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A rare case of stomach worm infestation in a pig

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Abstract

On examination of a carcass of pig during slaughter revealed presence of severe parasitic worm infestation. Examination of stomach showed gross changes like eroded and reddened stomach mucosa with nodules extended from the mucosa to serosa of stomach in cardiac, fundus and pylorus portions and presence of worms inside. On histopathological examination changes like congestion, hemorrhage, desquamation of epithelial cells of gastric mucosa and infiltration of eosinophils, mononuclear cells and lymphocytes in both mucosa and submucosa of stomach were observed and presence of cut section of parasite in between muscularis layers were noticed. The worms were extracted from stomach tissue by dissection and processed and identified as *Ascarops* spp. worm.

Keywords: *Ascarops* spp. worm, pig stomach tissue, histopathology, infiltration

1. Introduction

India pig possess 9.06 million of pigs (2019 livestock census) and contributes 1.7% of total livestock. Pig farming provides livelihood for rural poor and the commercial pig rearing provides the way for enhancement of economic status of the farmers, entrepreneurs along with rural communities. In developing countries like India majority of pigs are under free ranging system where they feed up on raw garbage, kitchen waste and faecal matter, therefore more prone to parasitic infections (Weka & Ikeh 2009; Tiwari *et al.*, 2009) ^[10, 9]. Pork industry generates significant economic activity through the purchase of inputs like feed ingredients.

Average weight of pig carcass in China, USA and Germany is 76 kg, 84 kg and 90 kgs respectively, in India it lies 35 kgs as a whole (ICAR Hand book of Animal husbandry, 2012) ^[5]. The huge difference indicates the un-thriftiness and malnutrition in Indian pigs, of which high cause of poor weight gain (Yadav and Tandon 1989; Ebibeni *et al.*, 2013) ^[11, 3]. Pig industry has major role in the production of more animal protein. The export quantity of meat in pigs in India amounts to 542 tonnes and export value base price was 1,285 USD in 2020 (FAOSTAT 2022) ^[4].

Internal parasites are one of the most threats in pigs all over the world and cause significant decrease in production and also increase cost of production with high morbidity rate which effects directly on FCR (feed conversion ratio) makes susceptible to various other diseases decrease in breeding quality, delayed body weight gain, they are also responsible for condemnation of affected organs after slaughter. Pork obtained from pigs with helminth infection is of worse quality when compared to healthy pigs (Knecht *et al.*, 2011) ^[6].

2. Materials and Methods

2.1 Collection of tissue samples from pigs

During a thorough post-mortem examination, stomach sample was collected according to observed lesions along with healthy lesions. Tissue sections from representative areas of the affected organ were collected and preserved in 10% neutral buffered formalin for subsequent histopathological examination. (Luna, 1968) ^[7].

2.2 Collection of worms from stomach nodules

Worms present in the stomach nodules were collected by dissection of the stomach tissue sample. After collection washed with phosphate buffer saline to eliminate debris and these specimens were preserved in 70% ethanol.

2.2.1 Processing and identification of parasitic worms

The parasites collected underwent processing according to their respective established procedures and were identified based on their morphological characteristics, following the guidelines outlined by Soulsby (1982) ^[8].

3. Results and Discussion

The worm collected after processing showed the shape of pharynx is zig-zag with two or more spirally coiled thickenings based on the morphological characters the worm identified as *Ascarops* spp (Fig 1).

Pigs infected with *Ascarops* spp. worms manifested gross changes like eroded and reddened stomach mucosa with nodules extended from the mucosa to serosa of stomach in cardiac, fundus and pylorus portions (Fig 2). Microscopically congestion, hemorrhage, desquamation of epithelial cells of gastric mucosa and infiltration of eosinophils, mononuclear cells and lymphocytes in mucosa

and submucosa of stomach (Fig 3) were observed and cut section of parasite in between muscularis layers (Fig 4) were noticed.

Stomach affected with stomach worms revealed gastritis along with erosion and reddened stomach mucosa and

nodules, degenerative atrophy of gastric mucosa and infiltration of eosinophils, mononuclear cells and lymphocytes were observed and presence of cut section of parasite were reported by Charitha *et al.* (2021)^[2].



Fig 1: *Ascarops* spp. anterior end



Fig 2: Eroded and reddened stomach mucosa with nodules extended from the mucosa to serosa of stomach in cardiac, fundus and pylorus portions

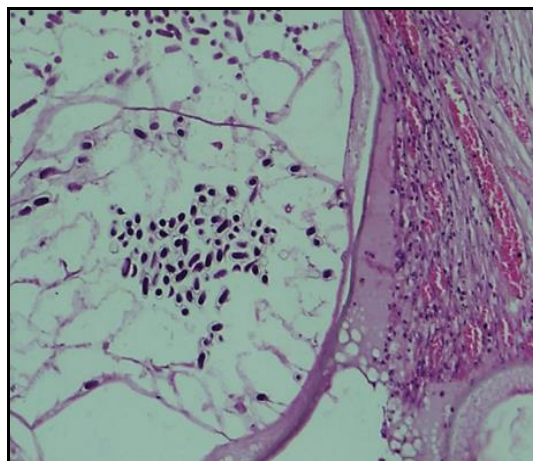


Fig 4: Cut section of parasite in between muscularis layers

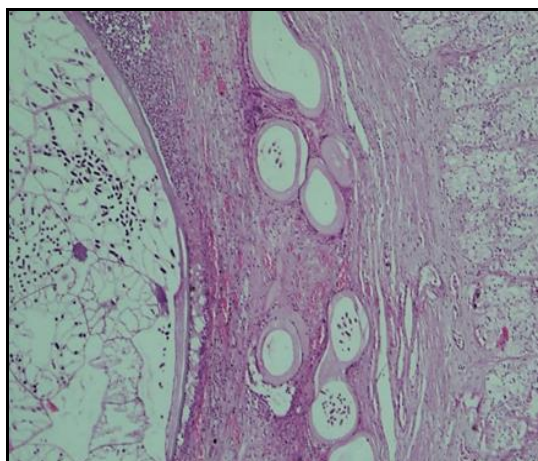


Fig 3: Congestion, hemorrhage, desquamation of epithelial cells of gastric mucosa and infiltration of eosinophils, mononuclear cells and lymphocytes in mucosa and submucosa of stomach

4. Conclusion

Based on the results, our study concluded that, the infestation of stomach worms would affect the meat quality thereby pork industry. However minimal literature was available in this field and more extensive research has to be done.

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