

SPLENIC LYMPHOMA IN AN ADULT LOCAL BITCH-A CASE REPORT

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SUMMARY

A four-year old local dog weighing 12kg was presented four days after signs of persistent anorexia and dullness were observed. Physical examination of the bitch revealed a circumscribed distension of the left lateral abdomen about 5cm caudal to the rib cage, which on palpation appeared firm, discrete and nodular but painless. X-rays views confirmed that the mass was intrasplenic and had a fat density. Blood and urine samples were analysed, the result of which showed proteinuria, bilirubinuria and neutrophilic leucocytosis. Exploratory laparotomy and splenectomy were carried out. The extirpated spleen had pedunculated projection. The biopsy of the spleen revealed that the tumour is a lymphoma.

KEYWORDS: Spleen, Lymphoma, Lymphosarcoma, Tumor, Hodkin, Bitch.

INTRODUCTION

Pathological conditions of the canine spleen could range from trauma, inflammation, torsion, hematomas, abscesses, immune disorders and neoplasia (Barton, 1981; Stevenson *et al*, 1981). The neoplastic conditions that may affect the spleen may be primary or less commonly metastatic. Haemangiosarcoma and lymphosarcoma appear to be the most abundant of splenic tumours in the dog (Vanpelt and Conner, 1968; Barton, 1981; Eric and Mark, 1993). Fibrosarcoma and other sarcomas with varying components (Oste, rhabdo, lipo etc) have also been reported but are uncommon (Eric and Mark, 1993).

Splenic lymphoma is a malignant

transformation of lymphoid cells that originates in the hematopoietic tissue. Other organs where lymphoma can occur include the lymph node, liver, kidney or gastrointestinal tract (Wellman, 1993). The cause of canine lymphoma is still unknown (Couto, 1989). The clinical signs include splenic enlargement, generalized lymphadenopathy with or without a change in the peripheral circulation (Coles, 1986).

In general, lymphomas in dogs and adult cats respond well to combination chemotherapy (Madewell, 1985; Couto, 1989). However, splenectomy is preferred when lymphoma causes severe splenomegaly or if the neoplasia is confined within the spleen (Eric and Mark, 1993). Splenectomy is also useful

when biopsy of the peripheral lymph node is not diagnostic (Brook *et al.*, 1987).

Complications following canine splenectomy had been reported. These include anaemia due to blood loss (Adetunji, and Toriola, 1996), gastric dilation volvulus, hyporaemia and apparent piroplasmosis (Cooper and Williamson, 1984; Dade, 1990).

This paper reports a case of four-year-old local bitch with splenic lymphoma.

Case History and Diagnosis

A four-year-old female local dog weighing 12kg was presented at the Veterinary Teaching Hospital of the University of Ibadan with complaint of dullness and anorexia. The bitch had neither been dewormed nor vaccinated against rabies or distemper virus diseases. Physical examination revealed that the bitch had a normal rectal temperature (38.1°C). The heart, pulse and respiratory rates were 84 beats/min, 82 beats/min and 34 beats/min respectively. The bitch was dull with bilateral mucoid ocular discharge. She was slightly lean with coarse and unthrifty coat. Few ticks were found in the pinnae and interdigital spaces of the limbs. A circumscribed distention of the left lateral abdomen was noted about 5cm caudal to the rib cage. Palpation of the abdomen only revealed a firm, discrete, nodular mass around the left cranio-lateral aspect. The mass was not painful to touch.

Based on the above history and physical examination, a tentative diagnosis of helminthiasis intra-abdominal mass and piroplasmosis was made. Urine sample

was then obtained for urinalysis using the dipstick method. Blood sample was obtained from the cephalic vein using a 21-gauge needle for complete blood count and haemoparasitic checking. The blood analysis was repeated two weeks after splenectomy. Both ventrodorsal and lateral abdominal radiographs were also taken prior to laparotomy to determine the nature of the intrabdominal mass. The bitch was started on oxytetracycline injection at the rate of 5mg/kg intramuscularly.

