

**This page was missed out in the pint issue of BIMJ Volume 7 Issues 3 / 4 publication; page 186**

**(Refer to page 164)**

**Answer: Giardiasis.**

The slide shows duodenal biopsy with pear shaped protozoa of *Giardia lamblia* on the luminal surface of the villi. *Giardia lamblia* is a pear-shaped, flagellated protozoan that causes a wide variety of gastro-intestinal complaints. Giardia is possibly the most common parasite of humans worldwide and the second most common in the United States after pinworm.<sup>1</sup>

As giardiasis is spread by feaco-oral contamination, prevalence is higher in populations with poor sanitation, close contact and oral-anal sexual practices. The disease is commonly water-borne because giardia is resistant to chlorine levels in tap water and survives well in cold mountain streams. Because giardiasis frequently infects persons who spend a lot of time camping, backpacking and hunting, it is nicknamed "back packer's diarrhoea" and "beaver fever". Food-borne transmission is rare and occur after ingestion of undercooked food. Giardiasis is a zoonosis, and cross infectivity among beavers, cattle, dogs, rodents and sheep ensures a constant reservoir.

The life cycle of giardia consists of two stages: the feaco-orally transmitted cyst and the disease causing trophozoite. Cysts are passed in the host's feaces and may remain viable in a moist environment for

months. Ingestion of 10-25 cysts can cause infection in humans.<sup>1, 2</sup> When the cyst is consumed, the acidic stomach environment stimulates ex-cystation. Each cyst produces two trophozoites, which migrate to duodenum and proximal jejunum where they attach to the mucosal wall by a ventral adhesive disk and replicate by binary fission.<sup>3</sup>

Clinical presentation of giardiasis varies. After an incubation period of one to two weeks, symptoms may develop (nausea, vomiting, malaise, flatulence, cramping, diarrhoea, steatorrhoea and weight loss). Chronic giardiasis may follow an acute syndrome or present without antecedent symptoms. Symptoms such as loose stools, steatorrhoea, weight loss, malabsorption, malaise, fatigue and depression may wax and wane over many months if the condition is not treated.<sup>3</sup>

Duodenal aspirates and biopsies give higher yield than stool studies, but are invasive.<sup>2</sup> Metronidazole, albendazole, nitazoxanide, tinidazole, paromomycin, furazolidone and quinacrine are used to treat giardiasis.<sup>3</sup> However, symptom recurrences and treatment failures are well known.

Giardiasis may be associated with human immunodeficiency virus infection and immunosuppression in patients with renal transplantations.

**REFERENCES**

- 1: Katz DE, Taylor DN. Parasitic infections of the Gastro-intestinal tract. *Gastroenterol Clin North Am* 2001; 30:795-815.
  - 2: Leder K, Weller P. Giardiasis. In: Rose BD, ed. *Infestious disease*. Wellesley, Mass.: UpToDate, 2002.
  - 3: Kucik CJ, Martin GL, Sortor BV. Common Intestinal Parasites. *Am Fam Physician* 2004; 69:1161-8.
-