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CASE REPORT

A Feline Tuberculosis Case

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Summary

In this report, a case of generalized tuberculosis with alimentary primary focus in a two-year old cat was described. Feline tuberculosis had once reported 25 years ago in Turkey and in the world the disease is seen infrequently and only occacional epidemiologies or single cases are reported from various countries. The current epidemiology of tuberculosis in cats is still unclear. This disease is generally not included in the differential diagnosis of the clinicians dealing with cats presenting commonly seen non-spesific symptoms such as diarrhoea, fever, cough and anorexia, therefore the importance of considering tuberculosis in differential diagnosis and paying attention at precautions when taking care of cats with unknown infection was emphasized.

Keywords: *Feline, Tuberculosis , Reverse zoonozis, Myc. tuberculosis, Cat*

Bir Kedide Tüberküloz Olgusu

Özet

Bu makalede, 2 yaşlı bir kedide, alimenter primer odakla başlayan bir generalize tüberküloz olgusu rapor edilmiştir. Kedide tüberküloz, Türkiye'de bir kez, 25 yıl önce rapor edilmiş olup, hastalık dünyada seyrek olarak görülmekte ve literatürde sadece nadir epidemiyolojiler veya tekil vakalara rastlanmaktadır. Kedilerde tüberkülozun güncel epidemiyolojisi bilinmemektedir. Hastalık genellikle ishal, yüksek ateş, öksürük ve anoreksi gibi sık görülen spesifik olmayan semptomlarla getirilen kedilerle karşılaşan veteriner hekimlerin diferansiyel diagnozları kapsamı içine alınmamaktadır, bu nedenle kedilerde muğlak enfeksiyon vakalarında tüberkülozun diferensiyel diagnoza dahil edilmesi ve bu hastalarla temas halindeyken gerekli önlemlerin alınmasının önemi vurgulanmıştır.

Anahtar sözcükler: *Felin, Tüberküloz, Ters zoonoz, Myc. tuberculosis, Kedi*

INTRODUCTION

In cats, classical tuberculosis is caused primarily by *Mycobacterium bovis* and rarely by *M. Tuberculosis, M. avium* [1,2]. Tuberculosis in cats caused by *Mycobacterium bovis* is historically linked with tuberculosis in cattle, but the pasteurisation of milk resulted in a marked decline in the prevalence of disease seen in cats [3].

The current epidemiology of tuberculosis in cats is still unclear. Today, tuberculosis in cats is seen infrequently and only occacional epidemiologies or single cases are reported from various countries [4-6]. There has been a marked decline in the incidence of the disease in cats [7]. In Turkey, the only report for feline tuberculosis was published in 1985[8] and no other information for the last 25 years had been achieved as far as our investigations.

The aim of this report was to present a feline tuberculosis case which had not been reported for the last 25 years in Turkey and occasionally reported in the world, to focus the attention of the practitioners to this disease with zoonetic potential.

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CASE HISTORY

The patient was a two year old, female household cat. The cat was referred to the Ondokuz Mayis University, Faculty of Veterinary Medicine, Internal Diseases Clinics with the complaints of bilateral serous nasal discharge for a week and anorexia together with significant apathy.

The cats left forearm was amputated after a traffic accident and no complication was observed after the surgery.

Cat was living with 5 other cats in the household and had free access to the garden. Deworming and vaccination history was blank and other cats living with it also were not dewormed or vaccinated appropriately. The physical examination findings were bilateral serous nasal discharge, dyspnoea, moderate depression, slightly pale oral mucosa, apathy and 38.8°C of body temperature. Cell blood count revealed a high white blood cell (WBC) count (23.5 /mm^3).

Antibiotic and supportive therapy was started. Slight improvement of complaints was achieved after a week and the owners decided to end the therapy despite our insistent warnings for continuing. A week later, the cat was brought back with a worsened clinical appearance and a serious anorexia. Cell blood count indicated an elevated WBC count (34.0/mm^3). Same regimen continued with the addition of fluid therapy. The patient deterioated and died in two weeks.

The cat was subjected to pathological examination with the permission of the owners. Systematic necropsy was applied to the cat. Obtained tissue samples were fixed in 10% buffered formaldehyde and blocked in parafine after routine procedure. Sections of 5 µm thick were prepared from the blocks and stained with Hematoxilene-eosin (HE) for the routine inspections. Afterwards, sections were stained with Periodic acid Schiff (PAS), Gram and Ziehl-Neelsen (ZN) stains.

