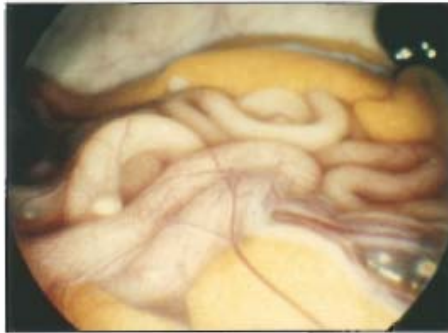


Jürgen Seybold · Frank Mutschmann (Eds.)

**Proceedings of the  
7<sup>th</sup> International Symposium  
on Pathology and Medicine  
in Reptiles and Amphibians  
(Berlin 2004)**



Edition Chimaira



SERPENT'S TALE  
NATURAL HISTORY BOOK DISTRIBUTORS

## A Mycobacterial Infection in a Reptilian Pet and The Pet Keeper – A Cause of Zoonosis?

Andreas HASSL

*Clinical Institute of Hygiene and Medical Microbiology, Medical University of Vienna, Austria*

Christine ARMBRUSTER

2<sup>nd</sup> Medical Department / Otto Wagner Spital, Vienna, Austria

Thomas FILIP

Clinic for Poultry and Pet Birds, University of Veterinary Medicine, Vienna, Austria

Key words: mycobacteria, MOTT, pet snake, pet animal abuse

### Abstract

Human infections with mycobacteria others than tuberculosis (MOTT) are usually not considered as being a zoonosis. Though, we report herewith a microbiologically proven case of an infection with MOTT in a HIV-negative young male suffering from a swelling of an inguinal lymph node. In search of the infection source only his exotic pets, two Burmesian Pythons (*Python molurus*), were detected of being infected with a mycobacterium, *Mycobacteria fortuitum*, in clinically conspicuous dermal lesions. Animal abuse together with mismanaged keeping methods were the most probable infection route.

As in 14% of all aquatic terraria *Mycobacterium fortuitum* could be detected, this mycobacterium seems to be associated with the house keeping of exotic pets.

### Introduction

Although mycobacteria are usually not taken into account when assessing the danger of transmitting infectious germs between reptilian pets and pet keepers in central European menages, misuse of pet animals may induce bizarre clinical and epidemiological presentations of mycobacteria infestation in man and pet animal. Hereby we give notice that reptilian pet and pet keeper may both be infected with a common environmental borne mycobacterium caused by terrible keeping conditions.

### **Material, Methods and Results**

In May 2003 a hitherto healthy 26-years-old male patient presented himself to a surgical department because of an enlarged lymph node in the left inguinal region. During the elicitation of the medical history he negated having have sexual intercourse for more than two years and he reported a long lasting keeping of pet snakes, in particular of two *Python molurus bivittatus* Kuhl 1820. However, the snakes were not kept in a terrarium but they were free living in the flat of the patient with a favorite whereabouts in the patient's bed. According to the patient's statement the snake were fed ad lib with living mice and were warmed up by him by means of snuggling at night. In reply to the question on the snakes health the patient admitted some minor molting problems. Thereabout one of the two snakes, an approximately 1,5 m long amelanistic Burmese Python, was referred to the Clinic for Poultry and Pet Birds (Veterinary University of Vienna) for closer inspection.

### **Animal case report**

On clinical examination the snake showed multiple dry and brown crusts all over the body, but especially on the skin of the upper jaw (figure 1). No other clinical signs could be examined. The python was anesthetized for medical reasons and mercy and several biopsy specimens were taken for further investigations. Pathohistology revealed a mild inflammation and a sklerosation of the subcutis. In the crust specimens parasites could not be detected, but one bacterium was isolated by conventional breeding and typing technique and that happens to be *Mycobacterium fortuitum* (da Costa Cruz 1938).

### **Human case report**

The human patient was in good general condition and without symptoms. Neither fever attacks, night sweats nor weight loss was reported. Magnetic resonance images of the left inguinal region demonstrated a well-defined subcutaneous alteration measuring 4 × 2 cm consistent with an enlarged lymph node. The number of CD4+ lymphocytes was slightly increased ( $1706 \times 10^6$  cells / l), that of CD8+ lymphocytes was normal resulting in a CD4+/CD8+ ratio of 1.5. There was no hint of a HI-virus infection.

Surgical excision was performed for diagnostic reasons. Histological examination of the specimen revealed necrotizing granulomas with epitheloid cells and giant cells of Langhans type. Using polymerase chain reaction (PCR) with a fragment of the insertion element IS 6110 the infectious agent could be identified as mycobacterium.

Investigations of peripheral blood, urine, and sputum by PCR with a fragment of the insertion element IS 6110 did not demonstrate mycobacteria. Further microbiological assessment consisted of smears of the urethra for the presence of Gonococcus, Clamydia, Mycoplasma, Ureoplasma, fung, and *Trichomanas vaginalis*, respec-

tively. The results were negative. Other reasons for the lymph node enlargement could be excluded by negative test results for *Cryptococcus neoformans* and *Toxoplasma gondii* antigen.

