

Neurological Signs due to Spinal Lymphoma in a Ferret

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Lymphoma is one of the most common neoplasias seen in ferrets and can affect ferrets of all ages. The disease can involve numerous tissues, most often including peripheral and visceral lymph nodes, liver, spleen, bone marrow, kidney, lung, mediastinum, and intestine. Less often, the nervous system, stomach, pancreas, adrenal glands, and skin are involved. Clinical signs of lymphoma in ferrets are often vague and can mimic those seen in other diseases. Viral involvement has been suggested, but there is no significant evidence of this to date.

Presentation

A six-year-old castrated male ferret named Fred presented to the Exotics Service at Tufts University School of Veterinary Medicine with a three-day history of lethargy and hind limb paresis. There was no known history of trauma at home. At that time, he was undergoing medical management for adrenal disease (Lupron 0.1 mg/animal intramuscularly every 30 days for 3 consecutive treatments), as well as for insulinoma (Prednisone 0.2 mg/kg orally twice a day), both diseases having been previously diagnosed.

On physical examination, Fred was quiet but alert. His temperature was low (95°F), but returned to normal (101° F) within an hour with supplemental heat. He had decreased pain perception in both hind legs and no motor function. Fred was extremely painful in the caudal aspect of his body, vocalizing when handled or trying to move on his own. We did not elicit a painful response when manipulating his neck. A severe pain reaction was noted at the thoracolumbar region when palpated. A large, soft urinary bladder was palpated on physical exam. Manual expression of the bladder did not require significant force and produced normal urine, as confirmed with urinalysis. Fred was unable to void urine on his own. There was mild splenomegaly, but no palpable abdominal masses.

Treatment

Fred's initial treatment consisted of intravenous fluids (LRS at 120 ml/kg/day), antibiotics (Clavamox 20 mg/kg BID PO, clindamycin 10 mg/kg BID PO), pain medication (Buprenorphine 0/02 mg/kg intravenously TID), gastroprotectants (carafate 100mg PO TID), and manual expression of his urinary bladder several times a day. Blood work revealed a mild increase in GGT (11 IU/L (0-5 IU/L)). A complete blood count revealed a leukopenia with a white blood cell count of 2,900/ μ l. All other values, including blood glucose values, were within normal limits. Whole-body radiographs were taken. There were no signs of fractures or dislocations, although we noted a suspected osteolytic lesion of the vertebral body of T10. At the time of presentation, we discussed differential diagnoses with the owners, which included trauma, metabolic disease, neoplasia, intervertebral disc disease, and inflammation. A consultation with Tufts' Neurology Service confirmed the validity of these differentials, and we recommended an MRI and cerebrospinal fluid (CSF) tap.

Results of the fluid analysis from the CSF tap showed small numbers of erythrocytes and lymphocytes, which were described as within normal limits. Although we were unable to make the distinction between spinal neoplasia and disc disease at that time, the owners declined further neurological diagnostics and abdominal ultrasound.

Outcome

During his hospitalization, Fred became brighter and more active, although neither motor function to his hind legs nor voluntary urination had returned. He became increasingly more comfortable, as seen by his ability to be handled and move around with no further vocalizations. We slowly weaned him off of his pain medication (Buprenorphine 0.02 mg/kg/ intravenously TID), and increased his Prednisone dose to 1 mg/kg/ in order to decrease any swelling around the spinal cord.

Once Fred's pain was under control, his owners elected to provide conservative care at home. We discharged Fred four days after presentation on Clavamox, Clindamycin, Sucralfate, and PediaPred, and instructed his owners on how to manually express his bladder several times a day and perform physical therapy on his hind legs.

Fred continued to remain comfortable, bright, and alert at home and returned for weekly rechecks. His appetite and attitude were very good, according to his owners, and he was gaining weight. While he remained weak in the hind legs, there was a slight improvement in his motor function.

Unfortunately, two weeks after discharge, Fred returned to Tufts for lethargy and anorexia. Due to his declining quality of life, his owners elected to have him euthanized. Necropsy findings demonstrated lymphoma involving the cauda equina of the spinal cord, as well as the spleen, kidneys, liver, and mesenteric lymph nodes.

Recommendation

This unusual presentation of a common disease in ferrets illustrates the need for thorough diagnostics in any species, as well as the importance of considering lymphoma as a top differential for any ill ferret, despite lack of obvious diagnostic findings. This difficult case also demonstrates the significance of a post-mortem examination as both a diagnostic and educational tool.