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FishVet Group

Histopathology Report

Client:	Wisconsin Dept. Natural Resources	Case no:	006/15	Sample date:	-
Site:	Lake, wild caught	Client ref:	2015-17	Received date:	February 23, 2015
Contact:	Megan Finley, DVM	Contact no:	608-266-2871	Reported date:	February 27, 2015

Background

Received in formalin are multiple tissues from three, adult, wild caught black crappie (*Pomoxis nigromaculatus*) from a population of fish presenting with cutaneous red sores progressing to edematous, liquifactive necrosis. Lesions appear to be occurring with increasing frequency in several lakes, dating back multiple decades.

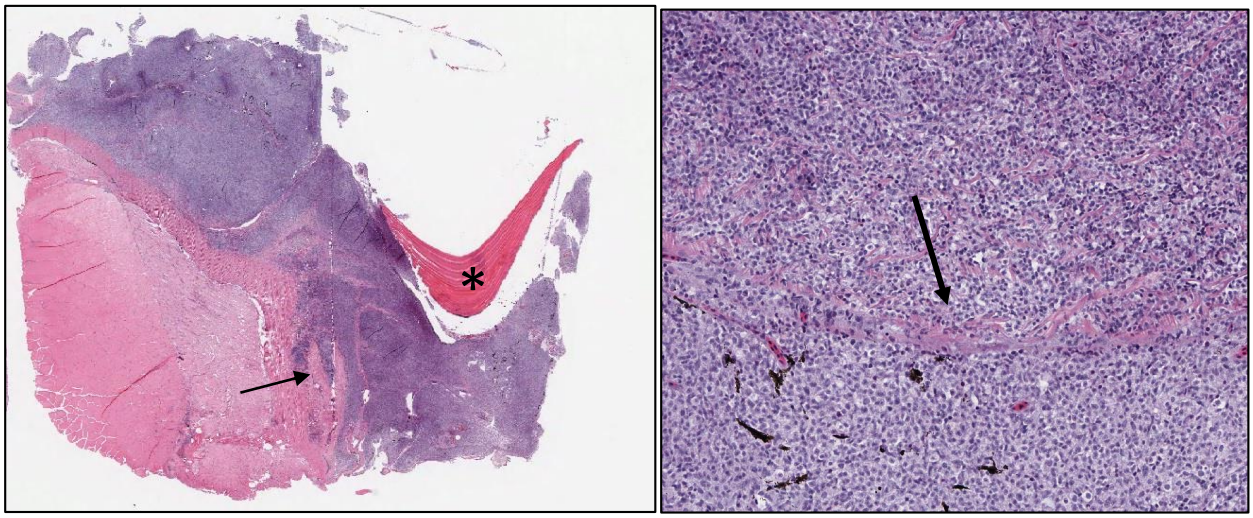
Report Summary

The monomorphic population of round cells is more indicative of a neoplastic process than an inflammatory reaction. However, the presence of masses in multiple fish and increasing incidence within the population may suggest an infectious agent and/or environmental factors are contributing to morbidity. The sarcomas were locally invasive and extend deep into the underlying tissue but no signs of systemic spread were present. Giemsa stain for Rickettsia and bacterial pathogens were did not reveal significant findings, with the exception of rare of mixed bacteria along the surface. The loss of epithelium and deposition of bacteria suggest skin lesions may predispose fish to secondary infections, although there were no signs of septicemia in these fish. An etiologic agent could not be identified histopathologically. As discussed, we are hopeful electron microscopy and sequencing with generic primers may shed further light on possible Rickettsial or viral etiologies and we can offer blood smear examination for Rickettsial agents or other abnormalities. Granulomatous inflammation in the epicardium of the heart appeared non-specific and was not associated with any infectious agents. It's significance and relationship with the skin masses is unknown.

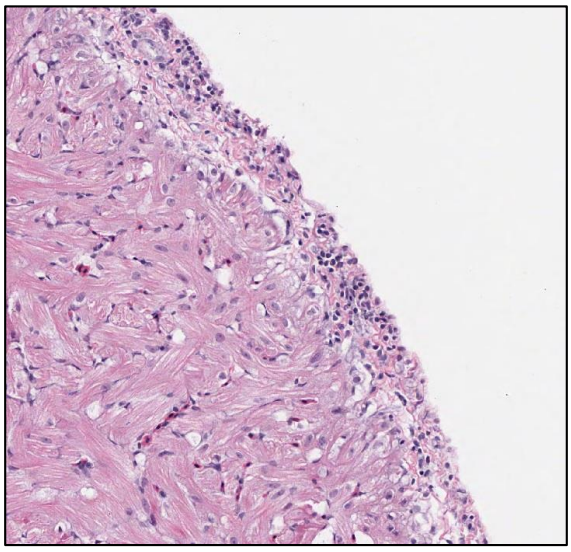
Histopathology

Fish	Findings
1-3 (slides 6,7,8)	All fish examined show similar histopathologic changes with only minor variation in severity and distribution. Skin: There is massive infiltration of the dermis, subdermis and underlying muscle with an unencapsulated, poorly demarcated mass composed of sheets and cords of monomorphic round cells. Neoplasic cells have indistinct cell borders, moderate amounts of pale, lightly basophilic, wispy cytoplasm. Nuclei are round to oval with marginated chromatin and large, centrally placed nucleoli. Anisokaryosis and anisocytosis is mild to moderate. Mitoses are less than one per high powered field. Invasion by neoplastic cells results in massive disruption of the underlying skeletal muscle with evidence of myofiber degeneration and necrosis and there are multifocal areas of hemorrhage deep within the muscle. The overlying epithelium is often absent or eroded and scales that are present are visibly elevated off the skin. Giemsa special staining demonstrated rare, mixed bacteria along the surface of neoplasms but no evidence of infection within the neoplasms or deeper tissue.

	Heart: In two of three fish, there is infiltration of the epicardium by scattered to low numbers of lymphocytes and few macrophages. Mononuclear cells often aggregate around blood vessels. Microscopic organisms were not appreciated with Giemsa special staining. Gill, liver, spleen, swim bladder: There are no significant microscopic findings.	
Morphologic Dx:	Skin: Round cell sarcoma with associated muscle degeneration and ulceration Heart: Mild to moderate, multifocal to diffuse, granulomatous epicarditis	
Read by:	Dave Marancik, DVM, PhD	



Skin (left): The dermis and subdermis is extensively replaced by a poorly demarcated, invasive mass that extends deep into the muscle (arrow). 2x. There is loss of the overlying epithelium and lifting of scales (*). Skin (right): The mass is composed of a monomorphic population of round cells. There is infiltration through the underlying muscle bundles (arrow). 40x.



Heart: Moderate numbers of lymphocytes, plasma cells and rare macrophages infiltrate into the epicardium. 40x.