



Tropical Trouble: **Norwalk Virus Revealed**

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Gastrointestinal viruses, such as the Norwalk virus, are a frequent cause of nausea, vomiting and diarrhea. The Norwalk virus, the focus of March's *Bug of the Month*, is reviewed as a recently implicated cause of illness in travellers to tropical destinations.

Gastroenteritis can be caused by a number of different pathogens, some of the most frequent being viruses. This winter, there have been numerous reports in the media of travellers developing an acute gastrointestinal illness while vacationing in tropical destinations. Some travellers have been quarantined for these illnesses upon their arrival back in Canada.

What is Norwalk virus?

Norwalk virus is the prototype of a group of small, round, enteric viruses known as the Norviruses. Laboratory evaluation has determined the Norwalk virus is a member of the Calicivirus family, which causes gastroenteritis among adults and children.

Virus shedding in the stool is greatest during the first 24 to 48 hours of illness.

What are the symptoms?

The typical illness manifests with nausea, vomiting, diarrhea and abdominal cramps, with symptoms persisting two to three days. Vomiting is a prominent symptom in most individuals.

The incubation period is generally 24 to 48 hours, but may range from 18 to 72 hours. Virus shedding in the stool is greatest during the first 24 to 48 hours of illness.

Who is at risk?

Anybody can get Norwalk virus infection.

The greatest risk factors for acquiring Norwalk virus are consuming contaminated food and water and being in contact with persons who have or have had Norwalk virus infections.

How do you get Norwalk virus?

Outbreaks have been reported among confined institutional settings, such as hospitals, long-term care facilities, cruise ships and military barracks.

Any type of food can become contaminated with Norwalk virus. Shell fish (*i.e.*, oysters, clams and mussels), which filter large amounts of water and are eaten raw or steamed (suboptimally cooked), may serve as a source of the virus. Since Norwalk virus is relatively resistant to heat inactivation, there is a high risk associated with the consumption of raw or steamed shell fish.

Additionally, any water source, either for human consumption or for recreational purposes, such as swimming pools or lakes, may



become contaminated with Norwalk virus, leading to outbreaks. It is important to note these viruses are also relatively resistant to inactivation by chlorine.

How is it diagnosed?

In many cases, Norwalk virus leads to self-limited illness associated with nausea, vomiting and diarrhea. Those infected are not toxic and routine laboratory investigations, such as complete blood count, are generally within normal limits or there may be a slight leukocytosis with or without lymphopenia. Other blood chemistry is within normal limits and blood cultures are sterile. Leukocytes are not observed in the stool.

Culture of the virus from fecal specimen is not possible and, thus, direct visualization of the virus particles by electron microscopy of fecal specimens is the most efficient technique for detection of this virus.

How can the virus be avoided?

Settings such as cruise ships, vacation resorts and closed institutional settings, it may be exceptionally difficult to avoid to exposure to Norwalk virus, particularly during outbreaks. The following measures may assist in preventing the acquisition and spread of Norwalk virus:

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Advising patients...

The recent reports of diarrheal illnesses associated with certain exotic locations and specific resorts have raised doubts in the minds of many travellers as to whether they should visit their desired tropical location.

Ultimately, the precautions outlined herein and in the February 2005 *Bug of the Month* on how to prevent traveller's diarrhea provide a practical approach on advising patients to prevent the risk of acquiring a diarrheal illness while travelling.

- always wash hands
 - before eating,
 - after using the washroom,
 - after changing diapers and
 - after exposure to potentially infectious materials;
- cook (don't just steam) all shell fish;
- wash raw vegetables and
- dispose feces in a hygienic manner.

It is also important for health-care workers with diarrheal illness not to be involved in direct patient-care activities and for food handlers with diarrheal symptoms not to prepare or manage food.

How is it treated?

For the majority of individuals infected by Norwalk virus, symptomatic therapy and oral rehydration should be satisfactory. In those at extreme ages, who, on rare occasion, become profoundly dehydrated, parenteral rehydration may be necessary.

