History

A 5-year-old 4.5-kg (9.9-lb) neutered male domestic shorthair cat was admitted to the Veterinary Teaching Hospital, University of Helsinki, because of clinical signs associated with the alimentary tract. The first signs of illness were noted a week before admittance to the hospital; the cat had diarrhea for 2 days, followed by tenesmus. The appetite of the cat was very poor, but drinking and urination were considered normal. The cat had been given anthelmintic medication (type unknown) 2 months before the illness and had never been vaccinated. The owner reported no previous episodes of illnesses.

Clinical and Gross Findings

On physical examination, the cat was mildly dehydrated; breath sounds were considered louder than normal, breathing frequency was mildly increased, and abdominal palpation induced moderate signs of pain. Moderate alopecia was evident on the caudoventral aspect of the abdomen. On the basis of results of rectal palpation, a nodular intestinal mass cranial to the pelvis was suspected. Results of a CBC and serum biochemical analyses were within reference intervals, excluding the mild signs of dehydration. A test for circulating FeLV antigen and antibody against FIV yielded negative results.

Thoracic and abdominal radiography were performed after oral administration of contrast medium. Two intestinal masses—one in the ascending colon at the level of the sixth lumbar vertebra and the other in the descending colon—were detected radiographically. Both masses were also identified via ultrasonographic examination of the abdomen; both appeared to be connected to the colon. Thoracic radiography revealed no abnormal findings.

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Ultrasound-guided fine-needle aspirate samples of the masses were obtained and submitted for cytologic examination. The samples were highly cellular with a background of serous fluid and scattered erythrocytes (Figure 1). The main cell population consisted of neutrophilic granulocytes, of which some had degenerative changes. A few small coccoid bacilli were detected in the cytoplasm of the neutrophils. Numerous eosinophils and a moderate number of activated macrophages, mast cells, and fibroblasts as well as a few lymphocytes were present.

The decision to perform an explorative laparotomy was made on the basis of the diagnostic imaging and cytologic findings. Three expansive round masses were observed in the colon wall, and a complete surgical resection of the colon between the ileum and rectum was performed. Two of the masses were located in close proximity to each other, 2 cm aboral to the ileocecal junction; the third mass was located 7 cm aboral to those other masses. The masses were intramural, nodular, expansive, soft, and well demarcated with mucosal ulcers and intact serosa.

Figure 1—Photomicrograph of an ultrasound-guided fine-needle aspirate sample of 1 of 3 masses detected in the colon of a cat that had diarrhea followed by tenesmus during the preceding week (A) and a photograph of a resected portion of the affected colonic wall (circumferential cross section) containing a mass (B). In panel A, the aspirate sample is highly cellular; the main cell population is composed of neutrophils with numerous eosinophils (arrowheads) and fewer macrophages and fibroblasts. May-Grünwald-Giemsa stain; bar = 20 µm. In panel B, the colon has been cut open on the antimesenteric side, which has divided the expansive intramural mass into 2 parts (asterisks). The serosal surface (arrowheads) and the mesenteric attachment of the colon (arrow) remain macroscopically unaffected. Notice the apparently normal thickness of the colonic wall on the mesenteric side. Scale is in millimeters.
Histopathologic Findings

The resected colon was routinely fixed in neutral-buffered 10% formalin. The nodular masses of the colon were trimmed, embedded in paraffin, and sectioned for microscopic examination. The sections were mounted on glass slides and stained with H&E, Masson trichrome, Ziehl-Neelsen, Gram, or toluidine blue stain or by the Grocott stain method for fungi. Immunohistochemical stainings with antibodies against Toxoplasma gondii and feline coronavirus were also performed.

