

Emerging source of infection – *Mycobacterium tuberculosis* in a rescue dog, a case report

¹ Dept. Health Security, National Institute for Health and Welfare (THL), Helsinki, Finland

² Veterinary Bacteriology and Pathology Unit, Finnish Food Authority, Helsinki, Finland

Poster 117

Background

Rescue dog activity is an increasing form of dog charity where neglected or abandoned dogs are placed in new homes. The risk that these dogs present a reservoir of zoonotic diseases is not fully recognized. Also unethical features, e.g. false vaccination certificates have been connected to rescue dogs. Most imported rescue dogs originate from Spain, Greece, Russia or Romania.

Tuberculosis is uncommon in dogs but *M. tuberculosis* and *M. bovis* can infect dogs with similar signs and lesions as in other hosts. The infection to dogs is transmitted by eating contaminated sputa, milk, or tissue or by infected humans or animals. Diagnosis is confirmed most often from tissue samples.

The case

A 5 yrs-old cross-bred dog was imported to Finland from Romania in January 2015. The dog stayed the first 6 months in a home with several other dogs and cats, and was then transferred to new owners with no other pets, but frequently visited by their 4 children and several grandchildren.

Clinical picture

- The dog first presented gastrointestinal symptoms in January 2018, including abdominal pain, diarrhea, later also vomiting.
- No respiratory symptoms were recorded.
- Hypoalbuminemia and hyperglobulinemia were diagnosed and cortisone prescribed in April.
- On ultrasound masses in the liver and the intestines were seen, biopsies were taken in laparotomy.
- Acid fast bacilli were detected and opportunistic yeasts (*Histoplasma capsulatum*) were seen in the biopsies.
- The gastrointestinal symptoms persisted and proceeded, and the dog died spontaneously in October 2018 and was sent to autopsy.

Autopsy findings

- Significant granulomatous lesions were detected in the intestinal wall, mesenteric lymph nodes, liver and kidneys (Figs.1,2).
- The small intestine was perforated causing septic peritonitis (Fig.3).
- *M. tuberculosis* was isolated from the liver lesions and the small intestine.
- Identification was confirmed by Hain Genotype MTBC-kit.
- The isolate was fully susceptible by
 - Hain Genotype MTBDR PLUS (Rif, Inh)
 - BD MGIT (Rif, Inh, Str, Emb, Pza)
 - WGS (PhyResSE), and belonged to lineage Ural, SIT262.
- Opportunistic yeast infection in the liver was confirmed.

