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1.0 INTRODUCTION

Simian B virus (Herpes simiae, Cercopithicine herpesvirus -1) is a naturally occurring infectious agent that is endemic among macaque monkeys (including rhesus macaques, pig-tailed macaques, cynomolgus monkeys, and other macaques). Infected monkeys often have no or very mild symptoms, although oral and genital lesions may develop. Infections due to Simian B virus in humans are rare and occur as a result of exposure to either macaques or their secretions. Only ~50 cases of Simian B virus infection in humans have been identified to date.

2.0 CLINICAL DESCRIPTION

Mode of transmission: Infection occurs by a percutaneous or permucosal exposure to the infectious tissues or fluids of macaques monkeys. The ocular, oral and genital secretions are potentially infectious. Monkey bites and scratches are well documented routes of Simian B virus infection.

In infected humans, Simian B virus replicates at the site of exposure which may manifest as a vesicular rash. The virus spreads along the peripheral nervous system to the spinal cord and then to the brain.

Incubation period: This is reported to range from as little as 2 days to 5 weeks with most well-documented cases presenting 5 – 21 days after exposure.

Clinical description: A vesicular rash may develop at the site of exposure. Additional symptoms can include tingling, itching, pain, or numbness at the site although many patients report no symptoms at the site of infection beyond the discomfort of wound. Some patients develop lymphadenopathy proximal to the site of inoculation. Within the first 3 weeks after exposure, paresthesias may develop and proceed proximally along the affected extremity. Associated symptoms can include fever, myalgias, weakness of the affected extremity, abdominal pain, sinusitis and conjunctivitis. Asymptomatic infection of humans has not been documented.

Among untreated humans, the mortality rate associated with B virus infection is estimated to be 80%.



3.0 DEFINITIONS

Confirmed case of B virus infection: B virus seropositive, as defined by both ELISA and Western Blot analysis.

Exposure: Skin exposure (macaque bites; macaque scratches; or contact with ocular, oral, or genital secretions, nervous tissue, or material contaminated by macaques) with loss of skin integrity **OR** mucosal exposure with or without injury.

For each primate exposure, 3 major variables need to be assessed:

- 1) **Source of exposure:** Macaques are the **only** primates known to transmit Simian B virus. Other primates pose no known risk unless they have had the opportunity to acquire infection directly from a macaque. Macaques that have oral lesions are more likely to be shedding virus. Primates that are ill, stressed or gravid are all more likely to shed Simian B virus.
- 2) **Adequacy of wound first aid:** Adequate wound care includes: cleansing within 5 minutes of exposure for a full 15 minutes.
- 3) **Type of wound:** The type of wound or exposure, the depth of the wound, and the location of the wound should all be considered in the management. Infections from exposure of the head, torso or neck may present with no signs or symptoms before the CNS is involved and should be classified as high risk. Superficial wounds and scratches are easily cleaned and, therefore, usually are considered of lower risk. Deep punctures – in particular, those caused by bites – are likely to result in inadequately cleansed wounds and pose a higher risk.

Note: Prophylaxis is strongly recommended for cases with: skin exposure that could not be adequately cleaned or mucosal exposure to a high-risk source (macaque monkey) particularly if there was a deep puncture bite or laceration of the head, neck or torso.

Prophylaxis is not recommended for: skin exposure in which the skin remains intact; exposure associated with non-macaque species of nonhuman primates.



4.0 GUIDELINES FOR POST-EXPOSURE PROPHYLAXIS

Post-exposure prophylaxis is defined as administration of an antiviral medication to a person potentially exposed to simian B virus but not documented to be infected. There have been no noted cases in which humans who received post exposure prophylaxis within 72 hours of exposure developed disease.

4.1 Was the person exposed to a macaque primate?

Simian B virus disease in humans usually results from macaque bites or scratches. Following is a web site to assist with identification of the type of monkey involved: <http://www2.gsu.edu/~wwwvir/VirusInfo/macaque.html>

4.2 First Aid

The most critical period for the prevention of B virus infection and other infections is during the first few minutes after an exposure occurs. Both the adequacy and the timeliness of wound or mucosa cleansing are the important factors for reducing the risk of infection. Washing of the involved site should last for at least 15 minutes with a solution containing detergent soap (e.g. chlorhexidine). In addition to being washed, wounds may be gently massaged to increase their contact with the cleansing solutions. Incision of wound sites is not recommended.

4.3 Detailed History

A detailed history should be obtained and the time, source, type of exposure, and the time and adequacy of cleansing after the exposure should be documented.

4.4 Diagnostic Testing

Simian B virus is classified as a Biosafety Level-4 biologic agent and testing of material known or suspected to contain this virus should be done at a facility designated as having a Biosafety Level of 4. In North America, there are three laboratories that perform diagnostic testing for the agent. All specimens are to be sent to BCCDC Laboratory Services and will then be forwarded to an appropriate laboratory.

PCR testing to identify Simian B virus is feasible if clinically appropriate. Consultation with the BCCDC virologist-on-call is required before the collection of specimens.



If indicated, blood for baseline serology is to be collected as soon as possible after the suspected exposure.

If indicated, blood for convalescent serology is to be collected between 3 – 6 weeks after the baseline serum specimen. Seroconversion or a significant (≥ 4 -fold) increase in titre is diagnostic of acute infection.

A third blood specimen should be collected 3 months after suspected exposure to confirm the findings of the convalescent specimen. This is particularly important if the subject received post-exposure prophylaxis.

For an historical exposure (ie. ≥ 5 weeks) where a baseline serum antibody level has not been obtained, and the client has not experienced illness to date: an occult infection is extremely unlikely and serological testing is of limited value.



5.0 EPIDEMIOLOGY/HISTORICAL INFORMATION

There have been no documented cases of Simian B virus infections in British Columbia to date. Only ~ 50 cases of B virus infection in humans have been reported, with only 26 of these being well documented cases:

Exposure	No. of cases
Monkey bite	10
Monkey scratch	2
Wound contamination with monkey saliva	2
Tissue culture-bottle cuts	1
Needlestick injury	2
Possible aerosol	2
Cleaning monkey skull	1
Needle scratch and monkey bite	1
Cage scratch	2
Possible reactivation of simian B virus	1
Human to human contact	1
Mucosal splash	1
Unknown	1



6.0 POST-EXPOSURE PROPHYLAXIS

Prophylaxis is recommended when: there has been skin exposure or mucosal exposure to a high-risk source, **and** there was inadequate cleansing of the exposed area **or** the exposure was a deep puncture bite.

To be effective prophylaxis should be started within hours after the exposure and is not effective if started **more than 5 days** after the exposure. Nevertheless if virus is detected in the wound of an untreated patient after 5 days, prophylaxis is still indicated.

Three orally administered agents – acyclovir, valacyclovir, and famciclovir – are currently available for post-exposure prophylaxis of simian B virus infection. These drugs have not been approved by the US Food and Drug Administration for the treatment of simian B virus infection.

The recommended anti-viral agent of choice is valacyclovir, 1 g, given 3 times daily for 14 days.

Acyclovir, 800 mg 5 times daily for 14 days is the preferred agent if post-exposure prophylaxis is to be initiated in pregnancy.

Consultation with an Infectious Disease specialist is strongly recommended before or immediately after initiation of prophylaxis.



7.0 AUTHORITY

Health Act (1983) and Communicable Disease Regulation

8.0 REFERENCES

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