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LEIOMYOMAS IN TWO SEA OTTERS, *Enhydra lutris*

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Abstract: Uterine leiomyomas were discovered in 2 of 112 female sea otters *(Enhydra lutris)* from California examined from 1968 to 1979.

INTRODUCTION

Leiomyoma, a benign smooth muscle tumor, is rarely found in animals.[5] It is a well-circumscribed, but nonencapsulated tumor composed mainly of smooth muscle with varying amounts of fibrous connective tissue.[5]

Uterine leiomyomas have been described in a gray seal *(Halichoerus grypus)*, a California sea lion *(Zalophus californianus)*, and a Stellar's sea lion *(Eumetopias jubata)*.[1,6,7,8,11] This neoplasm has also been found in several species of Cetacia, including two blue whales *(Balaenoptera musculus)*, and a pilot whale *(Globicephala malaena)*. (Ron Landy, pers. comm.)[2,3,9,10] The only published report of a neoplasm in a sea otter *(Enhydra lutris)* was by Kenyon who described abnormal tissue growth in the viscera and lymph nodes of a young adult female otter examined in 1969.[1] Later analysis of the necropsy report resulted in a possible diagnosis of leiomyoma or leiomyosarcoma.[1] However, the histopathology results presented are not sufficient to substantiate either diagnosis.

Karl Schneider (pers. comm.) found 15 tumors of the uterus and cervix among 1401 sexually mature sea otters examined at necropsy in Alaska. The histological type of these tumors was not established.

MATERIALS AND METHODS

Otter 1. A mature female sea otter (length 119 cm) was found dead in Stillwater Cove, Monterey County, California, on 15 March 1977.

Otter 2. A mature female sea otter was found dead floating in the kelp off of Point Pinos, Pacific Grove, California, on 26 September 1978. Thorough necropsies were performed by the authors on the two otters. Tissue samples were taken from all major organs, including gross lesions, fixed in 10% buffered neutral formalin, processed by routine histological methods, and stained with hematoxylin and eosin.

PATHOLOGY FINDINGS

Otter 1. A firm well circumscribed spherical mass 3.5 cm in diameter was present in the wall of the right uterine horn. Histological examination revealed spindle-shaped cells oriented in short to long, randomly directed, bundles. Nuclei tended to be spindle-shaped and the cells had long cytoplasmic processes characteristic of smooth muscle. This is consistent with a diagnosis of uterine leiomyoma similar to that seen in other species.

Otter 2. The animal was in poor nutritional condition with markedly decreased muscle mass and absence of body fat. Findings included emaciation, intestinal parasite infection (unclassified trematode), extensive ulceration and proliferation of granulation tissue in the nose, adrenal cortical hyperplasia and uterine leiomyoma. Probable cause of death was malnutrition and stress. The uterine neoplasm was a well cir-

FIGURE 1. A portion of opened uterine horn from otter 2 demonstrating the leiomyoma as seen from the endometrial surface.

