Massive Distal Forelimb Fibromyxoma in a Free-ranging American Alligator (*Alligator mississippiensis*)

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Abstract - An adult male Alligator mississippiensis (American Alligator) with a large growth on the right forelimb was harvested from the wild by a nuisance-control trapper in Louisiana. The mass was determined histologically to be a fibromyxoma. To our knowledge, this neoplasm has not previously been described in American Alligators.

A recent retrospective study identified the prevalence of neoplastic diseases in reptiles, with neoplasia being most common in snakes, followed by lizards, chelonians, and lastly crocodilians (Garner et al. 2004). Although crocodilians have few reported neoplasms (Huchzermeyer 2003, Jacobson 1984), we recently described a large fibrosarcoma in a wild Alligator mississippiensis Daudin ([American Alligator], hereafter Alligator; Elsey and Nevarez 2013). Our 2013 report described several published cases of fibrosarcomas in reptiles, often in captive specimens (see references in Elsey and Nevarez 2013). Numerous thorough studies have examined abnormalities, injuries, and general health status in several species of wild crocodilians, and our review of this work revealed that several of them noted rare growths in wild crocodiles (see references in Elsey and Nevarez 2013). However, without histological examination it is not possible to determine if the growths were neoplastic.

On 15 January 2008, a licensed nuisance-Alligator trapper harvested a wild Alligator with an unusually large growth on the right forelimb (Fig. 1). The adult male specimen had a total body length of 3.17 m. It was taken on private property near Sorrento in Ascension Parish in southeastern Louisiana. The trapper immediately noted the abnormal growth on the Alligator’s leg and reported the unusual finding to the third author, who coordinated transport of the Alligator to the Louisiana State University School of Veterinary Medicine for full necropsy.

At necropsy, the Alligator appeared in adequate nutritional status, and the growth on the distal right forelimb measured approximately 50 x 50 x 75 cm and weighed approximately 15 kg. The skin thickness varied over the mass, and some ulceration and crusting of the skin was noted. The mass extended from the mid-antebrachium distally, and essentially replaced the distal extremity of the carpus and foot. Although the distal radius and ulna ended fairly abruptly, the mass did not appear to infiltrate the bone, although it did infiltrate the musculature of the distal leg (Fig. 1). On cut section, the mass was white, slightly firm, and exuded a thick clear gelatinous fluid which clotted on exposure to air. Some areas within the mass were more gelatinous and transparent while other areas were more solid and firm.

Microscopically, the tumor consisted of fairly loose collagenous connective tissue with occasional areas of denser collagen. The loose areas had a slightly basophilic myxoid matrix. The cells were spindle-shaped to stellate, with indistinct cytoplasmic margins and

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Figure 1. Photograph of an adult male American Alligator with large fibromyxoma on the right forelimb (Panel A). Close-up view of lesion on forelimb (Panel B).
plump nuclei with stippled chromatin and single to multiple small nucleoli (Fig. 2). The tumor infiltrated the adjacent skeletal muscle and widely separated the myofibers, but no mitotic figures were observable.

It is unusual to encounter nuisance Alligators in winter months, but it was relatively warm on the day the Alligator was trapped, and very high temperatures were recorded the week before (climatological data noted at the nearby Baton Rouge Metro Airport; NOAA 2008). These warm temperatures may have led to initiation of basking behavior in the Alligator, but unusually low temperatures in early January may have made the Alligator sluggish, as did the very cool temperature of the day before capture. The Alligator was easily approached and seemed undisturbed by the presence of the three trucks and four men involved in its harvest. It was unclear if the Alligator could ambulate and it seems likely the huge volume/bulk of the mass may have interfered with normal streamlined swimming.

To our knowledge, this is one of the largest tumors ever reported in a wild crocodilian and is larger than the 10 kg fibrosarcoma we recently described (Elsey and Nevarez 2013). The length of time required for a tumor of this size to develop in wild Alligators is unknown. As we previously surmised (Elsey and Nevarez 2013), it is possible that wild Alligators succumb to malignancies, but ambient heat and humidity in the aquatic environment, as well as post-mortem scavenging, may lead to rapid deterioration of carcasses, making observation by researchers unlikely. Additional research into disease mechanisms in valuable crocodilian resources may be warranted.

Figure 2. Histopathologic features of the tumor representing the disorganized loose collagenous array with abundant myxoid matrix and spindle-shaped to stellate cells having plump nuclei. Hematoxylin and eosin stain. 20 x magnification. Bar = 50µm.
Acknowledgments. We thank Lee Anderson for supplying details on harvest of the Alligator.

Literature Cited


