

COLITIS IN CAPTIVE TAMARINS DISPLAYED ON SEMI-NATURAL MIXED SPECIES EXHIBITS IN A NORTH AMERICAN ZOO

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Abstract

Callitrichids have long been kept in zoological exhibits and in laboratory colonies. They are considered to be difficult to maintain and breed in captivity. Most of the species are considered to be endangered, threatened or vulnerable. Some causes of morbidity and mortality include inappropriate housing and diet, disease and trauma related to social stress, wasting marmoset syndrome, infectious diseases and other factors.⁵⁻⁷

Colitis is an important cause of morbidity and mortality among captive cotton-top tamarins (*Saguinus oedipus*) kept in research laboratories. Other species such as mustached tamarins (*S. mystax*) and white lipped tamarins (*S. labiatus*) have been reported as susceptible.^{2,3} Previously the disease has been only reported in laboratory conditions, and the disease is considered absent in wild populations of cotton-top tamarins.⁹ Low temperatures, mal-adaptation to captivity, diet, genetic predisposition, and infectious diseases have been implicated to be causal for the development of this problem.^{1,6-8,10} There are few reports of the disease in zoo collections in the USA; it has been considered that more natural conditions give in zoo collections could be a reason why this disease is not highly prevalent.^{3,4}

A 10-yr (1993-2003) retrospective study of histopathology records (40 total) was performed; we observed 17 cases with lesions compatible with colitis (42.5%). The disease was present in 5 different species of tamarins (*S. oedipus*, *mystax*, *geoffroyi*, *midas*, *fuscicollis*) with a gender ratio of 12:5 (Male: Female), All tamarins were exhibited in the Laid Jungle Building, eight cases (47.0%) came from tamarins that were exhibited with other species of primates (Callitrichidae or Cebidae), five (62.5%) were displayed in open island exhibits, one case from a glass closed display (12.5%) and two were displayed in both type of exhibits (25%) .

The open island exhibits display birds of different species that could be limited to roam in the exhibit or species of birds that could roam free inside the Laid Jungle Building, South-American rodents such as agouties have also been exhibited during the period of research. Aquatic turtles and different species of fish have direct and indirect contact with the island. Tamarins displayed

in closed glass exhibits had contact with pigmy marmosets (*Callithrix pygmaea*) or red handed tamarins (*S. midas*). There are reports of sporadic observations of rodents in both types of displays, but it is considered that they are more prevalent in the open-island exhibit.

This is the first report of colitis in tamarins other than cotton-top (*Saguinus oedipus*), outside laboratory conditions in the USA and presented in multiple species of tamarins that are kept in semi-natural exhibits and in contact with other species in a zoo collection. More studies such as factors of association, etiologic agent or transmission (if exists), are necessary to understand the pathogenesis of the disease in order to develop adequate husbandry and management measures for tamarins in captivity. We ignore if the disease has been prevalent previously in zoo collections or the disease has been under look since it has been considered to be more prevalent mainly in one species of tamarin (cotton-top) kept under laboratory conditions. We encourage the surveillance for colitis in tamarins in zoo collections.

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