NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

Arbovirus Reference Laboratory
Centre for Emerging Zoonotic and Parasitic Diseases
1 Modderfontein Road, Sandringham
Johannesburg, 2131

SINDBIS VIRUS

The disease

- Sindbis is a viral disease that is transmitted to people by mosquitoes
- The clinical disease caused by sindbis infection is known as Pogosta disease (Finland), Ockelbo disease (Sweden), and Karelian fever (Russia)
- It has occurred in Africa, Eurasia and Oceania with human cases in Northern Europe, Australia, China and South Africa
- Sindbis is widely distributed in the Highveld region of South Africa
- The hypothesis is that Sindbis virus cycles between ornithophilic mosquito species and birds

The mosquitoes

- *Culex and Culiseta* species mosquitoes transmit sindbis virus
- These same mosquitoes transmit West Nile virus
- These mosquitoes bite mostly during the night time

Treatment and vaccines

- There is no antiviral medicine to treat sindbis fever
- Currently there are no approved vaccines for human use
- Many cases require no treatment
- Symptomatic support such as pain and fever relief is often prescribed

Laboratory investigation

- The laboratory diagnosis of sindbis is based primarily on the detection of antibodies by haemagglutination inhibition assay or ELISA in serum
- The detection of IgM antibodies indicates recent infection
- If serum is collected within 8 days of illness onset, the absence of detectable virus-specific IgM does not rule out a diagnosis, and the test may need to be repeated on a later sample
- Reverse transcription polymerase chain reaction (RT-PCR) and virus isolation from a serum collected early in the course of illness are additional tests that may be useful
- All samples submitted to the laboratory should include a completed case investigation form

More information on arboviral disease:

www.nicd.ac.za under the 'Diseases A-Z' tab
www.ecdc.europa.eu/en/sindbis-fever/facts

Symptoms

- Symptoms usually begin within 7 days after being bitten by an infected mosquito
- The most common symptoms are mild fever with a unique maculopapular and often itchy exanthema over the trunk and the limbs (halo appearance – example below) and joint pain

- Other symptoms may include nausea, general malaise, headache and muscle pain

Illness course and outcomes

- Incubation period varies from a few days to just over 1 week
- Most patients feel better within two weeks (range 7-14 days)
- Some people may develop longer-term joint pain, which may result in chronic arthritis
- In endemic areas, the incident rates are highest in those aged 30-69 years
- No deaths have been reported

Prevention

USE INSECT REPELLANT
- Use DEET-containing insect repellents as directed by the manufacturer
- Reapply during the day as needed

WEAR LONG-SLEEVED SHIRTS AND PANTS
- Consider wearing long-sleeved, loose fitting shirts and pants when outdoors and likely to encounter mosquitoes
- When camping or similar activities consider using permethrin treated gear and clothing

KEEP YOUR SURROUNDS MOSQUITO-FREE
- Screen windows and doors
- Reduce mosquito breeding grounds. Mosquitoes lay eggs in and around water. Minimize the amount of standing water in and around the house – for example pots and other containers that contain stagnant water

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Who should be tested for Sindbis virus?

Persons presenting with rash (maculopapular, itchy exanthema with halo appearance), fever, headache, arthralgia/myalgia
AND
Recent/history of mosquito bites

Laboratory testing offered by NICD

- RT-PCR testing and virus culture (clotted blood/serum) are useful during the transient viraemic stage of infection (<7 days post symptom onset). *A negative RT-PCR / viral culture does not exclude recent infection.*
- Paired serological testing (clotted blood/serum taken up to 14 days apart). A haemagglutination test (HAI) and sindbis virus specific IgM ELISA is available. Serology is limited by cross-reactivity with other alphaviruses therefor paired serological testing is essential. *Specimens submitted for sindbis virus will also be tested for other arboviruses because of overlapping clinical presentations*
- Serology for sindbis virus may not provide conclusive results
- Sindbis virus is a category 3 notifiable medical condition (www.nicd.ac.za/wp-content/uploads/2017/06/SOP-Notifiable-Medical-Conditions_-notification-procedures_v2Jan2018final-Copy.pdf)

Procedures to follow when submitting specimens for sindbis virus testing to the NICD

- Collect blood in a red (clotted blood) or yellow top (serum) tube
- Complete arbovirus case investigation form available on https://www.nicd.ac.za/diseases-a-z-index/arbovirus/
- Submit the specimen to the Arbovirus Reference Laboratory, Centre for Emerging Zoonotic and Parasitic Diseases, National Institute for Communicable Diseases for testing
- Samples should be kept cold (on ice packs or cold packs) during transport
- Sindbis virus testing will be done during office hours, for additional information contact the laboratory at 011 386 6424 / 082 903 9131 or cezd@nicd.ac.za
- Arrange urgent testing with the NICD Hotline 082 883 9920
- Submission of convalescent specimens is highly recommended to facilitate interpretation of serological assays