Macroscopic evaluation revealed enlarged mesenterial and mediastinal lymph nodes *(Fig. 1A)* and hyperemia and erosive ulcerative zones from place to place in the intestinal mucosa. Besides, an excessive parasite invasion *(Joyeuxiella pasqualei, Diphylidium caninum)* was observed in the intestines. In cavum pectoris, pneumonia was observed, vlungs were not collabated, edges were stubby and had a piebald appearance. Bronchi and bronchiol lumens of the lungs were filled with exudate in muco-purulent character. There was a spumous serous liquid in the trachea lumen. Marked white noduler focuses were determined at the liver and kidneys.

In the microscopic examination, depletion of the mesenterial lymph nodes, together with wide necrotic focuses and intensive pus presence were determined *(Fig. 1B).* Bronchointersitial pneumonia was observed in the lungs. In liver, dissociation in remark cordons, centri-lobuler microvesicular fat deposition, and focal necrosis nearby perivascular cell infiltrations in mononucleer character from place to place were recorded *(Fig. 1C)*. In addition, interstitial nephritis were determined.

In various tissues (mesenterial lymph node and lungs), applied Gram and ZN stains revealed free and intra-celular cocobacil type acis-fast bacteria *(Fig. 1D)*.

Histopatologic diagnosis was concluded as generalized tuberculosis with alimentary primary focus.

DISCUSSION

Dogs and cats with tuberculosis (*M. bovis, M. tuberculosis*) are considered to be potential sources of infection for humans and euthanasia is usually recommended [9], although there is not yet any documented evidence of transmission of infection from cats to humans [10]. *M. tuberculosis* and *M. bovis* can both cause reverse zoonoses and this may be significant because with the current increase in human tuberculosis associated with HIV infection and poor housing, we may see a concurrent increase in feline tuberculosis caused by these organisms [2].

Cats are most frequently affected with the intestinal form of the disease, where the tubercles arise in the intestines and/or mesenteric lymph nodes. Affected cats commonly develop intestinal malabsorption and present with weight loss, anaemia, vomiting and diarrhoea [2]. Tuberculosis can also be acquired through inhalation; the lungs and/or hilar lymph nodes are then affected [3]. In the present case, primary focus was alimentary and advanced to the generalised form later. It is stated that the changes in serum biochemistry and haematology, if present, are non-specific and vary with the location and extent of the disease [3], similar to the haematologic profile in this case which did not give any clues about the causative disease except high WBC count indicator of anprobable infection. The differential diagnoses for tuberculosis are extensive and include panniculitis, pansteatitis, foreign body granuloma, actinomycosis/ nocardiosis, mycotic infections, eosinophilic granuloma, chronic bacterial infections and certain types of neo-plasia, especially of a lymphoreticular or mammary origin [7]. In this case the non-spesific characteristics of the symptoms prevented us from making a presumptive diagnosis. Even in the case of a tuberculosis suspicion,

