in smears using FA, presence of viral DNA by PCR or a rise in serum antibodies. Testing is done at PLPH.

Epidemiology

Reservoir

Humans.

Transmission

Varicella zoster is not directly transmitted person to person, however, individuals who are non-immune to chickenpox and are exposed to fluid of skin lesions (direct contact) or by respiratory droplets may develop chickenpox.

Incubation Period

Varicella zoster is caused by a reactivation of VZV that has been latent for a few to many years in a person with previous chickenpox disease.

Period of Communicability

Persons with varicella zoster may be sources of infection for a week after the appearance of the lesions, however, zoster is much less contagious than chickenpox. The virus that causes zoster can only be passed on to individuals who are not immune to chickenpox. Those individuals develop chickenpox, not varicella zoster. Persons susceptible to chickenpox should be considered potentially infectious for up to 21 days following exposure (28 days if VZIG was given) to varicella zoster.

Host Susceptibility

Varicella zoster occurs in persons who have had chickenpox or varicella vaccine. It has been suggested that reactivation is dependent on a balance between the host and virus factors. Persons who are elderly and individuals who are immunocompromised have a higher incidence of varicella zoster. There have also been reported cases of shingles in children less than two years of age whose mothers had chickenpox during pregnancy

Occurrence

General

Zoster occurs worldwide. In the United States it is estimated that there are half a million cases each year, resulting in over 1.5 million physician visits. Many of these individuals require long-term care for neuralgia. Varicella zoster has no seasonal variation occurring throughout the year. It is a common infection among the elderly.

Canada

No specific data is available. Varicella zoster is not nationally reportable.

Alberta (2)

Varicella zoster has been reportable in Alberta since 1986 but remains an underreported disease. From 1998 to 2002, older individuals (≥ 40 years of age) accounted for more than half of all cases reported. In 2000, a case was reported in a child less than one year of age. Twenty five cases were reported in 2001, 26 cases in 2002, and 27 in 2003.

Key Investigation

Single Case/Household Cluster

- Determine history of previous chickenpox disease.
- Assess varicella immunization history.
- Determine if the disease is disseminated or non-disseminated.
- Identify host characteristics e.g., immunocompromised.
- Assess occupational risk e.g., healthcare worker.
- Follow-up of non-immune contacts will begin on January 1, 2007 when case-by-case reporting of chickenpox begins.

Control

Management of a Case

- Keep the skin clean to help prevent secondary bacterial infections.
- Cover lesions to prevent transmission to susceptible individuals.
- Avoid direct contact with immunocompromised persons.
- Hospital staff (or healthcare workers) who develop varicella zoster should not be allowed to return to work until all lesions have crusted over or are well covered by clothing.
- Healthcare workers caring for immunocompetent hospitalized persons with localized varicella zoster need only use routine practices and contact precautions for the duration of the illness.

If the patient has disseminated disease, airborne and contact precautions in addition to routine practices should be implemented until all lesions are crusted.

- In hospitalized immunocompromised persons with localized or disseminated zoster, routine practices, airborne, and contact precautions should be used until all lesions are crusted.

Treatment of a Case

- Varicella zoster is usually a self-limited disease and supportive treatment is often all that is required.
- Acyclovir, famcyclovir, and valcyclovir are all effective in treating acute infection. Treatment of zoster with antivirals can be considered in the following circumstances.
  - Healthy individuals with dermatomal disease if varicella zoster is diagnosed within three days of onset. This may decrease the viral shedding, the duration of skin lesions, and possibly reduce the risk of post herpetic neuralgia.
  - Immunocompromised individuals (e.g., HIV, malignancy, organ transplant recipient) with localized (dermatomal) zoster or disseminated disease.
  - For severely ill patients with disseminated disease, only acyclovir is available for intravenous therapy.
  - Valcyclovir and famcyclovir (but not acyclovir) have been shown to reduce the risk of post-herpetic neuralgia following treatment of localized disease in immunologically normal patients. (G Taylor, personal communication, May 11, 2003)

Management of Contact (2)

- VZIG is rarely used to prevent acute VZV infection in varicella zoster contacts.
- This would be considered if:
  - the source has disseminated or multidermatomal zoster,
  - the contact is VZV seronegative, and
  - the contact is considered at high risk for severe primary VZV infection (i.e., the extremes of age, immuno-compromised).
- Consult with MOH.

Preventive Measures

- Immunize susceptible healthcare workers and others for varicella as per the current Alberta Immunization Manual.
- Hospital staff (or healthcare workers) who develop varicella zoster should not return to work until all lesions have crusted over or are well covered by clothing.

References

(1) Public Health Agency of Canada. *Update on Varicella*. Ottawa: CCDR 2004;30-ACS-1. http://ww.phac-aspc.gc.ca/publicat/ccdr-rmtc/04vol30/acs-dcc-1/index.html

(2) Alberta Health and Wellness, Disease Control and Prevention. *Varicella zoster by year and age group*. Communicable Disease Reporting System. May 2003.

