

## CASE REPORT

# Colonoscopic Diagnosis and Medical Management of Neutrophilic Colitis in a Dog

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Colitis is defined as the inflammation of the colon and is the most common cause of significant bowel diarrhea. The colon plays a vital role in conserving water and electrolytes and acts as the primary site of fecal storage until expulsion is necessary. Disruptions of the normal homeostasis of the colon may lead to disturbances in both absorption and motility. Clinically this is often manifested as significant bowel diarrhea (Parnell, 2009). Dogs may also develop inflammatory bowel disease-IBD (Cave, 2003), if the chronic enteropathies last more than three weeks (Washabau and Holt, 2005; Hall and German, 2009). Concerning the large intestine, four main conditions are recognized as IBD in dogs: lymphocytic-plasmacytic colitis, eosinophilic colitis, histiocytic ulcerative colitis- mainly PAS-positive macrophages, and regional granulomatous colitis - mainly PAS-negative macrophages (Hall and German, 2009). In dogs, food responsive diarrhea whose cause has not yet been clearly defined, yet the underlying allergic factors have been hypothesized by Cave, (2003). This food-responsive diarrhea is essential because it is often included in the differential diagnosis of IBD. The present communication places on record a colonoscopic diagnosis and medical management of neutrophilic colitis in a dog

## CASE HISTORY AND CLINICAL OBSERVATION

An 18-month old female intact Labrador Retriever dog was presented to the Veterinary Clinical Complex, Veterinary College & Research Institute, Namakkal, Tamilnadu, with a history of chronic tenesmus hematochezia, dyschezia, and frequent voiding little quantity of semisolid stools.

On clinical examination, the dog was active with a body temperature of 40°C, heart rate of 104 per minute, respiratory rate of 60 per minute, capillary refill time of fewer than 2 seconds, no lymph node abnormality. However, the animal evinced pain on rectal examination. Fecal samples were collected for fecal examination (Bhatnagar and Bhatia, 2004), and blood samples were collected for hematology and serum biochemistry by diagnostic kits procured from Biosystems Diagnostic Pvt. Ltd.

Colonoscopy was performed following standard operating procedures in lateral recumbency with

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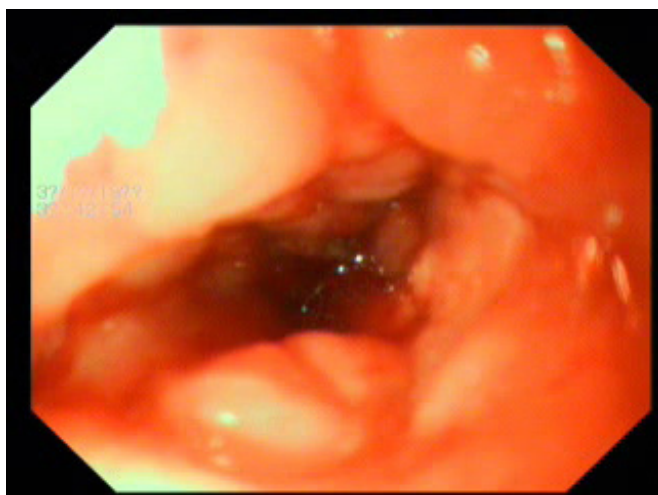
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Gastrointestinal video fiberscope of Olympus Type GIF-V70 with total length 1335 mm, working length 1030mm, and an insertion tube diameter 9.2 mm with forward-viewing four-way angulation. Before the actual procedure, the animal was administered with two warm water enema at 12 hours and a third warm water enema before the actual procedure. During the procedure, an endoscopic guided mucosal biopsy was collected for histopathological examination.

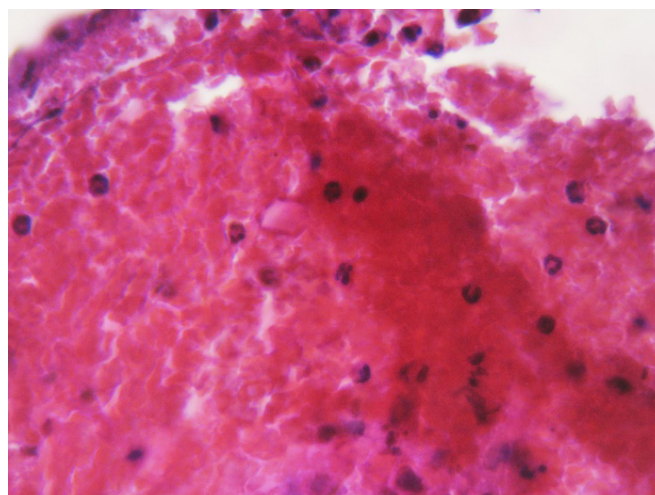
## RESULTS, TREATMENT, AND DISCUSSION

No abnormality was detected in faecal examination. Haematological examination revealed normal haemoglobin 10.0g/dL, PCV 45%, RBC  $7.6 \times 10^6$ /cmm, WBC 8000/cmm, lymphocytes 27%, monocytes 1%, except increase in neutrophils (72%) and serum biochemistry revealed BUN 20 mg/dL, creatinine 0.7 mg/dL, SGPT 42 IU, total protein 7 g/dL, albumin 3.5g/dL.

