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Author: Hubbard, G. B.

Source: Journal of Wildlife Diseases, 21(1) : 72-74

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-21.1.72>

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found on owls of the genera *Athene* and *Otus* (Price and Beer, 1963, J. Kan. Entomol. Soc. 36: 58–64). In summation, only 60% (3/5) of the burrowing owls were infested and of a total of 25 lice, taken from these hosts, 17 (representing 8 *S. speotyti* and nine *C. pectinatum*) were recovered from one host, in town C.

The results of this study indicated the presence of a greater variety of ectoparasites from town C than from the other

two towns. This disparity could be attributed to the small sample sizes or the age of the prairie dog town. Older towns are usually much more complex in terms of construction and arthropod fauna (Wilcomb, 1954, op. cit.).

We thank Dr. K. C. Emerson for identifying the lice and the Llano Estacado Center for Advanced Professional Studies and Research for financial support granted to the senior author.

Journal of Wildlife Diseases, 21(1), 1985, pp. 72–74

A Seminoma and a Leiomyosarcoma in an Albino African Lungfish (*Protopterus dolloi*)

G. B. Hubbard,¹ Veterinary Sciences Division, USAF School of Aerospace Medicine, Aerospace Medical Division, AFSC, United States Air Force, Brooks Air Force Base, Texas 78235, USA; and **K. C. Fletcher,** San Antonio Zoological Gardens & Aquarium, 3903 N. St. Marys, San Antonio, Texas 78212, USA

Approximately 1 wk prior to death, a male, 6.5 kg, albino African lungfish was noticed to have an obstructive intestinal mass protruding from the anus. It was irregular, brown to red, firm and shiny (Fig. 1). Upon dissection, the tumor measured 18 cm by 6 cm diameter, had occluded the intestinal lumen and appeared to be confined to the intestine (Fig. 2). The cut surface of the tumor tissue was homogeneous, tan to white, moderately firm and moist. The kidney had multiple randomly located, pale tan, 2–4 mm diameter foci. On section, these foci cut easily and extended deep into the kidney. Evaluation of the testicles was difficult due to the large size of the intestinal tumor and post mortem degeneration. No other gross lesion was seen.

Histologically, the intestinal mass was composed of uniform, well-vascularized neoplastic mesenchymal tissue that extended from the serosal surface to the lumen of the intestine. The cells were arranged in irregular bundles, and solid intertwining sheets and resembled smooth muscle. The individual cells were irregu-

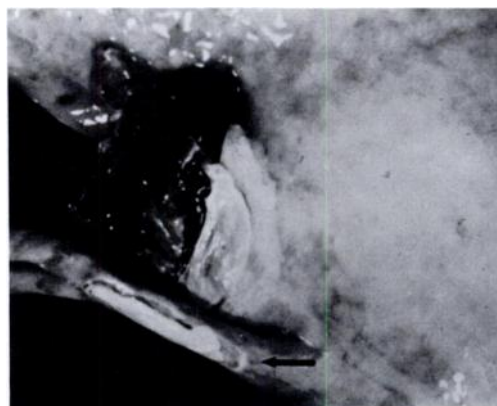


FIGURE 1. Leiomyosarcoma protruding from the anus of an albino African lungfish. Anal fins (arrow).

Received for publication 13 January 1984.

¹ Present address: U.S.A. Institute of Surgical Research, Brooke Army Medical Center, Fort Sam Houston, Texas 78234, USA.

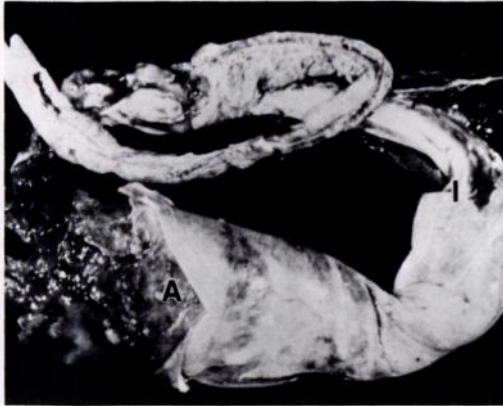


FIGURE 2. Dissected intestinal tract of an albino African lungfish showing the leiomyosarcoma confined by the serosa. Note the intestinal intussusception (I).

larly spindle-shaped to ovoid and had indistinct cell outlines (Fig. 3). The cytoplasm was abundant, eosinophilic and fibrillar. The nuclei were large, spindle-shaped to ovoid and hyperchromatic. The nucleoli were single and indistinct. Mitotic figures were rare. Necrosis, hemorrhage and inflammatory cell infiltrates were not remarkable.

The seminiferous tubules of the testicles were packed with an essentially homogeneous well-differentiated population of large, round to polyhedral, hyperchro-

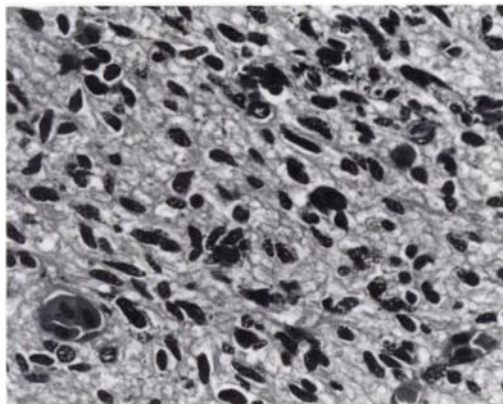


FIGURE 3. Typical histologic appearance of the leiomyosarcoma of an albino African lungfish. H&E, $\times 330$.

