

SEASONAL OUTBREAKS OF TYZZER'S DISEASE IN MALAGASY GIANT JUMPING RATS (*HYPOGEOMYS ANTIMENA*) IN THE RIGA ZOO

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INTRODUCTION: Two outbreaks of sudden mortality in Malagasy giant jumping rats have occurred in Riga's Zoo. During the first outbreak in fall of 2004 7/8 rats died. In the second outbreak (fall of 2009) 2/2 rats died. Animals of all ages were affected.

MATERIALS AND METHODS: Necropsies, histopathology, special staining, and PCR were used to determine the cause of outbreaks.

RESULTS: Acute hepatic necrosis was detected in 3/4 rats examined from 2004 outbreak and in both rats from 2009 outbreak. Large, slender bacilli, typical of *Clostridium piliforme* were seen in Warthin-Starry silver stained sections. In 2009 cases *C. piliforme* DNA was found in formalin-fixed paraffin-embedded liver tissues by PCR. Sequencing of conserved region of *C. piliforme* showed that the strain was 99% homologous to mouse isolate. These findings support Tyzzer's disease as the cause for both outbreaks.

CONCLUSIONS: Occurrence of both Tyzzer's disease outbreaks in the fall indicates that wild rodents which start to move indoors during cooler nights may be carriers of *C. piliforme*. While the susceptibility of Malagasy giant jumping rats to *C. piliforme* is not known, these two outbreaks suggest that this rodent species may have increased sensitivity to Tyzzer's disease.