Histologic examination of the colonic tissue sections revealed expansive intramural masses that were confined mainly to the submucosa and muscle layers of the colon. Focal ulceration of the mucosa at the site of the masses was evident. The histopathologic findings were similar in all 3 masses. Each mass consisted of broad concentric bands of sparsely cellular, collagen-rich fibrous tissue with intermixed multifocal inflammatory cell infiltrates and loose fibrous tissue, which were most noticeable in sections stained with Masson trichrome stain (Figure 2). The inflammatory infiltrates consisted of numerous eosinophilic and neutrophilic granulocytes and macrophages, admixed with scattered perivascular mast cells, lymphocytes, and plasma cells (Figure 3). Most of the mast cells had clearly visible cytoplasmic granules in sections stained with toluidine blue stain. Intralesional, small, gram-positive coccobacilli were very sparse. Mycobacteria or fungi were not detected, and immunohistochemical stainings yielded negative results for T. gondii and feline coronavirus.

Morphologic Diagnosis

Severe chronic multifocal intramural fibrosing and eosinophilic enteritis, with occasional intralesional bacteria, consistent with feline gastrointestinal eosinophilic sclerosing fibroplasia (FIESF).

Comments

Feline intestinal eosinophilic sclerosing fibroplasia is a recently described mural inflammatory lesion of the intestines that, despite the presence of intralesional bacteria, responds better to corticosteroid administration than to antimicrobial treatment. If complete surgical resection is possible, the prognosis for the affected cat is good, which differs from the prognoses for cats with either of the 2 most common clinical differential diagnoses for this disease, alimentary lymphoma and adenocarcinoma. Other clinical differential diagnoses for FIESF include mast cell tumor, eosinophilic granuloma complex, and inflammatory lesions associated with toxoplasmosis or feline infectious peritonitis.

For the cat of this report, findings of cytologic examination of the fine-needle aspirate samples obtained from the masses largely determined further treatment (including surgery). In cats, the most common intestinal tumors are a round cell tumor (lymphoma) and a malignant epithelial tumor (adenocarcinoma); if collection procedures are successful, both tumor types yield highly cellular cytologic samples. Inflammatory lesions also typically yield highly cellular samples. Therefore, cytologic examination of samples of intestinal masses or lesions in cats...
can provide valuable diagnostic information. Whereas the absence of neoplastic cells in cytologic samples cannot definitively rule out lymphoma or adenocarcinoma, detection of eosinophils in combination with fibroblasts and macrophages in those samples is indicative of FIESF.

In addition, *T. gondii* and feline coronavirus were excluded as infectious causes of the inflammation in the cat of this report on the basis of results of immunohistochemical staining. In cats, an intestinal mast cell tumor usually appears microscopically as a dense, cord-like infiltration of neoplastic mast cells, which often are degranulated or poorly differentiated, into the submucosa and muscle layer. In the FIESF-affected cat of this report, the mast cells were located perivascularly and had clearly visible cytoplasmic granules. Most intestinal mast cell tumors in cats have a delicate stroma, but a sclerosing form with enclosed mast cells has been proposed. In cats with FIESF, the fibrous tissue in the intestinal wall forms distinctive concentric and collagen-rich nodules with eosinophils, neutrophils, and fibroblasts located between the fibrous trabeculae.

The possible association between FIESF and the dermatologic and oral disease feline eosinophilic granuloma complex has not been studied, to our knowledge, although a common pathogenesis including inherited eosinophil dysregulation with an inappropriate eosinophil inflammatory response has been suggested. To date, lesions resembling those that develop in the skin and oral cavity of cats with feline eosinophilic granuloma complex have not been detected in the intestines of cats.

The cat of this report was administered prednisolone (initial dose, 1 mg/kg [0.45 mg/lb], PO, q 12 h) and metronidazole (22 mg/kg [10 mg/lb], PO, q 12 h for 3 weeks) after discharge from the hospital to treat possible underlying inflammatory bowel disease. Initially, postoperative diarrhea developed, which was attributed to the shortened intestinal tract, but resolved within a week. Six months after surgery, administration of the corticosteroid was tapered to 0.25 mg/kg (0.11 mg/lb), PO, every 48 hours. Nine months after surgery, the cat was bright and alert with no tenesmus or diarrhea.

a. SNAP FIV/FeLV Combo Plus Test, IDEXX Laboratories Inc, Westbrook, Me.

b. Mixobar Colon, Initios Medical AB, Göteborg, Sweden.

References


