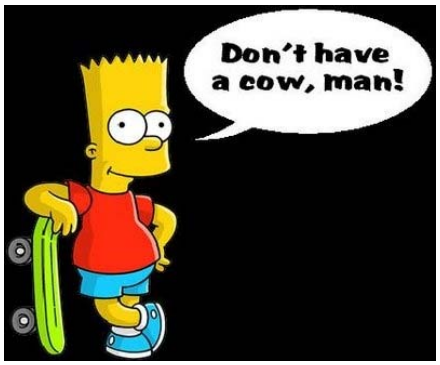


HOLY C.O.W.!

IT'S...

Clinical Question of the Week #14
September 29th, 2008 through October 6th, 2008

Please e-mail your answers to Kuo, Tim, Wendy, and Kevin (klian@mednet.ucla.edu; tprovias@mednet.ucla.edu; wsimon@mednet.ucla.edu; kbreger@mednet.ucla.edu) by 0800 on Monday, October 6th, 2008. The resident or intern with the most correct answers at the end of each month will receive a prize!

Case: A 25-year-old medical student presents to clinic with three days of nausea, vomiting, and diarrhea. She recently returned from a trip to Japan with her family during an intersession break, during which she visited her ancestral home and celebrated a clan cultural festival where many traditional foods were served. Over the preceding three days, she reports nausea and vomiting, followed one day later with mucoid diarrhea, some of which she thinks might be bloody. She also has had crampy abdominal over this same period of time. The only other thing she can recall is having a little bit of a scratchy throat about four or five days ago which she attributed to her allergic rhinitis and self-treated with Claritin. She's really concerned that she might have developed Crohn's disease or ulcerative colitis, having just finished her Gastrointestinal block prior to her trip. An image from her upper endoscopy is shown.


Upper endoscopy

Questions:

1. **What is the diagnosis?**
   Anisakiasis, which is a gastrointestinal infection caused by infection of saltwater fish which are contaminated by nematode larvae of the family Anisakidae, which include *Anisakis simplex* (also known as the herring worm) and *Pseudoterranova decipiens* (also known as the cod worm). Humans are accidental dead-end hosts of this roundworm,

which usually infects fish and marine animals (see below) – it's essentially the marine animal equivalent of human ascariais. The disease was described in 1960 by P.H. van Thiel, a noted expert in the field of parasites.

Anisakiasis causes either by allergic reaction, mediated by IgE, which may range from itchy throat with direct contact to urticaria to anaphylaxis, or by direct tissue damage. Tissue damage results from invasion of the gut wall, where the organism dies and sets up an inflammatory reaction, resulting in various symptoms depending on the site of infection. Immediately after ingestion, some people may experience an itchy sensation at the back of their throat, and sometimes the parasite is coughed up or regurgitated at that time. If the organism is swallowed, gastric anisakiasis may occur, which is characterized by self-limiting abdominal pain, nausea, and vomiting approximately 2-5hrs after ingestion. A more chronic course is also seen and may mimic peptic ulcer disease. Endoscopy may reveal the parasite in the gastric mucosa.

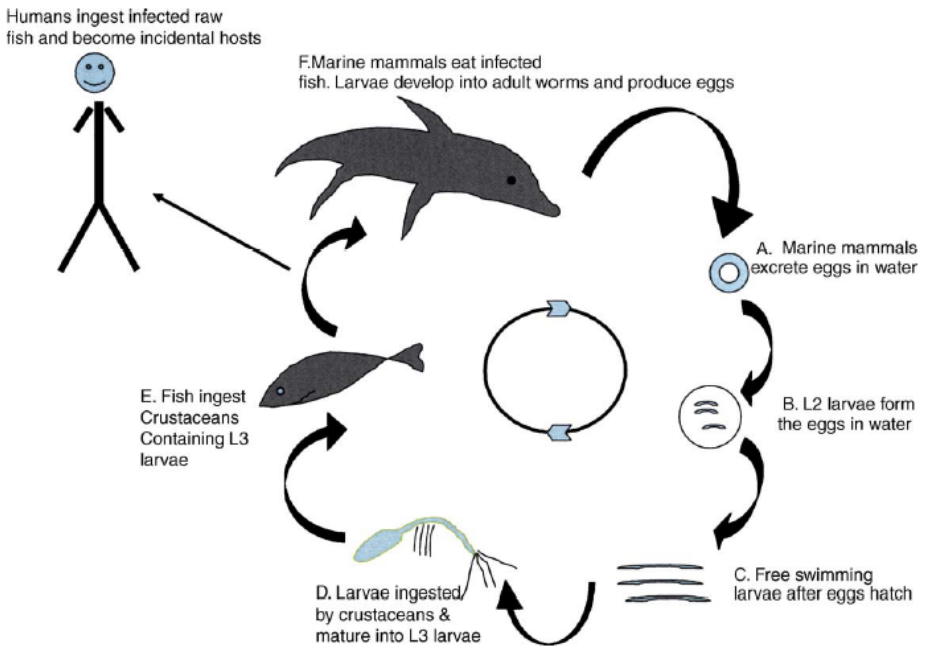
If the parasite passes into the intestine, the patient may experience lower abdominal pain, which usually is self-limited. Occasionally, symptoms mimicking appendicitis and subacute bowel obstruction occur, with rare episodes of acute abdomen or perforation. A chronic infection may also occur with mucoid and/or bloody diarrhea, mimicking Crohn's disease.

Diagnosis is made by direct examination of coughed up organism, endocscopic evaluation with visualization of the organism, characteristic filling defect on barium swallow, or serologic testing for A. simplex-specific IgE levels. Eosinophilia may also be seen but is nonspecific. (1, partial credit for Ascariasis)

2. **What is the primary risk factor for this condition? What is the geographic distribution of the disease?**
   The primary risk factor for infection is ingestion of raw or undercooked fish. Geographically, over 90% of cases are found in Japan (approximately 2000/yr) due to the consumption of sushi and sashimi, with additional cases seen on the Pacific coast of South America and in the Netherlands. (1)

3. **Describe the full process in which this condition comes to affect humans.**
   No parasite life cycle description is complete without a fun diagram. This one below is particularly good since it has a happy face sushi-eating victim.

   Essentially, infected marine animals excrete Anisakis eggs into the water, which then hatch into larvae, which are then ingested by small crustaceans, where there, they mature further. The crustaceans are eaten by fish, and the larvae mature even further, and when the fish are finally eaten by marine animals, the larvae develop into worms and produce eggs for the cycle to restart. Humans are dead-end hosts, and supplant the marine animal when they eat the fish. Ahhh…the circle of life. (0.5)



4. What is the treatment?

Treatment is conservative and symptom based; direct removal with endoscope is curative, while obstruction or perforation requires surgical intervention. Albendazole has been reported to be useful in a case report. (0.5)