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## SURFACE AND VISCERAL LYMPHOCYSTIS DISEASE IN A WHITE CRAPPIE, *Pomoxis annularis*\*

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### INTRODUCTION

Lymphocystis disease is a viral infection of fish which appears as a macroscopic cauliflower-like growth on various body surfaces. The causative agent, a DNA-type pox virus, induces tremendous hypertrophy of infected subepidermal connective tissue cells.<sup>1</sup> Lymphocystis has been reported from both marine<sup>2,3</sup> and freshwater<sup>4,5</sup> fishes. Several species of freshwater centrarchid fishes are commonly infected. The extensive literature has been reviewed<sup>2,4,6</sup> but there are few records of visceral involvement. Nigrelli and Smith<sup>7</sup> observed hypertrophic cells in the gastrointestinal tract, spleen and ovary of *Ceratocanthus schoepflii*. Smith<sup>8</sup> found two cases of visceral infection in *Stellifer lanceolatus*, but did not specify the organs involved. Since fish have been infected by oral inoculation of viral infected tissue,<sup>6</sup> visceral involvement may occur more commonly than has been previously diagnosed.

### MATERIALS AND RESULTS

A white crappie, *Pomoxis annularis* (total length 17 cm) was collected in the Mackinaw River at Route 51 near El

Paso, Illinois. At the lower edge of the eye was a white, irregular, somewhat friable, papillary growth of about 1 cm greatest dimension (Fig. 1). The fish was fixed and stored in 10% formalin for about four years as a museum specimen. Necropsy was then performed, the head decalcified, and histologic preparations of the skin lesion and major viscera were studied. The growth was a typical lymphocystis lesion, probably originating from hypertrophied connective tissue cells lying under the thin, displaced epidermis (Figs. 2, 3). The mean diameter of 10 infected cells (sectioned at level of the nucleus) was 173 microns. The unusual feature of this case was the presence of isolated lymphocystis - infected cells throughout the spleen (Fig. 4). It could not be determined if these cells were "metastatic" from the ocular lesion or of local origin. The hyaline capsule surrounding individual cells was especially well-demonstrated by the Periodic Acid Schiff staining reaction, suggesting a useful technique for diagnosis of widely scattered lymphocystis cells in visceral organs (Fig. 4).

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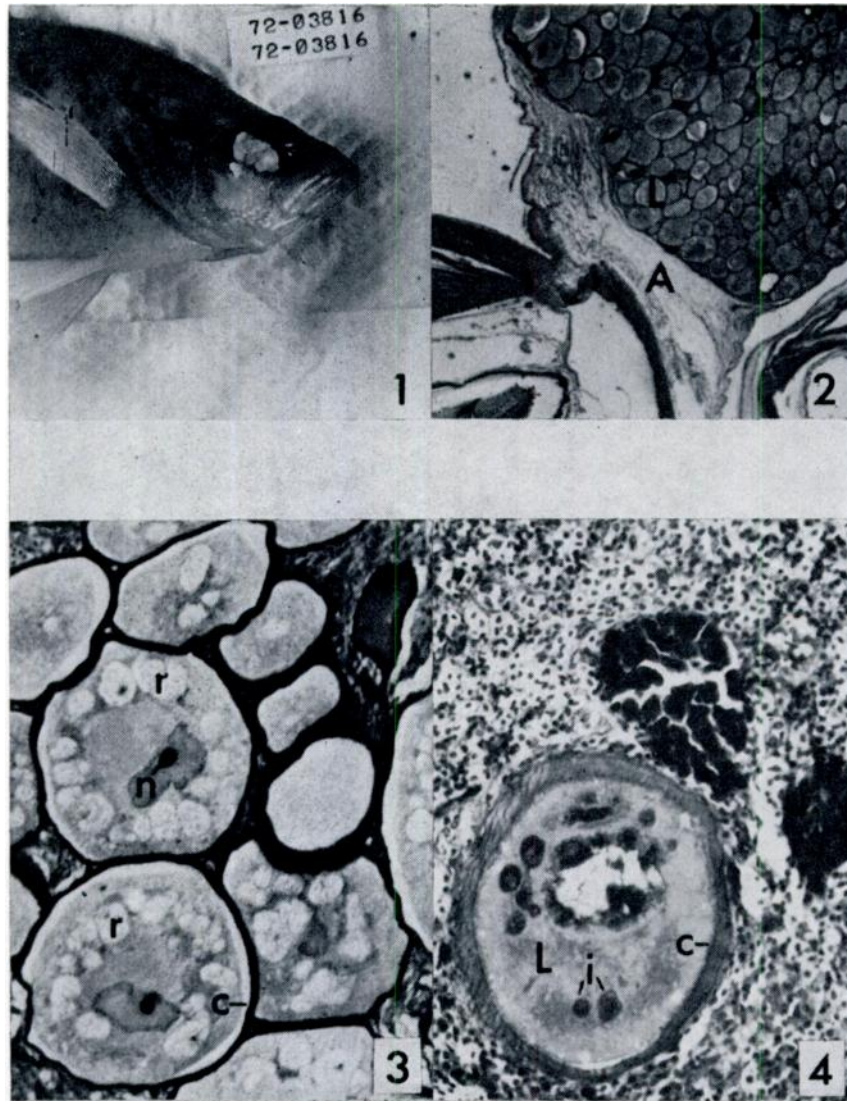


FIGURE 1. White crappie with lymphocystis growth at base of eye. (X 0.6)

FIGURE 2. Section of lymphocystis growth (L) at region of attachment (A) near eye. PAS stain. (X 25)

FIGURE 3. Higher power section of growth with details of lymphocystis-infected cells: nucleus (n) with nucleolus, reticular "virus" inclusions (r), capsule (c). H & E stain. (X 160)

FIGURE 4. Section of spleen with single lymphocystis cell (L). Note PAS stained inclusions (i) and hyaline capsule (c). (X 200)

**LITERATURE CITED**

1. DUNBAR, C. E. and K. WOLF. 1966. The cytological course of experimental lymphocystis in the bluegill. J. Inf. Dis. 116: 466-472.
2. LOPEZ, D. M., M. M. SIEGEL, A. R. BEASLEY and L. S. DIETRICH. 1969. Biochemical and morphologic studies of lymphocystis disease. NCI Monograph 31: 223-236.
3. NIGRELLI, R. F. and G. M. SMITH. 1939. Studies on lymphocystis disease in the orange filefish, *Ceratacanthus schoepfii* (Walbaum) from Sandy Hook Bay, N.J. Zoologica 24: 255-264.
4. NIGRELLI, R. F. and G. RUGGIERI. 1965. Studies on virus diseases of fishes. Spontaneous and experimentally induced cellular hypertrophy (lymphocystis disease) in fishes of the New York Aquarium, with a report of new cases and an annotated bibliography (1874-1965). Zoologica 50: 83-96.
5. SMITH, F. G. 1970. A preliminary report of lymphocystis disease in the fish of the Sapelo Island, Georgia area. J. Wildl. Dis. (Proceedings Annual Conference) 6: 469-471.
6. WEISSENBERG, R. 1965. Fifty years of research on the lymphocystis virus disease of fishes (1914-1964). Ann. N.Y. Acad. Sci. 126: 362-374.

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