RESULTS

The results of the urinalysis and complete blood count performed are represented in Tables I and II below. There was severe bilirubinuria and proteinuria, which cleared out four days after the commencement of the oxytetracycline injection. The complete blood count showed initial neutrophilic leukocytosis. This however returned to normal two weeks after splenectomy. The haematocrit dropped from 42% to 38%. No protozoan parasite was found in the blood smear both before and two weeks after splenectomy.

Radiological findings

The lateral abdominal radiograph revealed a slightly enlarged liver. An intra-abdominal mass was present around the left cranial abdomen lying between the eleventh thoracic (T₁₁) and second lumbar (L₂) vertebrae. The mass has a fat density in most areas of its circumference except around the cranioventral aspect, which appeared to be more radiopaque. A tentative diagnosis of splenic tumour was

made. This was subsequently confirmed by exploratory laparotomy.

Management

The animal was dewormed using mebendazole (Vitameb[®], Vital

Pharmaceuticals) at dose rate of 22mg/kg; while oxytetracycline injection (Oxytra[®]; Astra pPharm.) was given intramuscularly at the rate of 5mg/kg body weight for seven days to treat any intercurrent infection prior to surgery. The bitch was premeditated using atropine and 2% xylazine (Xylaz; farvet Lab.) at i/m dose rates of 0.04mg/kg and 2mg/kg respectively. The bitch was anaesthetized with pentobarbital sodium (6%) at the rate of 10mg/kg. Intravenous infusion of Hartman's solution was started and maintained throughout the operation. The dog's ventral abdomen was prepared aseptically for surgery.

The spleen was approached through a ventral midline cranial laparotomy. After exteriorizing the spleen with its omental attachments, the splenic artery and collateral branches were first ligated at two different sites 1cm apart using a 2 chromic catgut. This was followed by the ligation of the splenic veins. The spleen was severed in-between the two ligatures. A prophylactic gastropexy was performed to prevent a possible gastric dilation volvulus. The abdominal incision was closed routinely in three layers. Penicillin-streptomycin injection (Peni DHS COOPHAVET[®]) was administered at the dose rate of 1ml/10kg for five days.

Splenic biopsy

The extirpated spleen appeared congested and measured 22cm in length with a weight of 180gms. It had a pedunculated projection at the proximal end (Fig 1). The projections measured about 5cm in diameter and appeared grayish in colour. It was firm, roundish and smooth while the cut surface appeared cheesy. The omental attachment was observed to be slightly greater than normal (Fig. 1). Histopathological finding (Fig 2) is that of lymphoma (Wellman, 1993) characterized by the presence of histiocytes. The nuclei were characteristically variable in size and shape, while some were extremely pleomorphic with apparent pseudopods. Some cells had 2-3 nuclei making them to resemble reed stenberg cells of Hodkins disease.

DISCUSSION

Splenic lymphoma has been reported as the second most abundant tumour affecting the canine spleen after haemangiosarcoma (Wellman, 1993). Despite this relative high incidence in the exotic breed, we are not aware of any case reported in the local dogs in Nigeria. Older dogs (3-8 years) were reported to be mostly affected (Vanpelt and Conner, 1986; Wellman, 1993). The four-year-old dog in this report fell within this range.

The cause of proteinuria and bilirubinuria observed prior to antibiotic therapy is not clear. However, these may be due to bile duct obstruction occasioned by somewhat displacement of the liver by the spleen. Coles (1986) had reported that lymphoma may present with or without a change in

the peripheral circulation. Haematocrit had been observed to be normal in early stages with profound anaemia in the latter stage (Vanpely and Conner, 1968). In this case, anaemia was not present but there was severe leukocytosis.

The preference for splenectomy over chemotherapy was aimed at achieving the definite diagnosis (Brooks *et al.*, 1987).

This was also due to the fact that the lymphoma was only localized to the spleen with no evidence of metastasis (Eric and Mark, 1993). Blood loss due to splenectomy has been reported to be between 11.4-30.7% of the total blood volume of the dog (Adetunji and Toriola, 1996). This may have accounted for the drop in PCV from 42% to 38%.