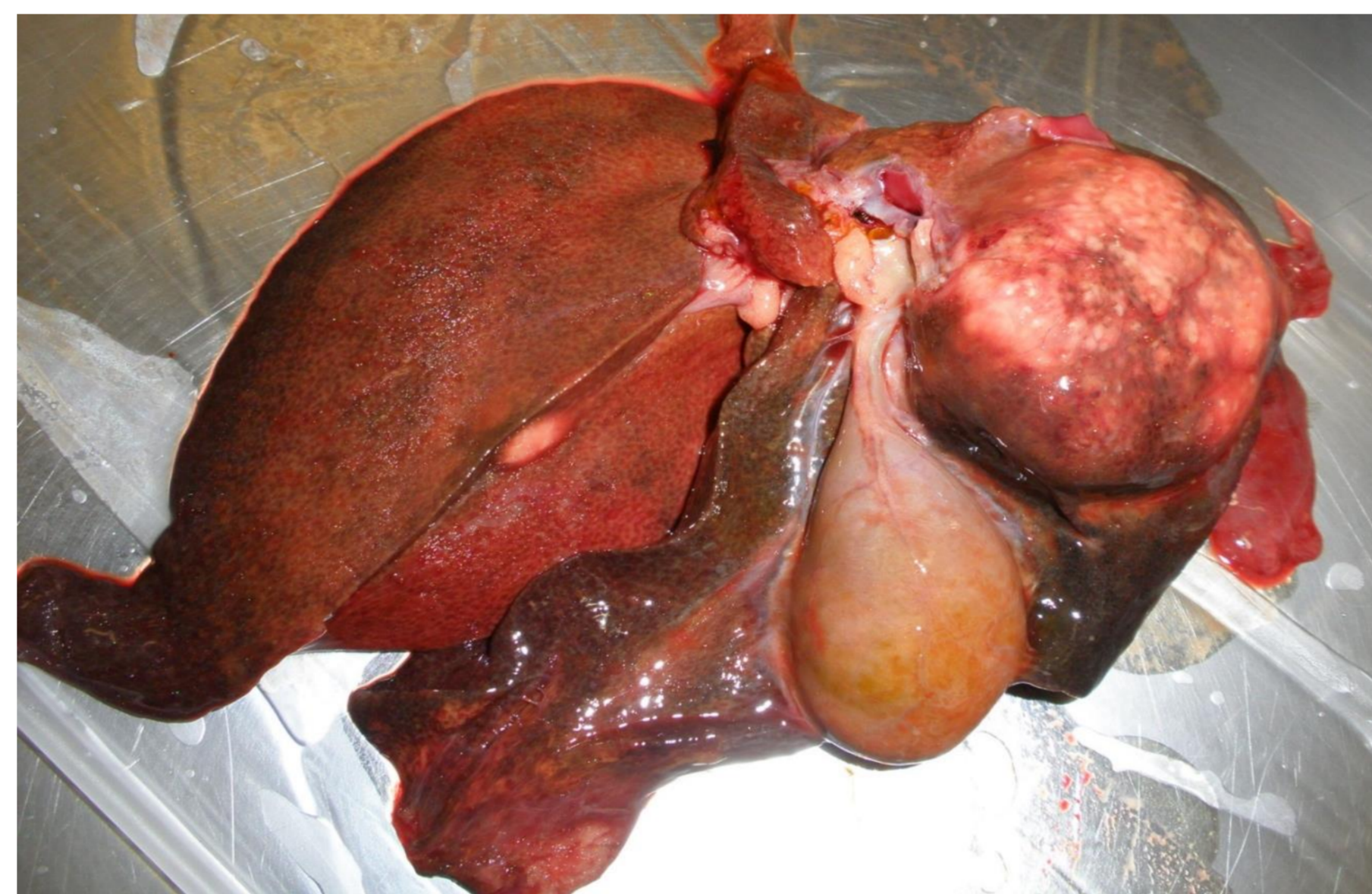


Figure 1. Connecting and expanding the caudate and right lateral liver lobes, there was a very large necrotic granuloma, and few smaller granulomas were scattered throughout the other lobes.

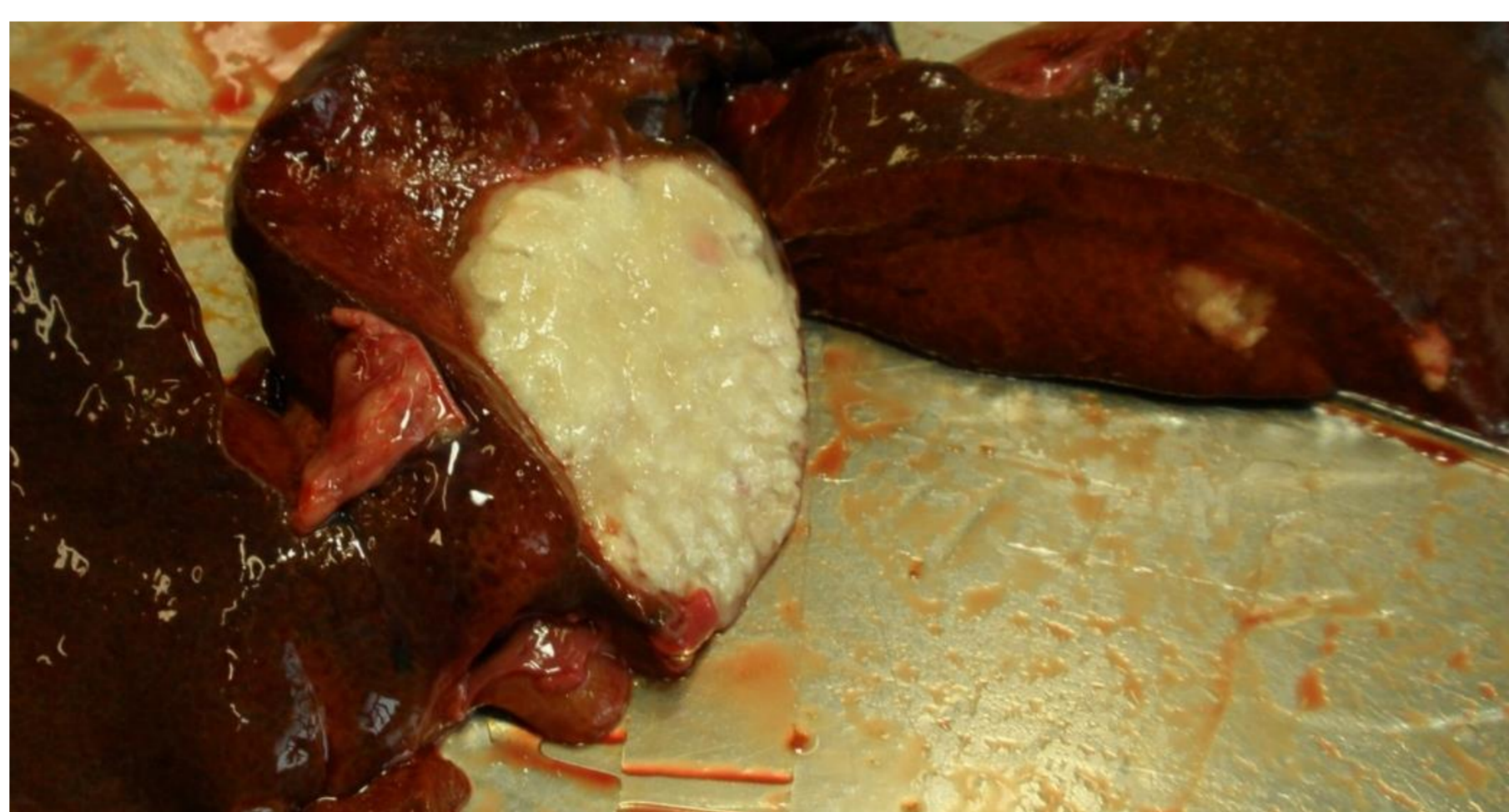


Figure 2. Cut surface of liver granulomas showing typical caseotic structure.

Discussion

The dog was known to live by a hospital before capture, thus the infection may originate from eating clinical waste. When infected by ingestion, the main infection focus is the intestines and abdominal cavity. Among the exposed persons, i.e. the owners and their relations and persons present at laparotomy or autopsy, none have had symptoms so far.



Figure 3. There was marked chronic inflammatory lesions in the intestines and the small bowel was perforated.

Conclusions

- **Import of animals carrying communicable diseases presents a public health risk, of which people in general are not aware of.**
- **The dog was asymptomatic for 3 years after import, then symptomatic and infectious for 10 months.**
- **TB diagnosis was confirmed from autopsy samples.**



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