

Introduction

The Northern White-Breasted hedgehog (*Erinaceus roumanicus*) is a nocturnal mammal found in Eurasia, including Romania. While studies on the Western European hedgehog (*Erinaceus europaeus*) are abundant, there is limited information on the pathological changes in *E. roumanicus*. Here we describe the macroscopic and microscopic lesions observed during post-mortem examinations of *E. roumanicus*, contributing to our understanding of hedgehog diseases.

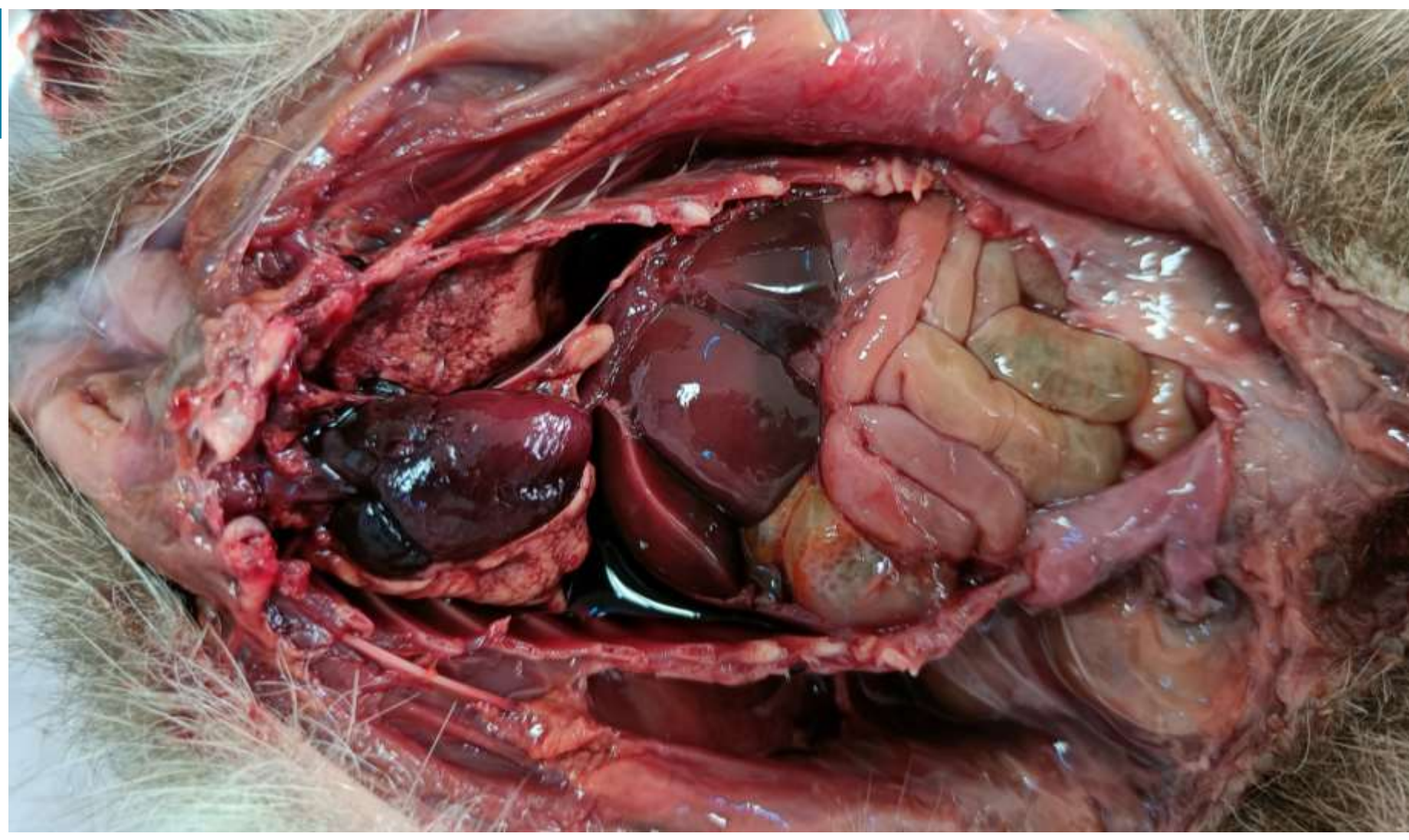


Figure 1 – Necropsy in the hedgehog. General view of the abdominal and thoracic cavities.

