



CLINICO-BIOCHEMICAL AND ULTRASONOGRAPHIC INVESTIGATION ON SPLENITIS IN DOGS

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Abstract

Dogs suffering from splenitis revealed anorexia, pyrexia, lethargy, vomiting, weight loss and distension of abdomen and anaemia along with low Hb and PCV and high TLC and neutrophils counts. Ultrasonography showed diffusely hypoechoic splenomegaly and hepatomegaly. Serum bio-chemical studies did not reveal any abnormalities. Abdominal radiography revealed moderate splenomegaly.

Key words: Dog, haemato- biochemical changes, spleen, ultrasonography.

Introduction

Spleen constitutes the single largest component of the reticuloendothelial system and filters particulate matter, namely blood borne antigens and blood cells. It is the largest lymphopoietic organ in the general circulation (Couto, 1990). The gross and microscopic appearance of the spleen is affected by a variety of systemic, inflammatory (splenitis) and haematologic disorders. The spleen is subject to disturbances of cell growth (hyperplasia, atrophy), inflammation and neoplasia (primary and metastatic). Several of these processes,

either alone or in combination may result in splenic enlargement. Ultrasonography and radiography are very useful in evaluating splenomegaly or splenic mass (Neath *et al.*, 1997).

Materials and Methods

The data relating to the present investigation has been generated from clinical cases of inflammatory splenomegaly (splenitis) in dogs (n=6), presented to Veterinary Clinical Complex, Mannuthy and University Veterinary Hospital, Kokkalai, Thrissur during the period of July 2013 to May 2014. A tentative diagnosis of splenitis was made on abdominal palpation and clinical examination. The condition was confirmed with the ultrasonographic, radiographic and haematological studies.

Blood sample for biochemical and haematological analysis were obtained from the saphenous or cephalic vein collected into EDTA and non-additive vacutainer tube. The haematological parameters studied were haemoglobin (Hb), volume of packed red cells (PCV), total erythrocytic count (TEC), total leucocyte count (TLC), differential leucocyte

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count (DLC) and platelet count. The blood biochemical parameters studied were total protein, albumin, globulin, A:G ratio, Alanine amino transferase (ALT) and serum calcium.

Results

The most common complaints reported were of anorexia, pyrexia, lethargy, vomiting, weight loss and distension of abdomen. Popliteal lymph nodes were enlarged in all cases. Splenomegaly was the consistent finding on abdominal palpation.

Ultrasonographic studies revealed diffusely hypoechoic spleen and splenomegaly in all cases (Fig. 1) and hepatomegaly and gall bladder sludge was also noticed in one case. Abdominal radiography revealed moderate splenomegaly in all dogs (Fig. 2).

Erythrocyte count ranged from 3.2 to $6.7 \times 10^6/\text{mm}^3$ with mean value of $4.81 \times 10^6/$

mm^3 . Haemoglobin values ranged from 9.1 to 15.9 g/dl with a mean of 11.4 g/dl. PCV ranged from 26.3 to 45.6 per cent with mean value of 34.58 per cent. Leucocyte count ranged from 11.4 to $21.0 \times 10^3/\text{mm}^3$ with a mean value of $15.7 \times 10^3/\text{mm}^3$. Mean neutrophils, lymphocytic, monocyte and eosinophilic values were 79 per cent, 18 per cent, one per cent and two per cent respectively. Biochemical studies revealed mean serum total protein, albumin, globulin and A:G ratio as 6.73, 2.93, 3.62 and 0.78 respectively. Serum ALT and calcium were 43.81 U/L and 9.26 mg per cent respectively.

Discussion

Most common clinical signs of splenitis in the present study were anorexia, vomiting, weight loss, pyrexia, lymphadenopathy and abdominal distension. Couto (1990) and Neath *et al.* (1997) also observed varying degrees of anorexia, vomiting and weight loss.

As in the present report, distension of abdomen and splenomegaly were detected in splenitis by Ginel *et al.* (2001). Splenomegaly might be due to vascular distension secondary to relaxation of smooth muscle cells, portal hypertension and vascular outflow obstruction (Tillson, 2003).

The ultrasonographic appearance of spleen showed diffused hypoechoic parenchyma in all cases in both sagittal and transverse scan. Nyland and Matton (1995) also observed hypoechoic splenic parenchyma in acute inflammation of spleen. Carteen *et al.* (1993) also observed mixed echogenic splenic parenchyma and irregular borders of spleen, which might be due to granulomatous diseases.

The radiographic appearance of the spleen showed moderate enlargement in all animals. Burk and Ackerman (1996) also observed moderate enlargement of spleen in cases of splenitis.

Mild anaemia and leucocytosis observed in the present study was also observed by Neer (1996). Couto (1990) reported that haemato-biochemical changes were rare in splenitis.



Fig. 1 Splenomegaly with hypoechoic areas parenchyma on ultrasonography



Fig. 2 Radiograph showing moderate splenomegaly

Conclusion

Palpable splenomegaly was the major clinical sign to recognise splenic disease. Anaemia was the most common clinical finding in splenic disorders.

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