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PANCREATIC DUCT ADENOMA AND STRANGULATION OF THE SMALL INTESTINE IN A CALIFORNIA SEA LION *(Zalophus californianus)* [1]

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Abstract: A 16 year-old female California sea lion *(Zalophus californianus)* died in a zoological garden following a period of insidious weight loss. Necropsy revealed a loop of intestine strangulated by a fibrous ring connected to a pancreatic mass. Histopathologic diagnosis of the latter was pancreatic duct adenoma.

INTRODUCTION

Several authors have documented and reviewed the occurrence of tumors in pinnipeds.[1,5,7,8,9] There has been no report of pancreatic neoplasia in these animals.

This paper describes a pancreatic duct adenoma and an associated strangulation of the small intestine in a California sea lion.

CASE HISTORY

History: A captive 16 year-old female California sea lion *(Zalophus californianus)* died suddenly following a gradual weight loss over a six-month period. Fecal examination for internal parasites had been negative, and the animal had not shown any other signs.

Necropsy: Significant gross lesions were limited to the small intestine and pancreas. Approximately two-thirds of the small intestine was hemorrhagic and distended with fluid and gas. This portion had herniated through a fibrous ring joining a pancreatic mass and the mesentery. The mass was located in the proximal portion of the pancreas, had a slightly irregular surface, and measured $8 \times 5 \times 4$ cm. (Fig. 1). On section, it was firm, contained numerous small cystic areas, and was light yellow in color. Lymph nodes in the involved portion of the mesentery were enlarged.

FIGURE 1. Gross appearance of pancreatic tumor (t) adjacent to normal pancreas (p).

Histopathology: Within the pancreas there were multicentric proliferations of well-differentiated epithelial cells which formed various sized ducts (Fig. 2). In these areas, there was marked periductal fibrosis with mononuclear inflammatory cell infiltrates. Mitotic figures were rare. There was no evidence of invasiveness, nor were metastatic cells present in draining lymph nodes.

Chronic interstitial nephritis was an incidental finding.

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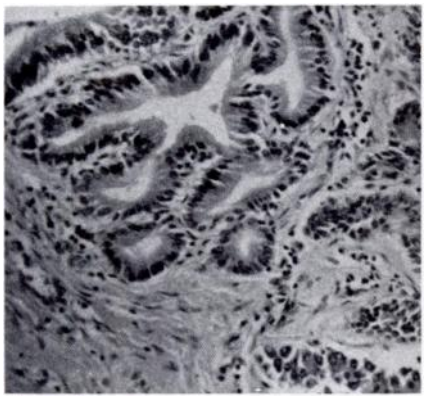

FIGURE 2. Pancreatic duct adenoma surrounded by fibrous connective tissue and mononuclear inflammatory infiltrates. Note normal acinar cells in lower right. ×375.

DISCUSSION

These findings have not been reported previously in pinnipeds, but are consistent with those associated with diagnoses of pancreatic duct adenoma in other species.[2,3,4] Pancreatic carcinomas and hyperplastic nodules are more common than adenomas in other domestic animals and man.[2,3,6] Hyperplastic nodules of ductal origin, however, are characterized by papillary intraductal proliferations which were not observed in this case.[3] Although ductal carcinomas in their early stages may have epithelial alterations similar to those described here,[4,6] other criteria of malignancy were not observed at this time.

The strangulation of the small intestine, while secondary to the neoplastic process, was considered to be the cause of death. It is interesting to note that in man, 30% of mechanical intestinal obstructions are caused by extra-intestinal hernial rings and adhesive bands.[6] Similar causes of intestinal obstruction are reported in animals.[2]

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