



## CASE REPORT

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### A Case Report of Ascariidiosis in a Wild Boar in Turkey

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This case report revealed ascariidiosis and its related lesions in liver, lung, and intestinal lesions in a wild boar. Granulomatous enteritis together with adult parasitic larvae, and hepatic fibrosis due to parasitic migration routes and eosinophilic bronchitis in the lungs were detected. As wild boars are source of infection for humans and domestic animals, necessary sanitary measures must be taken and furthermore contact of wild boars to vegetable and animal production units and pasture should be avoided.

As a result, wild boar ascariidiosis and related lesions were demonstrated for the first time in Turkey with this case report.

**Key Words:** *Ascariidiosis, Ascaris suum, enteritis, Turkey, wild boar*

#### Türkiye’de Bir Yaban Domuzunda Askaridiozis Olgusu

Bu raporda bir yaban domuzunda askaridiozise ilgili karaciğer, akciğer ve bağırsak lezyonları ortaya konuldu. Bağırsaklarda granülatöz enteritis ve erişkin parazit larvalarına, akciğerde eozinofilik bronşitis ve karaciğerde parazitik göç yollarına bağlı fibrozis ve portal infiltrasyona rastlandı. Sonuç olarak yaban domuzunda askaridiozis ve onunla ilgili lezyonlar Türkiye’de ilk kez bu vaka sunumu ile ortaya konmuştur.

Yaban domuzu, insan ve evcil hayvanlar için bir enfeksiyon kaynağı olduğundan, yaban domuzlarının sebze üretim birimlerine temasının önlenmesi ve gerekli sıhhi önlemlerden alınması gerekir.

**Anahtar Kelimeler:** *Ascariidiosis, Ascaris suum, enteritis, Türkiye, yaban domuzu*

#### Introduction

Ascaridea are the largest nematodia which are found in pigs, horses, buffalo dogs, cats, and to a lesser extent in cattle. Adult forms of *Ascaris suum* are generally present in the small intestine and transitorily in the large intestine during expulsion of the worms. *Ascaris suum* has a direct life cycle and no need to intermediate host. *Ascaris suum* is a large parasite; females measured up to 40 cm long. Large numbers of eggs are produced although shed intermittently; they can develop to the infective stage within 3–4 weeks under optimal conditions (1). The eggs are highly resistant to environmental conditions and infective larvae which contained second stage of larvae are present in the resistant egg. After the eggs are taken orally, they hatch in the small intestine and the infective second-stage larvae arrive to the liver through the portal circulation, where the larvae pass to the lungs from the blood. These larvae then migrate to the small intestine via trachea by swallow. After reaching the intestines, the larvae become mature (2).

*A. suum* can rarely infect other animals than pigs including sheep and occasionally cattle which are not natural hosts. Bovine infections are characterized by acute, atypical interstitial pneumonia. Information about the *A. suum* infection in Turkey is quite limited (1, 3). In Turkey, there is only one report that *A. suum* eggs were found in 9 of the faecal samples obtained from 208 domestic pigs in the Marmara region (4).

The current case report describes pathological changes in a wild boar suffered from *Ascaris suum* in Turkey.

#### Case Report

The female wild boar, which was brought to Pathology Department of Veterinary Faculty of Firat University was systematically necropsied. The age of animal is unknown, and certificate of approval couldn't retrieve because of most probably she was hunted by hunters.

Macroscopical examination indicated subserosal multifocally distributed nodules in 1-2 mm diameter in jejunum and ileum (Figure 1). In the mucosal surface of small intestinal segments, there were adult ascarids embedded in the intestinal mucosa. The total number of the adult parasites were 17 and measured by 28 to 40 cm in length.

The tissue samples from intestine, liver, lung, brain, and pancreas were fixed in 10% formalin solution. Paraffin blocks prepared by routine methods were cut approximately 5 µm in thickness and stained with hematoxylin-eosin (H-E) (5).

