# DEADLY ADENOVIRAL INFECTION IN A LIZARD (Varanus salvator)

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Keywords: adenovirus, lizard, reptile

## Introduction

Lizards kept as pet animals were booming, not only in Indonesia but also in USA; the most popular reptile species was Inland Bearded Dragon and Green Iguana (Wentz, 2006). This young pet lizard Varanus salvator is originated from terrarium of private captive breeder in Jawa-Barat. It was found dead after few days of sickness in terrarum. Pathology assayed found multifoci of diphtheritic inflammation on the digestive tract, multifoci of coagulative hepatitis and splenitis with intra nuclear inclusion body characterized of adenoviral infection

### **Materials and Methods**

The carcass of young lizard was brought in for necropsy as requested by veterinarian the keeper of reptile terrarium. Various organs were sampled In BNF 10% (buffered neutral formalin) for microscopic pathology assessment. The organs were trimmed and processed into paraffin block. Sections were *cut* at 5 micron thick by microtome and stained with hematoxylin-eosin (HE).

### **Result and Discussion**

The lizard clinical signs were found inactive in their terrarium, lost of appetite for few days and unresponsive to antibiotic medication. The reptile was brought in for necropsy few hours after dead

Grossly, the lizard's digestive tracts were multifoci damaged by of diphtheritic. inflammation. The lesion was found from oroesophagus region down to the intestine (figures 1 and 2) Multifoci of necrotic inflammation were also present in the liver and spleen (figure 2). Microscopically, each lesion in the digestive tract beneath the fibrinonecrotic exudates was ulcer reaching deep into the propria (figure 3). In the liver, multifocus hepatocytes effected by coagulative necrosis and framed by mixture of inflammatory cells and their nuclear debris (figure 4). Diffuse coagulative necrosis was effected the spleen (figure 5).

Intranuclear basophilic inclusion bodies were

found in numbers of unaffected cells on the border of necrotic lesions of the intestine. liver and spleen (figure 6).



figure 2 Multifoci of necrotic inflammation present in the liver (L), spleen (S) and intestine (I)

The characteristic of adenoviral inclusion in hematoxylin-eosin staining was their present inside the nucleus, staining basophilic (bluish color}, surrounded by unstained halo, and enclosed by thick chromatin marginated nuclear membrane (AFIP Wednesday slides conference, 7996).



Figure 3 There are deep ulcerative mucosa (arrow heads) beneath the fibrino-necrotic exudates of digestive tract. HE stain,  $Bar = 20 \,\mu m$ 



# Figure 4 Multifocus hepatocytes effected by coagulative necrosis (arrow heads) and framed by mixture of inflammatory cells HE stain, Bar = 20 μm

The adenoviral infection has been reported as a deadly disease in lizards. dragon, gecko, gila monster, chameleon (Jacobson ef al 1996, Wellehan 2004) as well as in snakes (Leigh Perkins et al. 1999) and crocodile (Jacobson 1984). The adenoviral infection was destructive, particularly to the digestive tract, spleen and liver. The route of infection, reported as either horizontal or vertical through the eggs (Wentz 2006). Phylogenetic analysis indicated that reptilian adenovirus belong to the genus Atadenovirus (Wellehan *et al.* 2004), different from mammalian, human or avian adenovirus.



Figure 5 Diffuse coagulative necrosis of the spleen. HE stain, Bar =  $20 \,\mu m$ 



Figure 6 Intranuclear basophilic inclusion bodies (arrow heads) are found in the unaffected cells on the border of necrotic lesions of the intestine, liver and Spleen HE stain, Bar = 1 µm

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