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Title Page

Asymptomatic *Giardia Intestinalis* infection and Roux-Y-Gastric Bypass

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20 **Contributions:** LG collected data and contributed to discussion; LG, CP and EBL contributed to case conceptualization, participated in writing and reviewing of the manuscript. **Correspondence:** Laurent Genser; laurent.genser@gmail.com

Shortened title: Giardiasis and gastric bypass

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Giardiasis is one of the most common parasitic infections of the human intestine worldwide, and ranges from 3-7% in western countries to 100% in some populations [1]. *Giardia Intestinalis* (i.e *Duodenalis* or *Lambli*a) is a flagellated, binucleated protozoan parasite that
40 infects the upper intestinal tract in many mammalian hosts. Giardiasis can present with a broad range of clinical manifestations, from being asymptomatic to acute or chronic nonspecific gastro-intestinal symptoms associated with malnutrition [2]. However little is known regarding Giardiasis in human obesity.

A 41 year-old obese woman (BMI: 53.2 kg/m², weight: 159 kg) with a normal clinical
45 examination and preoperative investigations underwent an uneventful Roux-en-Y gastric bypass. A jejunal sample of surgical waste was systematically collected and analyzed in the context of a clinical trial (NCT02292121). During the morphological inspection of the jejunal epithelium by electron microscopy, an infection by *Giardia Lambli*a was detected (Figure 1) [3]. Once the diagnosis was confirmed by fecal parasitological examination, infestation was
50 successfully eradicated.

Giardiasis is responsible for long-term post-infectious gastrointestinal and extra-intestinal (1:3) complications, including persistent malnutrition [4], even when successfully eradicated. This case report and the known manifestations of giardiasis may warrant the search of this infection in patients showing unexpected nutritional complications, and would also justify a
55 reinforced follow-up in patients with a history of Giardiasis.

Figure Legends:

Figure 1: Transmission Electron microscopy image showing detail of a *Giardia Intestinalis*

60 surrounding an epithelial cell of the jejunal mucosa within the intestinal lumen (IL): The
 ventral disk (D); the two nuclei (N), Peripheral vesicles (P) and flagellar axonemes (A).
 Jejunal cell shows an increased number of intra-cytoplasmic multi-vesicular and dense bodies
 (B)

65 **Keywords:** Giardia intestinalis; gastric bypass; symptom

References:

- 70 [1] Thompson RCA. Echinococcus, Giardia and Cryptosporidium: observational studies
challenging accepted dogma. *Parasitology* 2009;136:1529–35.
doi:10.1017/S0031182009005897.
- [2] Muhsen K, Levine MM. A systematic review and meta-analysis of the association
between Giardia lamblia and endemic pediatric diarrhea in developing countries. *Clin*
75 *Infect Dis Off Publ Infect Dis Soc Am* 2012;55 Suppl 4:S271–93. doi:10.1093/cid/cis762.
- [3] Barbieri D, De Brito T, Hoshino S, Nascimento OB, Martins Campos JV, Quarentei G, et
al. Giardiasis in childhood. Absorption tests and biochemistry, histochemistry, light and
electron microscopy of jejunal mucosa. *Arch Dis Child* 1970;45:466–72.
- 80 [4] Halliez MCM, Buret AG. Extra-intestinal and long term consequences of Giardia
duodenalis infections. *World J Gastroenterol WJG* 2013;19:8974–85.
doi:10.3748/wjg.v19.i47.8974.