Hemangioma of the Ileum in a Dog

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(Received 8 January 2010/Accepted 2 March 2010/Published online in J-STAGE 16 March 2010)

ABSTRACT. An 11-year-old, castrated male beagle dog was presented with a sudden onset of clinical signs of depression, abdominal discomfort, anorexia and melena. Radiography and ultrasonography revealed a well-circumscribed mass lesion with a size of 5 cm in diameter at the hypogastrium. A complete blood count and blood chemistry revealed severe anemia, hypoproteinemia and hypoalbuminemia. Through celiotomy, a large tumor mass involving the ileum was resected. The inside of the mass was irregular and sponge-like structure with multiple cavitated structures. On histology, the lesion was diagnosed to be hemangioma of the ileal wall. To the best of our knowledge, this unusual case is the first clinical report on the ileal hemangioma in non-human animal species.

KEY WORDS: benign intestinal tumor, canine, hemangioma of the ileum.

Gastrointestinal neoplasms in the dog are relatively rare with a reported incidence of 12–120 cases per 10,000 cases [6]. Hemangioma is a well known vascular neoplasm of dogs [11], and typically benign, solitary, deep dermal tumor with a reported incidence of 44 cases per 4,535 cases [9]. There has been no clinical information on canine gastrointestinal hemangioma though a paper on the histopathological findings of this tumor was reported [8]. In human, gastrointestinal hemangioma is also a considerably rare benign tumor [2], in which massive or occult gastrointestinal bleeding has been documented [5, 7]. This is the first clinical report on a canine case of hemangioma of the ileum with melena and severe anemia.

An 11-year-old, castrated male beagle dog was presented with a sudden onset of clinical signs of depression, abdominal discomfort, anorexia and melena. The patient showed severely anemia on physical examination. A complete blood count revealed severe anemia with RBC of 2.7 × 1012/μl (reference range, 5.5–8.5 × 1012/μl), PCV of 19.2% (reference range, 37–55%), and hemoglobin of 7.2 g/dl (reference range, 12–18 g/dl). Slight leukocytosis with WBC of 17,600/μl (reference range, 6,000–17,000/μl) and reduced platelet count [112 × 1012/μl (reference range, 200–500 × 1012/μl)] were also observed. Blood chemistry revealed severe hypoproteinemia [total protein 4.1 g/dl (reference range, 5.5–7.8 g/dl)] and hypoalbuminemia [serum albumin 1.5 g/dl (reference range, 2.5–3.5 g/dl)]. Ventrodorsal and lateral radiographs revealed a well-circumscribed mass lesion with a size of 5 cm in diameter at the hypogastrium (Fig. 1). Ultrasonography showed cavitated structures lesions within the mass (Fig. 2).

Surgery was undertaken on the fourth day of admission. A large mass involving the ileum was found. The mass existed in middle of ileum. The mass was whitish and red in color containing soft cavitated structures (Fig. 3). The mesentery was not severely involved within the mass. The lymph nodes in the abdomen seemed normal and no metastatic lesions were identified. The mass with involved ileum was excised with a 5-cm margin and the ileum was closed with a routine end-to-end anastomosis. Grossly, the mass was completely encapsulated by thick fibrous tissues. The thickened portion of the surface was white and tough while the thin portion showed the color of old blood. When the mass was dissected, the central part was irregular and sponge-like structure with multiple cavitated structures, in which brownish fluid was retained. The ileal mass mainly was located within the muscular layer and partly reached the mucosa, where mild luminal hemorrhage was observed. The surgery ended without any events and the patient was discharged on the fourth day of surgery. In 15 months after the operation, general conditions were good without recurrence and metastasis.

Histopathological examinations revealed the ileal mass was consisted of the proliferation of irregularly dilated blood vessels containing a large amount of blood and fibrin thrombi, and small capillary-like vessels lined by endothelial cells. Most endothelial cells were arranged in a single layer, and some formed irregular mesh-like structures (Fig. 4a and 4b). The proliferating endothelial cells had no cellular atypism and mitotic figures, suggesting benign natures of these cells. In the interstitial area, there was mild reactive proliferation of smooth muscle cells of the muscular layer and fibroblasts. These cells also had no cellular atypia. Based on all these findings, the ileal mass was considered to be benign proliferative lesions of the blood vessels and was diagnosed as hemangioma.

Gastrointestinal neoplasms are rare in the dog, and most frequently observed in the rectum and colon. The most common small intestinal malignancies in the dog are adenocarcinoma and lymphosarcoma. Other small intestinal neoplasms include leiomyoma, leiomyosarcoma, fibrosarcoma, mast cell tumor, hemangiosarcoma, anaplastic sarcoma, and adenomatous polyp [4]. Besides, hemangioma is most fre-
quently seen at the skin (61.36%), followed by spleen (27.27%), oral cavity (2.27%), muscle (2.27%) and bladder (2.27%) [9]. Intestinal hemangioma has been only reported on the histopathological findings by Sakthivelan et al. [8].

In the present case, gross appearance was similar to those of cutaneous hemangiomas, in which red, blood-filled masses are often well circumscribed [10]. Spleen hemangiomas are usually solitary masses, dark red to bluish-purple in color, friable, and usually covered by a thin shiny serosa. Histological findings in this case were also similar to those of canine cutaneous, spleen and intestine hemangioma. Canine cutaneous hemangioma contains a well-demarcated mass formed by vascular channels lined by a single layer of well-differentiated endothelial cells [10]. Spleen hemangiomas are composed of well-differentiated endothelial cells, which differentiate into relatively well-formed vascular spaces [3]. In the paper describing histological findings of canine intestinal hemangioma [8], the mass consisted of numerous blood filled cystic spaces and separated from each other by fine collagenous septa. The vascular structure was lined by a single layer of flat or occasionally swollen endothelial cells and filled with blood cells. The endothelial cells had many ovoid and spindle-shaped nuclei without the evidence of mitotic activity [8]. These findings were almost similar to those in the present case.

Human hemangiomas are also common in the skin and subcutis, however rare cases arisen from the intestine have been reported, accounting for only 0.05% of all intestinal neoplasms and 7–10% of all benign tumors of the small bowel [1]. These tumors are solitary or occasionally multiple. They are most commonly found in the mid-jejunum, and rarely found in other locations of the gastrointestinal system.
tract. In contrast to most tumors of the small intestine, 80% of human hemangiomas of the small intestine are symptomatic, manifesting with acute, intermittent, and severe bleeding, leading to acute, chronic, or life-threatening anemia. Alternatively, and less commonly, hemangiomas manifest with intestinal obstruction, intussusception, or perforation [1, 5]. Human hemangiomas have a good prognosis after surgical excision [12]. This canine case was symptomatic and admitted with severe bleeding, acute and life-threatening anemia, melena, abdominal discomfort, and intestinal obstruction. Therefore, the symptoms of the intestinal hemangioma of the present dog resembled those of human intestinal hemangioma.

In conclusion, to the best of our knowledge, this is the first clinical case of canine hemangioma of the ileum. The clinical signs were similar to those of human one and the complete excision may be the curative treatment in dogs.

ACKNOWLEDGMENT(S). We thank Dr. N. Sasaki, The University of Tokyo, for preparing the manuscript.

REFERENCES