#### **Distribution study**

For verification of the microbiological finding a preliminary study was initiated to isolate and genotype mycobacteria from soil and water of terraria. 42 aquaria and aquaterraria were screened for MOTT infestation. In 14% of the aquaterraria *Mycobacterium fortuitum* was detected by genetic typing. *M. fortuitum* was isolated from all types of aquaria and aquaterraria inhabited by exotic pets including fish, amphibians and reptiles.

#### **Discussion**

Seen from the medical angle *Mycobacterium fortuitum* is a rare etiologic agent in lymphadenitis. The most frequent mycobacterial strain in pulmonary tuberculosis is *M. tuberculosis* but this mycobacteria strain is seldom the infectious agent in lymphadenitis in immunocompetent patients. Thus, although not coercively proven, *M. fortuitum* is the most probable infectious agent having caused the lymph node swelling in this patient.

The clinical signs of the python are in good consistence with an infection with an atypical mycobacterium. So we conclude, that at least one of the pet snakes was suffering from an infection with a mycobacterium other than tuberculosis (MOTT).

In contrast to the rare occurrence of *Mycobacterium fortuitum* in man and animal as opportunistic germ this bacterium is a common, rapidly growing, free-living saprophyte in water. We could detect it in about 14% of all aquatic exotic pet cages. So it seems to be a typical opportunistic germ, most probably associated with the keeping of exotic pets in an aquatic environment. Therefore immunosuppressed patients, especially HI-virus infected persons, should be aware of the danger uprising from a keeping of exotic pet animals, especially fish, amphibians and aquatic reptiles.

A weird matter is the question about the route of infection in this special case. Usually the lymph nodes closest to the invasion gate are affected at first. On reflection we have to assume abuse of the pet animal as cause of the symptoms in man, maybe even bestiality. This assumption is supported by the improper keeping conditions reported. Summing up, physicians and veterinarians should be aware of the possibility of animal abuse especially in cases of peculiar clinical pictures.

**Colour photo: Pl 1 + 2, p 313**

**Literatur**

- ALLAND D., KALKUT G. E., MOSS A. R., MCADAM R. A., HAHN J. A., BOSWORTH W., DRUCKER E., BLOOM B. R., 1994: Transmission of tuberculosis in New York City. An analysis by DNA fingerprinting and conventional epidemiologic methods. *N. Engl. J. Med.* 330 (24): 1710.
- FALKINHAM J. O., 1996: Epidemiology of Infection by Nontuberculosis Mycobacteria. *Clinical Microbiology Reviews.* 9 (2): 177.
- FRANK W., 1986: Hygienic Problems and Pet Animals in the Federal Republic of Germany. *Zbl Bakt Hyg B;* 183: 274.
- FRIEND S. C. E., RUSSELL E. G., 1979: Mycobacterium intracellulare infections in a water monitor. *J of Wildlife Diseases;* 15: 229.
- HASSL A., 2004: Microbiological conservation medicine and exotic pets. *Mid. Eur. J. Med.* 116 (4): 53.
- STAUFFER F., HABER H., RIEGER A., MUTSCHLECHNER R., HASENBERGER P., TEVERE V. J., YOUNG K. K. Y., 1998: Genus level identification of mycobacteria from clinical specimens by using an easy-to-handle Mycobacterium-specific PCR assay. *Journal of Clinical Microbiology;* 36 (3): 614.

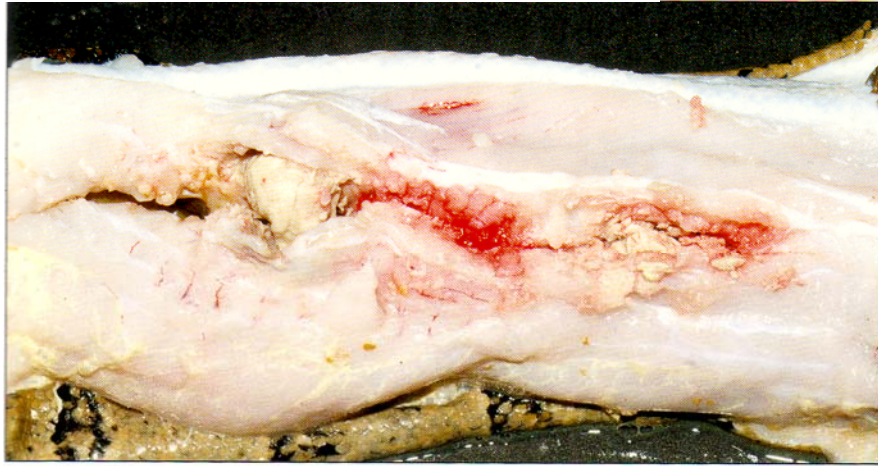
**REM: Plate 1 of unknown provinience**

Plate 1: Mycobacterial infection of the spine in a *Boa constrictor*.

A. HASSL



**Plate 2:** crusts on the head of an amelanistic Burmese python (*Python molurus*) infested with *Mycobacterium fortuitum*, colors modified.

A. HASSL