Colonoscopy revealed mucosal irregularity, increased mucosal friability, along with mucosal erosion, ulceration, and narrowing of the lumen (Fig. 1,2). Based on the history, clinical



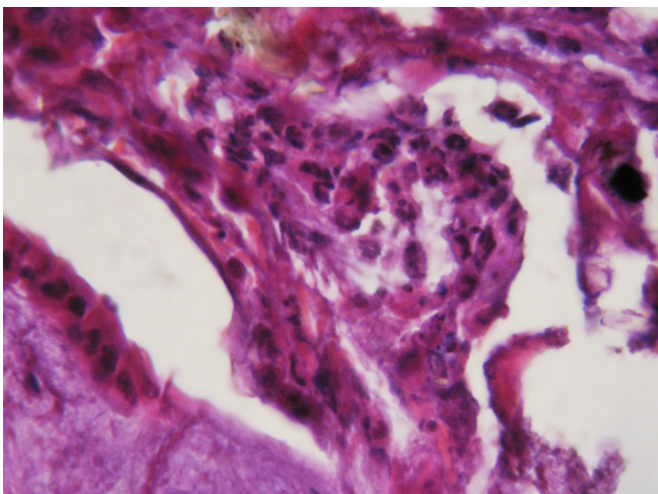
**Fig. 1:** Mucosal irregularity & mucosal erosion



**Fig. 4:** Blood clot with neutrophilic infiltration



**Fig. 2:** Mucosal ulceration and narrowing of lumen



**Fig. 3:** Absence of superficial epithelial layer, crypts of Lieberkuhn, and infiltration of degenerated neutrophils in lamina propria

signs and the colonoscopic findings a tentative diagnosis was inflammatory bowel disease (IBD). In diagnosing IBD as it provides an opportunity to take biopsy samples to

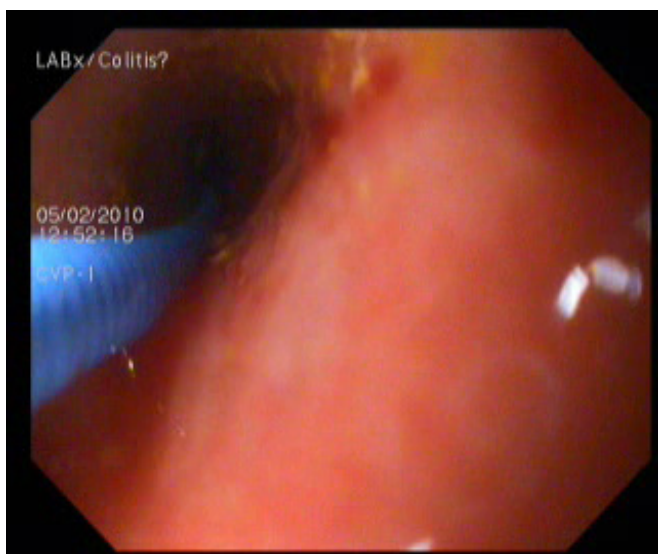
distinguish the various subtypes of mucosal infiltration (Rychlik *et al.*, 2007). Histopathologic findings revealed absence of superficial epithelial layer, crypts of Lieberkuhn and infiltration of degenerated neutrophils in lamina propria (Fig. 3), blood clot with neutrophilic infiltration to form suppurative inflammation (Fig. 4), which confirmed neutrophilic or suppurative colitis. After having excluded the most common causes of chronic enteropathies, intestinal biopsies, obtained surgically or endoscopically can allow the diagnosis of IBD (Hall and German, 2009). However, it is important to stress that biopsy samples are not unequivocally interpretable (Cave, 2003; Hall and German, 2009), even though recent work helped in clarifying such interpretation by providing a histopathological score for mucosal changes in dogs (Day *et al.*, 2008).

The animal was treated with oral sulfasalazine @ 20 mg/kg twice daily for 6 weeks along with oral prednisolone @ 1 mg/kg twice daily for 2 weeks followed by 0.5 mg/kg twice daily for 2 weeks, again 0.5 mg/kg once daily for last 2 weeks and also oral metronidazole @ 15 mg/kg twice daily for 15 days. In general, the first approach in dogs with IBD usually involves some dietary modification, the use of prebiotics-probiotics (German *et al.*, 2003; Hall and German, 2009), antimicrobials, and eventually, corticosteroids (prednisolone or, more recently, budesonide) (Sturgess, 2005). Metronidazole represents an essential therapeutic agent because of its simultaneous antimicrobial and immunomodulatory action (Sturgess, 2005; Hall and German, 2009).