Material and methods

Nine adult specimens, originating from different regions of Romania, were examined. After death, post-mortem examinations were performed. During necropsy, following gross examination of each organ, samples from representative areas were collected, fixed in 10% formalin, routinely paraffin embedded, sectioned and stained with hematoxylin-eosin (HE).

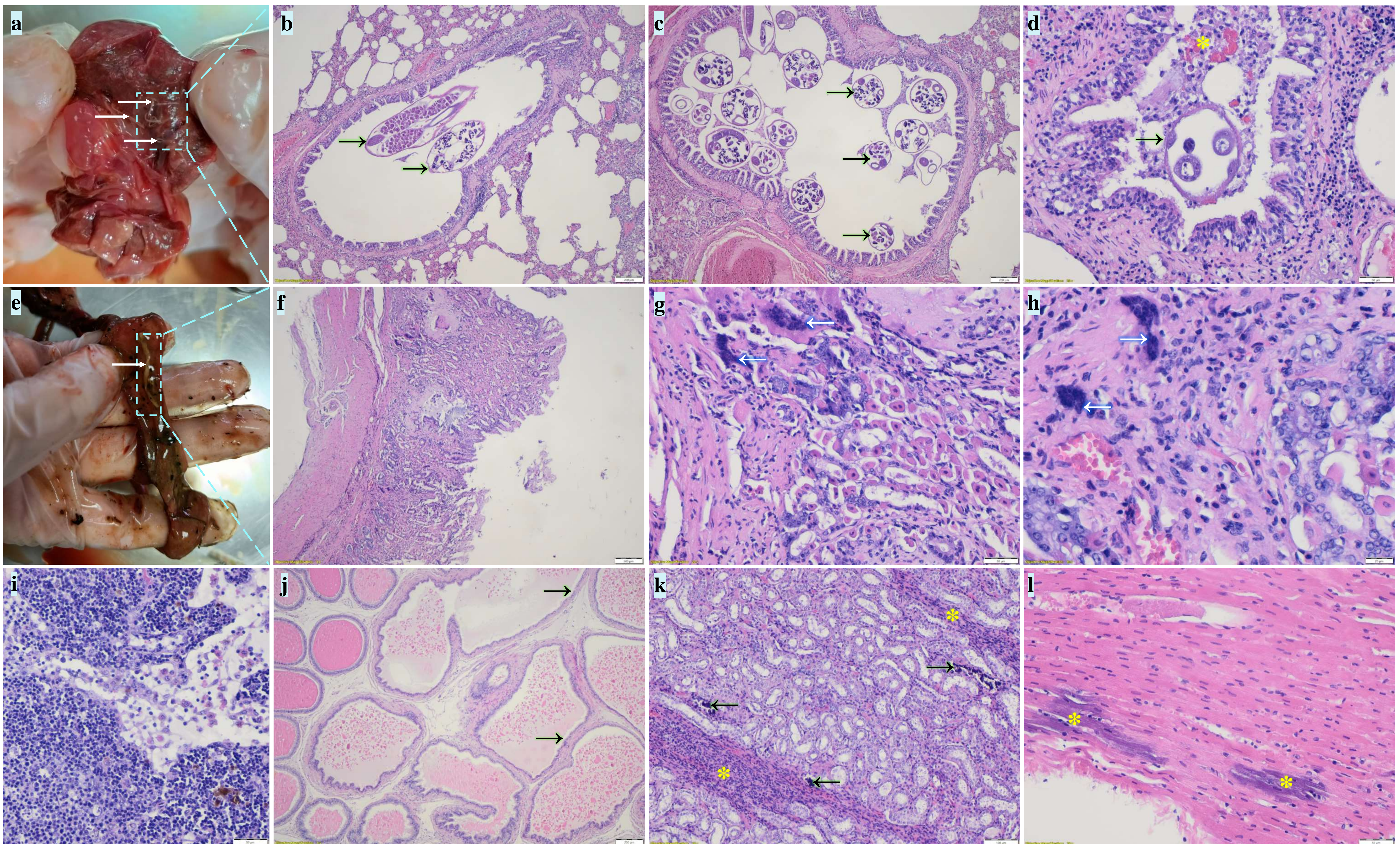


Figure 2 – (a) Lung, hedgehog. Adult nematodes (*Crenosoma striatum*) (white arrows) visible to the naked eye in pulmonary lobe sections. (b) Diffuse interstitial pneumonia with severe leukocytic infiltrate (lymphocytes, histiocytes, eosinophils, rare neutrophils) in the alveolar and peribronchiolar walls. Parasite fragments with nematode morphology (arrows) are identified in the bronchiolar lumen. (c) Multiple nematode fragments (arrows) within the bronchus. Epithelial hyperplasia of the bronchial epithelium with leukocytic infiltrate in the lamina propria and in the alveolar walls. (d) Nematode fragment (arrow) at bronchiolar level, inflammatory infiltrate in lamina propria and presence of intraluminal sero-cellular exudate (yellow asterisk). (e) Intestine, longitudinal section, hedgehog. Haemorrhagic enteritis with intraluminal cestode (*Hymenolepis erinacei* - white arrow). (f, g, h) Severe infiltrate with mononucleated cells (lymphocytes, macrophages, epithelioid cells and often with formation of cellular syncytia with morphology of multinucleated foreign body giant cells - white arrows) and eosinophils at the level of lamina propria and submucosa are observed. (i) Lymph node - the space of the subcapsular and paratracheal sinus, edema and inflammatory cells are identified. (j) Thyroid - multifocal thyroid follicles are cystic (arrows). (k) Kidney - multifocal