

## Short Communications

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### Abscess formation caused by *Plesiomonas shigelloides* in the body cavity of the lizard *Ameiva ameiva* (LINNAEUS, 1758)

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**Abstract.** In our work we report the isolation of *Plesiomonas shigelloides* from the body cavity of a young *Ameiva ameiva* lizard for the first time. The bacteria caused chronic inflammation with abscess formation. The lizard suffered primarily from gastrointestinal changes and later from respiratory disturbances, because of the size and localization of the abscess. The poor condition seen in the carcass was the consequence of the malnutrition caused by the growing abscess. Focal purulent inflammation resulting in abscess formation is very often seen in reptiles, where the pathologic changes are connected to different predisposing factors. In the reported case the changes were most probably initiated by a long transport.

**Key words.** lizard; *Ameiva ameiva*; abscess; *Plesiomonas shigelloides*.

In reptiles abscesses due to bacteria are the most common local, inflammatory-necrotizing changes (COOPER & JACKSON 1981). Abscess formation is observed within the integumentary tissue, in the body cavity or in organs. Abscesses which are localized in the body cavity are usually relatively large. Following the adhesion and proliferation of the bacteria, the surrounding cells necrotize during the abscess formation (MADER 1996). Lympho-histiocytic proliferation and connective tissue formation are seen around the affected area as a defense reaction of the organism. In the lumen of the abscess a yellow, yellowish-white or sometimes grey pus is found, which is formed by the necrotized cells, heterophil granulocytes and bacterial debris (COOPER & JACKSON 1981, MADER 1996). The colour can be attributed to the type of the bacterium. According to literature, a great number of different bacteria has been isolated from the content of reptile abscesses: *Actinobacillus* sp., *Aeromonas* sp., *Arizona* sp., *Bacterioides* sp., *Citrobacter* sp., *Edwardsiella* sp., *Enterobacter* sp., *Escherichia coli*, *Klebsiella* sp., *Neisseria* sp., *Pasteurella* sp., *Proteus* sp., *Pseudomonas* sp.,

*Salmonella* sp., *Serratia* sp., *Staphylococcus* sp., *Streptococcus* sp. (COOPER & LEAKEY 1976, HUCHZERMAYER 1991, PARDO et al. 1995, MADER 1996). The large abscesses disturb the physiological processes of respiration, circulation and digestion in the organism (COOPER & JACKSON 1981).

**Case report:** On the 6<sup>th</sup> of September 2002 a young *Ameiva ameiva* carcass was brought for dissection to our department (Department of Pathology and Forensic Veterinary Medicine, Faculty of Veterinary Medicine, Szent István University, Budapest, Hungary). The animal originated from the collection of the Budapest Zoo & Botanical Garden. It was a wild caught male lizard, 60 centimeter total length and 65 grams in weight.

According to the anamnesis the animal was captured 4 weeks before its death. It was kept in a 100 × 70 × 110 centimeter terrarium covered with forest soil socket. Dry, not moulding tree branches and creepers provided climbing possibilities for the lizard. The keeping temperature was 27-30 °C in daytime and 22-24 °C at night. The terrarium was sprayed with lukewarm water



Fig. 1. Abscess surrounded by connective tissue forming a capsule in the body cavity of *Ameiva ameiva*

once daily, and the lizard was fed 3-4 adult crickets per day.

**Bacteriological examination:** Blood agar and brilliantgreen-phenolred agar plates were inoculated from the affected organs (abscess, liver) of the lizard and incubated for 48 hours at 24 °C. The isolated bacterium strain was identified by its biochemical characteristics according to standard methods (BARROW & FELTHAM 1993).

**Histopathologic examination:** From the organs showing pathologic changes (abscess, liver) samples were taken for histopathologic examinations. The appropriate pieces of organs were fixed in 8 % formol solution, then embedded in paraffin. sections of 6 µm were cut with a Reichert sled-type microtome and stained with hematoxylin-eosin according to standard methods (BANCROFT & STEVENS 1996).

During the dissection of the lizards carcass a soft spherical nodule of approximately five centimeter in diameter was found attached to the pylorus region of the stomach (Fig. 1.). The cut surface showed a 3 centime-

ter thick wall and pus in the lumen. The pus was grayish-white and creamy. The spleen of the animal was of normal size and shape. The liver was brownish-red containing a great number of small, about 2-3 mm sized grayish-white foci. By cutting these foci grayish-white creamy content was emptied. The gastrointestinal tract contained only a small amount of grayish-brown content. The fat bodies of the animal were significantly smaller than in a healthy, well-fed animal.

After performing a bacteriologic examination *Plesiomonas shigelloides* bacteria were identified from the cultures (liver). The biochemical characteristics of the bacteria are shown in Table 1.

In the histological sections prepared from the abscess, collagen fibrous connective tissue bordering the pathologic changes was seen. The inner layer of the connective tissue was covered by lympho-histiocytic cellular infiltration. The lumen of the abscess was filled with homogenous eosinophil material containing few heterophil granulocytes.

The small abscesses found in the liver were formed by a homogenous, eosinophil,

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Characteristics (biochemical tests)	Result
β-hemolysis	+
Movement	+
Gelatine decomposition	–
Oxidase reaction	+
Catalase	+
Indole	+
Nitrate	+
Urease	–
Esculine-hydrolysis	–
Growing	Medium
Lisine-decarboxilase	+
Arginin-dihydrolyse	–
Glucose decomposition	+
Inosite	+
Arabinose	–
Mannite	–
Saccharose	–
Lactose	+/-
Growthon MacConkey agar	+
Colour of colonies	Yellowish–white

Tab. 1. The biochemical characteristics of the bacteria cultured from the abscess and liver of the lizard (*Ameiva ameiva*).

necrotic substance containing heterophil granulocytes surrounded by a lympho-histiocytic border.

We report on a case of chronic necrotizing inflammation followed by abscess formation in the body cavity and by multiplex hematogen metastasis in the liver in a lizard species (*Ameiva ameiva*), which is rarely kept in captivity in Hungary or even in Europe. From the content of the abscess we isolated *Plesiomonas shigelloides* bacteria. There were no related reference data in the literature about this pathogen causing similar changes in *Ameiva ameiva*.

Due to its size and localization the abscess caused severe mal-digestion. The prolonged problems of this state resulted in a weak condition primarily characterized by shrunk fat bodies of the lizard. The little abscesses found within liver parenchyma most probably originated from the primer

process due to hematogen metastasis (MADER 1996).

In our case the keeping conditions of these lizards were as follows: the temperature was 28-30 °C during the day and a few degrees lower at night than this species requires (ROGNER 1997).

It is known that abscess formation is a consequence of predisposing factors in reptiles (COOPER & LEAKEY 1976, COOPER & JACKSON 1981). In this case these predisposing factors could be the capturing and/or the transport of the animal.

During transportation it is suggested to use proper conditions satisfying all demands of the species. The most important thing is to keep the transport process as short as possible.

In case of reptile abscesses, antibiotic therapy usually is not the method of choice but rather an obstacle decreasing the efficiency of the medication. Whenever possible surgical removal and excision are recommended (MADER, 1996).

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