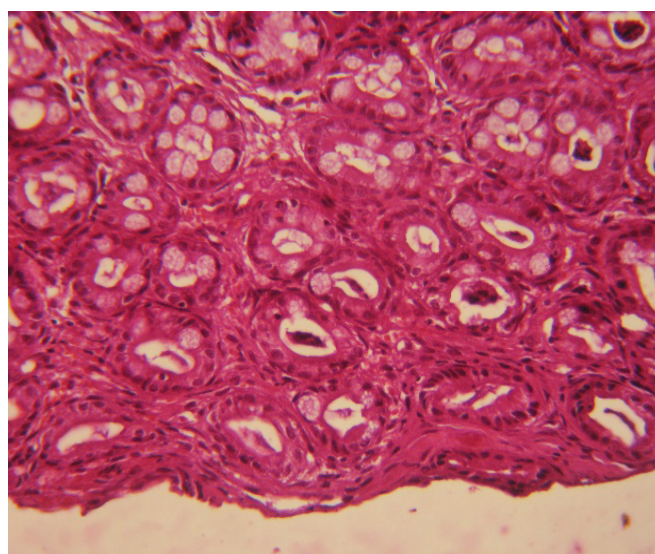
The owner was advised to go for an easily digestible homemade diet like idly, idiyappam with high calorific value and dietary fiber, and avoid chicken and mutton. The animal had an uneventful recovery after 6 weeks. There was an increase in body weight from 14.6 kg to 16.6 kg. On clinical examination, all vital parameters were well within the normal range. Again, a colonoscopy revealed pink and glistening mucosa without mucosal irregularities or ulcers



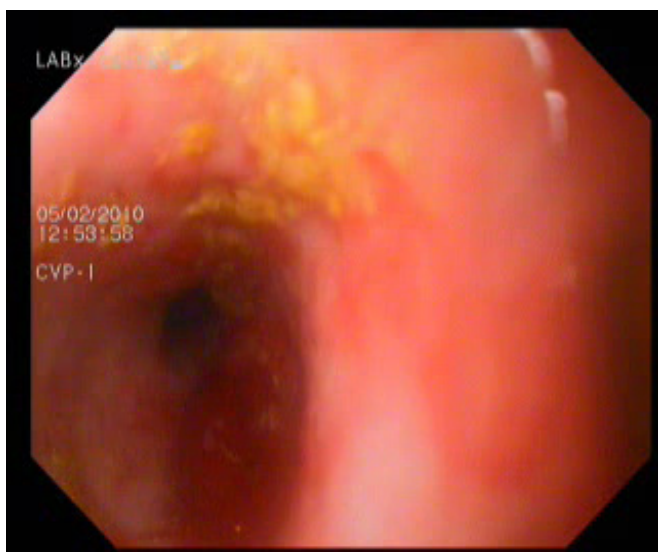




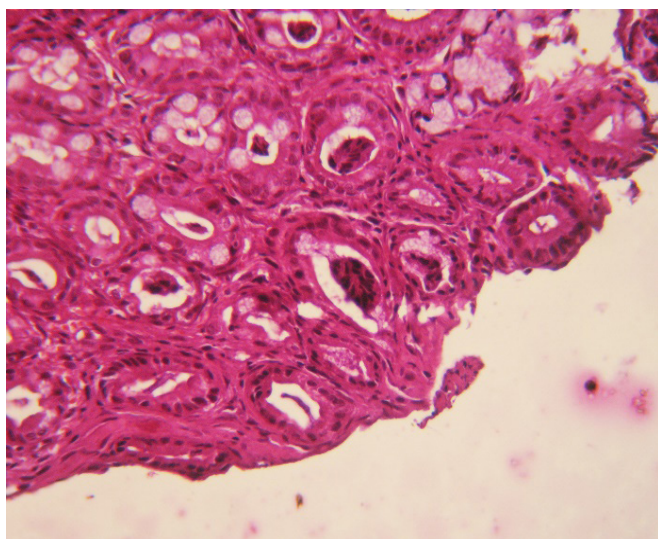
**Fig. 5:** Mucosa- Pink & Glistening



**Fig. 8:** Full development of lamina propria



**Fig. 6:** Mucosa - without ulcers



**Fig. 7:** Partial lamina propria & Presence of crypts of Lieberkuhn

(Fig. 5,6). Histopathological examination of endoscopy-guided mucosal biopsy revealed the presence of partial lamina propria (Fig. 7), presence of crypts of Lieberkuhn, and full development of lamina propria (Fig. 8) but the absence of superficial epithelial layer.

In conclusion, it becomes challenging to conclude regarding prognosis as only very few studies have been so far documented on IBD caused by neutrophilic/suppurative colitis on dogs. But the therapy of sulfasalazine, prednisolone, and metronidazole, and a modified homemade diet, effectively control neutrophilic or suppurative colitis.

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