interstitial nephritis (yellow asterisk) and it can be observed accumulation of mineral salts in the renal tubules (black arrows). (l) Heart - multifocal it can be noted degenerate myocardiocytes with dystrophic calcification (yellow asterisk). Hematoxylin - eosin stain (panels b, c, d, f, g, h, i, j, k, and l).

Results

On gross examination, ectoparasites (Ixodidae Family) were identified in two individuals. All animals had pulmonary congestion, pulmonary oedema and massive parasitic infestation with nematodes (*Capillaria erinacei*, *Crenosoma striatum*). In the intestine, catarrhal and haemorrhagic enteritis and massive cestode infestation (*Hymenolepis erinacei*) were observed. Histologically, all individuals exhibited pulmonary oedema, vasculitis and diffuse bronchointerstitial pneumonia (fig. 2b, c and d). Severe inflammatory changes were noted in the intestine, characterized by eosinophilic infiltrates and, at times, with numerous epithelioid and foreign body multinucleated giant cells (granulomatous inflammation) (fig. 2f, g and h).

Conclusion

All examined individuals of *E. roumanicus* species showed, both macroscopically and microscopically, severe pulmonary and digestive inflammatory lesions, primarily caused by endoparasite infestation. This demonstrates that the death of the examined animals was due to severe parasitism, which secondarily caused dysfunction and multisystem failure. Understanding hedgehog diseases and their pathological manifestations is crucial for their conservation and management.

References: 1. Majeed S. K. & Cooper J. E., 1984. Lesions associated with a *Capillaria* infestation in the European hedgehog (*Erinaceus europaeus*). Journal of Comparative Pathology, 94(4), 625-628
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