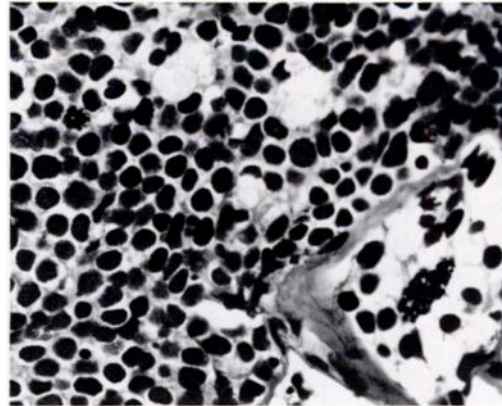


FIGURE 4. Section of testis of an albino African lungfish showing large neoplastic cells with numerous mitotic figures (arrows) and essentially normal spermatogenic tubule (lower right) containing sperm. H&E, $\times 360$.

matic neoplastic cells that resembled germinal epithelium. The cell outlines were indistinct, and the cytoplasm was scant and eosinophilic. The nucleoli were generally small and indistinct. Mitotic figures were common. More normal seminiferous tubules seldom contained sperm, and the germinal epithelium appeared atrophic (Fig. 4). Necrosis, hemorrhage and inflammatory cell infiltrates were not remarkable.

The interstitium of the kidney con-

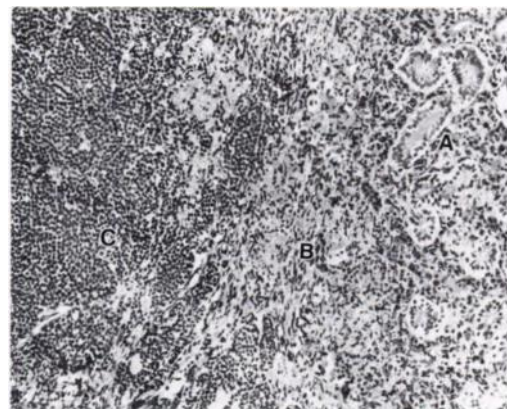


FIGURE 5. Section of kidney of an albino African lungfish showing normal kidney tubules (A), smooth muscle tumor cells (B) and seminoma cells (C). H&E, $\times 57$.

tained populations of both invasive neoplastic smooth muscle and testicular cells (Fig. 5).

Epithelial and mesenchymal neoplasms are not uncommon in boney fishes (Osteichthyes) (Wellings, 1969, Nat. Cancer Inst. Monogr. 31: 59–121). Seminomas and leiomyosarcomas are reported but are rare (Schlumberger and Lucké, 1948, Can. Res. 8: 657–696; Budd and Schroder, 1969, Bull. Wildl. Dis. Assoc. 5: 315–318; McKnight, 1977, Aquaculture 13: 55–60; Wellings, 1969, op. cit.).

We could only find one report of a tumor in the albino African lungfish, a melanoma of the intestine (Harshbarger, 1977, Activities Report, Registry of Tumors in Lower Animals: 1976 Supplement, Smithsonian Institution, Washington, D.C., p. 18). A spermatocytic seminoma has been reported in the African lungfish (*Protopterus aethiopicus*)

(Harshbarger, 1982, Activities Report, Registry of Tumors in Lower Animals: 1981 Supplement, Smithsonian Institution, Washington, D.C., p. 22).

It was not possible to determine if the neoplasms in this fish were metastatic. It is probable they were invasive of the kidney, because of the proximity and the fact that invasive growth is common in malignant tumors of fish (Van Duijn, 1973, Diseases of Fishes, ILIFFE Books, London, England, p. 268).

The authors wish to thank the staff of the Department of Veterinary Pathology, Armed Forces Institute of Pathology for consultation; and SSgt. S. J. Davis, Mr. J. Vasys, and Ms. S. C. Garcia for their technical assistance. Representative tumor material has been deposited in the Registry of Comparative Pathology, Armed Forces Institute of Pathology, Washington, D.C. 20306, USA (AFIP #1929547).

Journal of Wildlife Diseases, 21(1), 1985, pp. 74–76
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Lipoma in Channel Catfish (*Ictalurus punctatus* Rafinesque)

C. P. McCoy and P. R. Bowser, College of Veterinary Medicine, Mississippi State University, Mississippi State, Mississippi 39762, USA; **J. Steeby and M. Bleau**, Mississippi Agriculture and Forestry Experiment Station, Delta Branch Experiment Station, Stoneville, Mississippi 38776, USA; and **T. E. Schwedler**, Mississippi Cooperative Extension Service, Delta Branch Experiment Station, Stoneville, Mississippi 38776, USA

Lipomas are benign tumors of adipose tissue that are common in mammals (Moulton, 1978, Tumors of Domestic Animals, University of California Press, Berkeley, California, 465 pp.), and have been reported in a number of species of fishes (Mawdesley-Thomas, 1971, Current Topics in Comparative Pathobiology, Academic Press, New York, New York, 277 pp.; Wellings, 1969, Nat. Cancer Inst. Monogr. 31: 59–128; Harshbarger, 1982,

Registry of Tumors in Lower Animals, National Museum of Natural History, Smithsonian Institution, Washington, D.C., 55 pp.). This is the first report of a lipoma in channel catfish.



FIGURE 1. Channel catfish with multiple subcutaneous lipomas.

Received for publication 7 May 1984.