



DIRECTORATE
OF HEALTH

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CONTENTS:

Anisakidosis in humans	p. 1
This winter's influenza	p. 1
Norovirus infection aboard a cruise liner	p. 2

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ANISAKIDOSIS IN HUMANS

During the past two years four cases of anisakidosis (nematode infection) have been diagnosed in humans by the Institute for Experimental Pathology of the University of Iceland at Keldur. The nematode larvae (also called roundworms) in question are of the species *Pseudoterranova decipiens*, found in the intestines and flesh of marine fish in Icelandic waters. Adult stages of this nematode live in the stomach of seals (seal nematodes) while another species, *Anisakis simplex*, resides in the stomach of toothed whales. The whale nematodes can infest pelagic fish such as herring and capelin.

The common factor for those infected was that they had all eaten raw or undercooked fish (Karl Skírnisson. *Læknablaðið* (Journal of the Icelandic Medical Association) 2006; 92: 21–5). The first two got infected after eating raw catfish. The third one became infected after eating inadequately cooked cod liver and the fourth one after eating sushi (Karl Skírnisson. Fax to the Chief Epidemiologist). It is also thought likely that an infection occurred in 2003 in a fisherman who had consumed raw capelin roe; however, the worm found in his appendix after an appendectomy was not sent to a laboratory for further analysis.

Cases of nematode infection are rare in Iceland and those detected in the past few



Photo: Karl Skírnisson

Seal nematode. Both seal nematodes and whale nematode can become 3–4 cm long.

years have been caused by seal nematodes. Infections caused by *Anisakis simplex* appear to be more common on an international level and can in some cases result in more severe gastrointestinal symptoms. Most often, however, the symptoms are mild, but people get shocked when the 3–4 cm-long larvae crawl into their throat or are found in their stool.

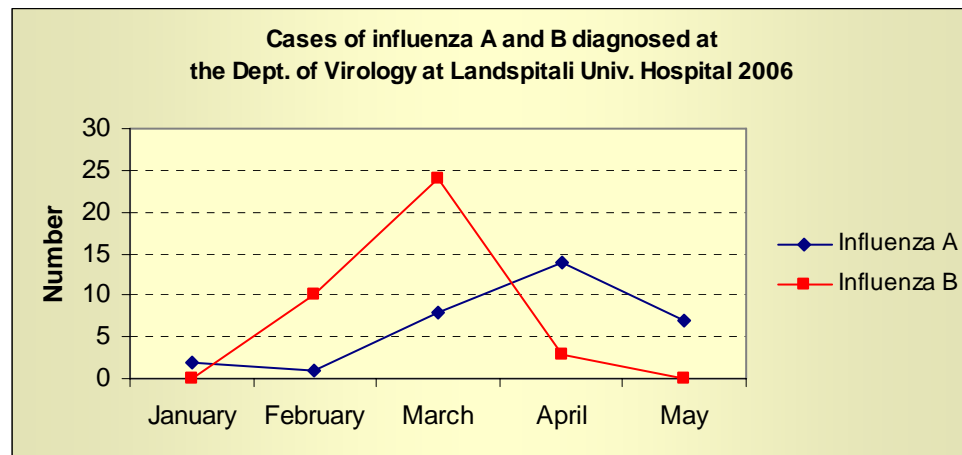
Anisakidosis may be on the rise in Iceland. Perhaps more consumption of raw fish products is to blame; however, the increased prevalence of roundworms in the ocean fauna around Iceland may also be a contributing factor. It is possible to avoid infection by heating fish products to 70°C for one minute or longer, or by freezing them at -18°C for about a week. This kills the roundworms. Any fish which is to be consumed raw should be checked and cleared of roundworms.

THIS WINTER'S INFLUENZA

Since 1998 the annual outbreak of influenza has usually peaked in the period from October to March. Last winter the outbreak started in January, however, and reached a peak in March. As shown in the picture on p. 2, influenza virus B was most prevalent in the initial stage of the outbreak while influenza A started later and seems to have

reached its peak in April. The influenza A belonged mainly to the strain H3N2 (86%) but the strain H1N1 was also identified to some extent (14%). Contrary to what happened in early 2005, this year's influenza has so far not caused severe illness among the population, as those infected have been mainly children and young people.

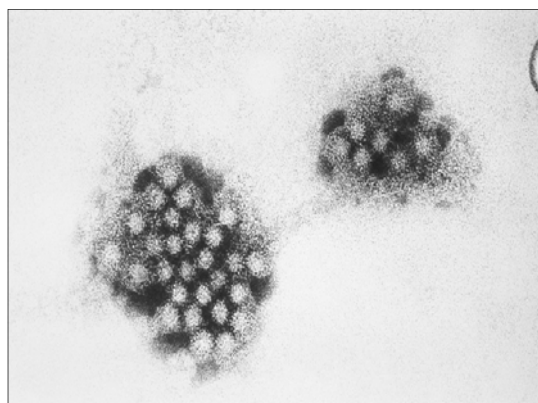
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NOROVIRUS INFECTION ABOARD A CRUISE LINER

In the beginning of June this year an outbreak of acute stomach infection occurred aboard a cruise liner sailing to harbour in Akureyri, in the North of Iceland. On arrival the ship physician sent stool samples from two patients for laboratory examination at the virology department of the Landspítali University Hospital. These revealed a noro-

virus infections have been a big problem aboard cruise liners, including those sailing to Iceland. Norovirus infections in Iceland have also been considerably increasing in the past few years, particularly in the summer. The travel industry has also been affected by these infections as outbreaks have been associated with restaurants and hotels. Occasionally noroviruses have caused outbreaks in residential homes for the elderly and in health care facilities in recent years. Infections in such institutions can prove very serious for residents, patients and staff.



Norovirus seen through an electron microscope. Each virus is 27–32 nm in diameter. Source: National Center for Infectious Diseases, USA.

It is important to observe strict hygiene since the disease is extremely contagious. A common route of transmission is through stool but there have also been instances of transmission by means of aerosolisation of vomit from patients. The most common symptoms of norovirus infection are diarrhea and/or vomiting that may be accompanied by abdominal pains, myalgia, headache and sometimes mild fever. In most cases people who are otherwise healthy recover from the infection within one to three days without any treatment. Those infected with norovirus disease should not cook or serve food to others. Thorough hand-washing and hygiene are always essential and the most effective means of preventing transmission.

virus infection. The cruise liner headed the same day for Britain where its home harbour is located. The UK Health Protection Agency was warned of the laboratory findings. Lately there have been news of outbreaks of norovirus infections aboard other cruise liners in the North Atlantic. As far as is known, however, the infection has not spread in the vicinity of Akureyri.

Norovirus infections have been a big problem aboard cruise liners, including those sailing to Iceland.