Information Sheet on the Amoeba Naegleria fowleri

There have been many recent news stories (Summer 2007) concerning young Central Florida boys that died from brain infections after swimming in area lakes. This infection, Primary Amoebic Meningoencephalitis is caused by the amoeba Naegleria fowleri. This single cell protozoan is found in freshwater world wide. Infection can result if water containing this amoeba is forced up the nose. Once in the body the amoeba travels to the brain and spinal cord. While this amoeba is common, infection is extremely rare. Only a handful of cases have reported in Central Florida since 1962 and only 33 infections were documented in the U.S. between 1998 and 2007.

There are no practical means of testing for or controlling this amoeba. It is most active during the summer months when water temperatures are above 85 degrees F. This is generally between June and October and the warmest waters are generally in the shallow areas near shore. This amoeba lives in bottom sediments where it feeds on decaying plant materials. It can become suspended in the water when sediments are disturbed. In addition to living in surface waters this amoeba is also found in soils and poorly maintained or under-chlorinated swimming pools.

Infection can only occur when a number of conditions are present:
- The amoeba must be present in the water.
- The amoeba requires warm waters to reproduce in large numbers.
- Water containing an amoeba must enter the nose. (Infection can not occur from swallowing water containing the amoeba.)

Infection may be prevented with precautions:
- Avoid water-related activities in bodies of warm freshwater, hot springs, and thermally-polluted water such as water around power plants.
- Avoid water-related activities in warm freshwater during periods of high water temperature and low water levels.
- Hold the nose shut or use nose clips when taking part in water-related activities in bodies of warm freshwater such as lakes, rivers, or hot springs.
- Avoid digging in or stirring up the sediment while taking part in water-related activities in shallow, warm freshwater areas.
- Swim only in properly maintained pools.

Symptoms of infection:
- Severe headache
- High fever
- Stiff neck
- Nausea
- Vomiting
- Seizures
- Hallucinations as the condition worsens

The disease progresses rapidly and infection usually results in death within 3 to 7 days. If you suspect an amoeba infection do not delay seeking medical help. Anyone who has been swimming in freshwater who exhibits these symptoms should see a doctor as soon as possible.

This article has been summarized from the following references.

- Naegleria Infection, Center for Disease Control
  http://www.cdc.gov/ncidod/dpd/parasites/naegleria/factsht_naegleria.htm
- Primary Amoebic Meningoencephalitis, Volusia County Health Dept.
- Primary Amoebic Meningoencephalitis, – Army Corps of Engineers

For further information on protecting yourself from recreational water illnesses, go to www.healthyswimming.org.

This document is provided for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider. Revised June 23, 2009.