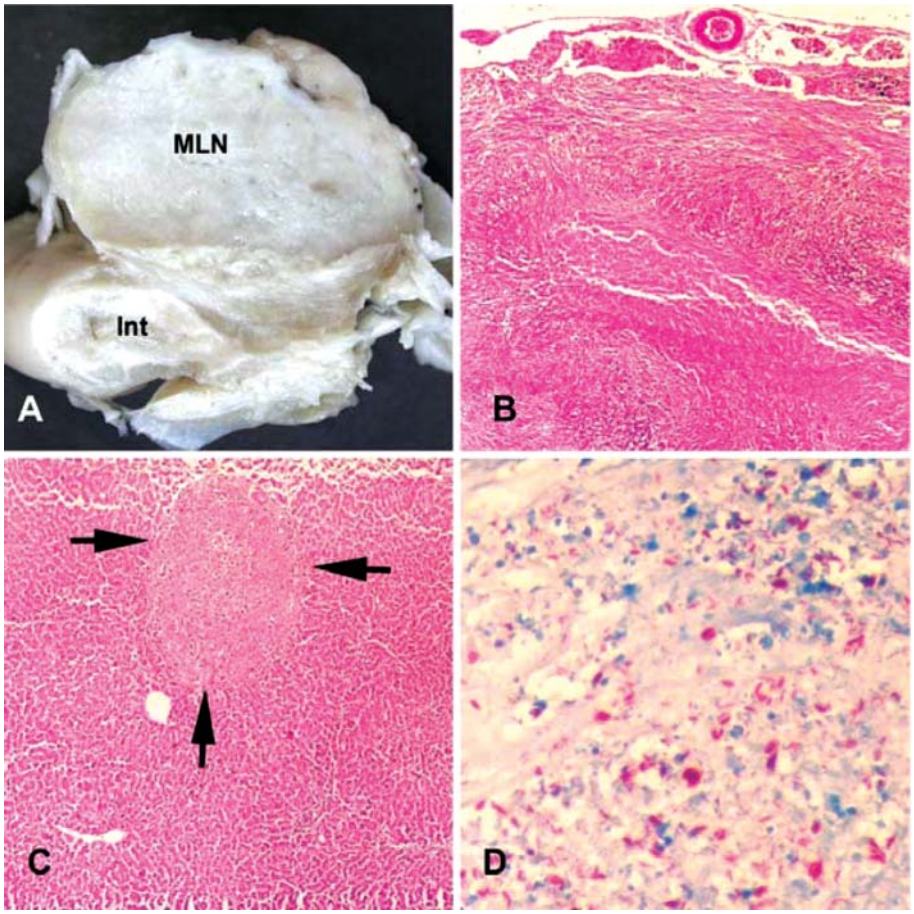

Fig 1. A- Enlarged and necrotic mesenterial lymph node (**MLN**= mesenterial lymph node, **Int** = small intestine), **B-** Wide necrosis areas in the mesenterial lymph node cortex, HE, x64, **C-** Focal necrosis area in liver (arrows), HE, x64, **D-** Intense pleomorphic coccobacil acid-fast bacteria in mesenterial lymph node, ZN, x640

Şekil 1. A- Büyümüş ve nekrotik mezenterial lenf nodu (**MLN** = mezenterial lenf nodu, **Int** = ince barsak), **B-** Mezenterial lenf nodu korteksinde geniş nekroz alanları, HE, x64, **C-** Kraciğerde fokal nekroz alanı (oklar), HE, x64, **D-** Mezenterial lenf nodunda yoğun pleomorfik kok-kobasil asit-fast bakteri, ZN, x640

the definite diagnosis would be very difficult, since unlike other species cats do not react strongly to intradermally administered tuberculin and the results obtained from trials of intradermal skin testing have been unreliable and for bacterial culture a time of 4-6 weeks are needed [2].

Feline tuberculosis is frequently a subclinical disease [3]. The excessive parasite infestation in this case together with the crowded and poor housing conditions, may explain the clinical course of the disease that resulted in the death, since cell-mediated immunity is typically associated with protection against facultative intracellular pathogens such as mycobacteria and increased resistance seems to be associated with the enhanced capacity of activated macrophages to kill tubercle bacilli or to inhibit their intracellular multiplication [3].

In conclusion, this case report aimed to call attention to feline tuberculosis which is occasionaly reported in the world and had not been notified in Turkey for the last 25 years to our knowledge. This disease is generally not included in the differential diagnosis of the clinicians dealing with cats presenting non-spesific symptoms such as diarrhoea, fever, cough and anorexia, so we want to emphasize the importance of taking precautions when taking care of cats with unknown infection.

REFERENCES

1. Verde M: Zoonotic dermatoses in cats. Proceeding of the NAVC North American Veterinary Conference Jan. 8-12, 2005, Orlando, Florida.

2. Gunn-Moore D, Shaw S: Mycobacterial disease in the cat *In Practice,* 493-501, October 1997.

3. Greene CE, Gunn-Moore D: Mycobacterial infections. **In**, Greene CE (Ed.): Infectious Diseases of the Dog and Cat. 3rd ed., pp. 462-477, W.B. Saunders, Philadelphia, 2006.

4. Kaneene JB, **Bruning-Fann CS**, **Dunn J**, **Mullaney TP**, **Berry D**, **Massey JP**, **Thoen CO**, **Halstead S**, **Schwartz K**: Epidemiologic investigation of Mycobacterium bovis in a population of cats. *Am J Vet Res,* 63 (11): 1507-1511, 2002.

5. de Lisle GW, Collins DM, Loveday AS, Young WA, Julian AF: A report of tuberculosis in cats in New Zealand, and the examination of strains of *Mycobacterium bovis* by DNA restriction endonuclease analysis. *New Zealand Vet J,* 38, 10-14, 1990.

6. Smith NH, Crawshaw T, Parry J, Birtles RJ: Mycobacterium microti: More diverse than previously thought. *J Clin Microbiol,* 47 (8): 2551-2559, 2009.

7. Gunn-Moore DA, Jenkins P A, Lucke VM: Feline tuberculosis: a literature review and discussion of 19 cases caused by an unusual mycobacterial variant. *Vet Rec*, 138, 53-58, 1996.

8. Akay Ö, Hazıroğlu R, Kutsal O: Bir kedide rastlanan tüberküloz olgusu. *Ankara Univ Vet Fak Derg,* 32, 438, 1985.

9. Carter GR, Payne PA: A Concise Guide to Infectious and Parasitic Diseases of Dogs and Cats, International Veterinary Information Service, Ithaca NY (www.ivis.org), Last updated: 23-Sep-2005; B0407.0905.

10. Monies B, de la Rua R, Jahans K: Bovine tuberculosis in cats. *Vet Rec*, 158, 490-491**,** 2006.