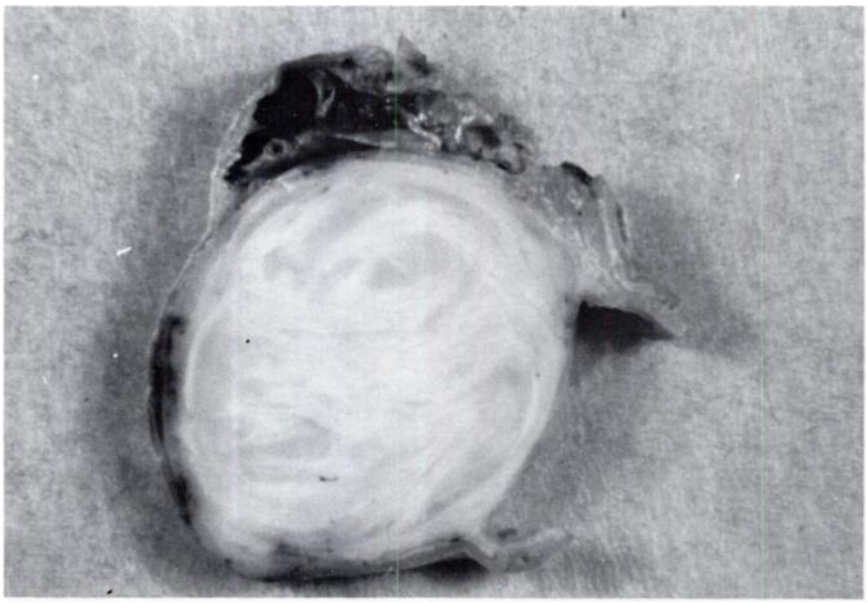

FIGURE 2. Cut surface of uterine leiomyoma from otter 2. Note the conspicuous pattern produced by interlacing bundles of smooth muscle cells.

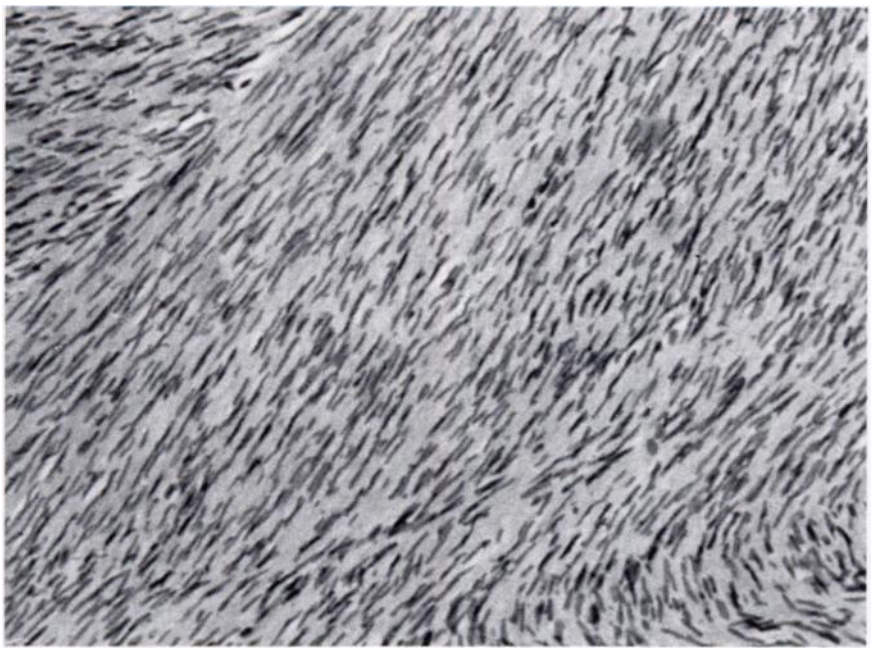

FIGURE 3. Photomicrograph of uterine leiomyoma from otter 2 demonstrating long interlacing bundles of smooth muscle cells. H&E × 100.

cumscribed, firm, spherical 3 cm mass arising from the wall of the left uterine horn approximately midway between the uterine bifurcation and the ovary. This tumor was identical histologically to the leiomyoma found in otter 1. The endometrium adjacent to the mass was compressed and atrophic. The ovary contained several regressing follicles, many atretic follicles and several old corpora lutea.

DISCUSSION

These leiomyomas were the only neoplasms found during necropsies performed on 112 female sea otters from 1968 to 1979. In this study neoplasms were present in 1.8% of the cases. Karl Schneider (pers. comm.) found neoplasms of undetermined type in 1.1% of female otters subjected to necropsy in Alaska. Necropsies in California are generally performed on stranded rather than captured otters, so Schneider likely studied a larger cross-section of the population. It is interesting that only half of the otters Schneider studied were over 10 years of age, yet 12 of 15 neoplasms found were in otters over that age (3 of the ages were unrecorded).

In humans, leiomyomas appear during the years of maximum ovarian activity, enlarge during pregnancy and grow rapidly when exogenous estrogen is administered.[5] The prevalence of uterine tumors in animals is low when compared with man.[7] A significant factor may be the repeated state of pregnancy in lower mammals during the reproductive period.[7] The resultant increase in progesterone in animals compared with the high estrogenic activity in humans suggests that progesterone may be a limiting factor.

Acknowledgements

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