

SMALL BOWEL VOLVULUS BY *ASCARIS SUUM* IN A 75-YEAR-OLD MAN: A CASE REPORT

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INTRODUCTION: *Ascaris lumbricoides* and *Ascaris suum* are the most common soil-transmitted helminths of humans and domestic pigs, respectively. Both species produce cross-infections between pigs and humans being potentially zoonotic (Betson et al., 2014 J Infect Dis. 210: 932-41). However, the zoonotic potential of *A. suum* is often underestimated especially in western countries (Cavallero et al., 2013 PLoS Negl Trop Dis. 7: e2170.). This study reports a case of human ascariasis caused by *A. suum* in southern Italy.

MATERIALS AND METHODS: A 75-year-old man presented to the department of surgery, Avellino hospital (Campania region), complaining of abdominal pain and vomiting. The patient lived in a rural area of the province and had raised chickens and pigs for his family's consumption. Physical examination revealed bloating and abdominal tenderness. Computed tomography (CT) scan exposed multiple air-fluid levels in the epigastrium and left hypochondrium with some fluid in mesenteric recesses and signs of bowel obstruction. The day after the hospitalization, the symptoms persisted so the patient was referred to surgery. During exploratory laparotomy a small bowel volvulus with mesenteritis was evident and an intraluminal worm was detected (Fig. 1). A stool sample was collected and analysed with the FLOTAC dual technique (Cringoli et al., 2010 Nat Protoc. 5: 503-15) whereas the recovered worm was subjected to morphological and molecular analysis (Zhu et al., 1999 Int J Parasitol. 29: 469-78).

RESULTS: The FLOTAC analysis revealed the presence of unfertilized *Ascaris* eggs (Fig. 2A) with an intensity of 16 eggs per gram of faeces. The adult worm was cylindrical in shape, pinkish in colour and measured 20 cm in length and 6 mm in diameter (Fig. 2B). Under the stereomicroscope the helminth presented a buccal orifice with three lips (two subventral and one dorsal) (Fig. 2C) and a straight posterior end (Fig. 2D). Based on morphological analysis, the worm was identified as an adult female of *Ascaris* spp. whereas the molecular analysis showed the specific pattern of *A. suum* (Fig. 2E). The patient was treated with mebendazole 100 mg twice a day for 3 days. The stool examination at 7-days follow-up was negative. The post-operative hospitalization was regular with re-alimentation after 3 days and discharge after 12 days, asymptomatic. A week after the discharge another parasitological stool examination was negative.

CONCLUSIONS: This report highlights *A. suum* as a relevant agent of zoonosis. Therefore, in patients with bowel obstruction with no evident aetiology a helminthic infestation should be considered for an accurate diagnosis, especially in patients living in rural areas in close proximity with pigs.



Figure 1. Extraction of the worm during the surgical intervention.

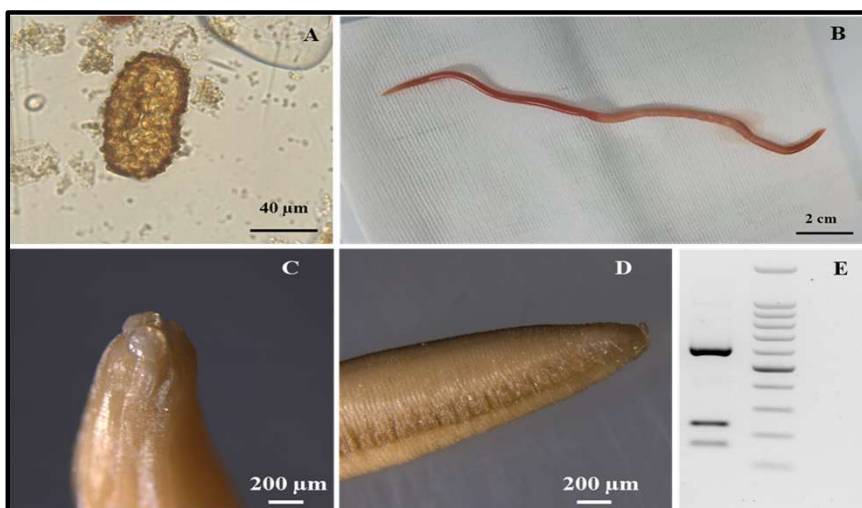


Figure 2. A) Unfertilized egg of *Ascaris* spp. detected by FLOTAC; B) the adult worm recovered during the surgical intervention; C) buccal orifice with three lips (two subventral and one dorsal); D) posterior end of the worm; E) RFLP pattern (three bands of about 610 bp, 230 bp and 140 bp), peculiar to the *A. suum* genotype, obtained after digestion of complete ITS amplicon with HaeIII along with a 100 bp ladder (highlighted band at 500 bp).