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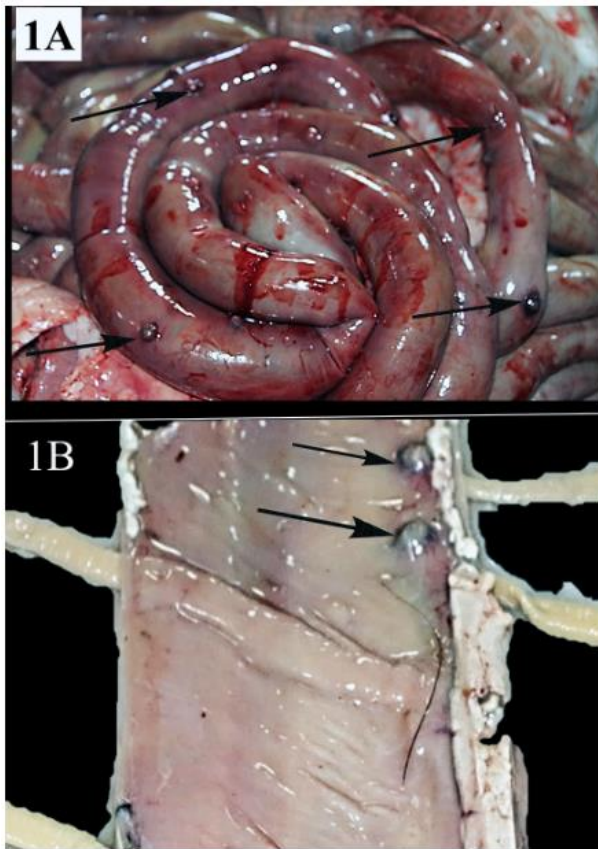
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Microscopic examination showed that the parasites were embedded in necrotic mass in intestinal mucosa (Figure 2A) and surrounded by an inflammatory infiltrate including eosinophile leukocytes, few epithelioid macrophages and plasma cells (Figure 2B). The infiltrate was covered circumferentially by a thin fibrous capsule (Figure 2C). Mild lymphohistiocytic infiltration was also present in mucosal and muscular surfaces in neighboring intestinal wall. There was a fibrotic parasite tract in the liver (Figure 2D).

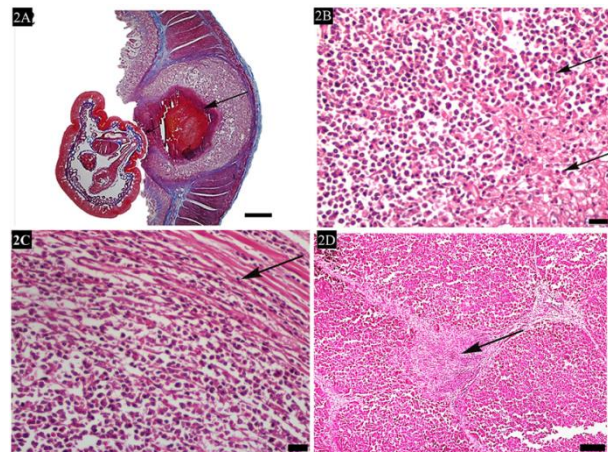
Microscopically there was moderate eosinophilic bronchiolitis characterized by the bronchioles surrounded by macrophages and eosinophil leucocytes in the lungs.



**Figure 1.** A.B: Multifocal subserosal and submucosal nodules (arrows) where the mature ascarid worms attached to the ileum

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**Figure 2.** Granulomatous enteritis composed of parasite, necrotic tissue debris (arrow), inflammatory infiltrate (arrow) and fibrous connective tissue, Bar: 50  $\mu$ ; 2B: Inflammatory infiltrate composed of mainly eosinophilic granulocytes which are mostly degenerated (arrows), Bar:20  $\mu$ ; 2C: Inflammatory infiltrate and fibrous capsula (arrow), Bar:20  $\mu$ ; 2D: Hepatic fibrosis (arrow) indicating parasitic migratory tracts, Bar:50  $\mu$

## Discussion

Humans can also be infected by *Ascaris suum*. Moreover, *Ascaris lumbricoides* (human roundworm) and *Ascaris suum* (pig roundworm) are morphologically indistinguishable. A closely related sister species of *A. lumbricoides* also infects pigs. The swine worm is responsible for significant economic losses by production efficiency, immunosuppression and causes organ condemnations at slaughter due to pathologic changes produced by parasite larval stages (3). Studies have also indicated that pigs are the main source of ascaris infections in human and it is transmitted by fecal-oral route (2, 3). As wild boar are source of infection for humans and domestic animals, necessary sanitary measures must be taken and furthermore contact of wild boars to vegetable and animal production units and pasture should be avoided.

In conclusion, this report indicates that wild boar with *A. suum* infection might constitute health hazard for humans and domestic animals unless necessary health precautions are taken.