The absence of *Babesia* organism in the peripheral blood two weeks after splenectomy despite the presence of ticks on the body is an interesting finding. It has been reported that inapparent blood protozoan organism becomes apparent following splenectomy (Eric and Mark, 1993). This finding may suggest that local dogs possess strong pre-immunity against *Babesia* organism.

REFERENCES

- ADETUNJI, A. and TORIOLA, T. O. (1996): "An Estimate of Preventable blood loss associated with splenectomy in the dog. *Trop. Vet.* **14**: 147
- BARTON, C. (1981): "The spleen, pathophysiology in small Animal surgery". Edited by M. J. Bojrab. Philadelphia, Lea and Faebiger
- BROOKS, M. B *et al.* (1987): Use of splenectomy in the management of lymphoma in dogs. 16 cases (1976-1985). *J. Am. Vet. Med. Assoc.* **191**: 108.
- COLES, E. H. (1986): "Veterinary Clinical Pathology" 4th Edition. W. B. Saunders and Company.
- COOPER, M.J. and Williamson. R.C.N. (1984): "Splenectomy, indications, hazards and alternatives" *Br. J. Surg.* **71**: 173.
- COUTO, C.G. (1989): Diseases of the lymph nodes and the spleen. In: Textbook of veterinary Internal Medicine. Edited by S. J. Ettinger Philadelphia, W. B. Saunders.
- DATE, E. BJORLING (1993): "Spleen". In: Current Technique in small Animal surgery Edited by M.J. Bojrab. Lea and Febiger, Philadelphia.
- ERIC, R.P. and O.R. 1993): "Spleen" by Disease Mechanism in Small Animal Surgery" Edited by M.J. Bojrab. Lea and Febiger, Philadelphia.
- MADEWELL, B. R. (1985): "Canine Lymphoma" *Vet Clin. North Am. Small Anim. Pract.* **15**: 709
- SILLS, R.H. (1987): "Splenic function" Physiology and splenic

hypofunction *CRL Crit. Rev. Oncol/Hematol* 7:1.

STANLEY, L. ROBBINGS. (1974): "Pathological Basis of Disease" WW.B. Saunders and Company.

STEVENSON, S., CHEW, D. J. and KOCHIBA, G. S. (1981): "Torsion of the splenic pedicle in the dog" a review. *J. Am. Anim. Hosp. Assoc.* 17:239.

VANPELT, R.W and CONNER G.H. (1968): "Clinico-pathological survey of malignant lymphoma in the dog". *J.A.V.M.A.* 152: 976.

WELLMAN, L.M. (1993): "Hematopoietic and lymphoid neoplasia" In: Disease Mechanism in small Animal surgery" Edited by M.J. Bojrab Lea and Febeger, Philadelphia.

TABLE I: Urinalysis result of cystocentesis obtained samples of the bitch

Parameters	Initial sample	Four days after antibiotic therapy
Colour	Deep yellow	Yellow
Turbidity	Cloudy	Clear
Blood	-ve	-ve
Urobilinogen	-ve	-ve
Ketones	-ve	ve
Bilirubin	+++ve	-ve
Protein	++v	-ve
Glucose	-ve	-ve
Nitrate	-ve	-ve
pH	6	7
Ascorbic acid	++ve	++v

Key: -v (Negative); +ve (Positive); ++ve (Moderate); +++v (Severe)

TABLE II: Complete blood count before and two weeks after splenectomy

Parameters	Presplenectomy	2 weeks Post Splenectomy
PCV (%)	42	38
Hb (g/dl)	14.2	12.8
WBC ($\times 10^3/c.mm$)	30.0	20.0
Neutrophil "	27.0	5.6
Lymphocytes "	1.8	4.0
Monocytes "	0.6	0.4
Eosinophils "	0.6	0.0
Basophils "	0.0	0.0

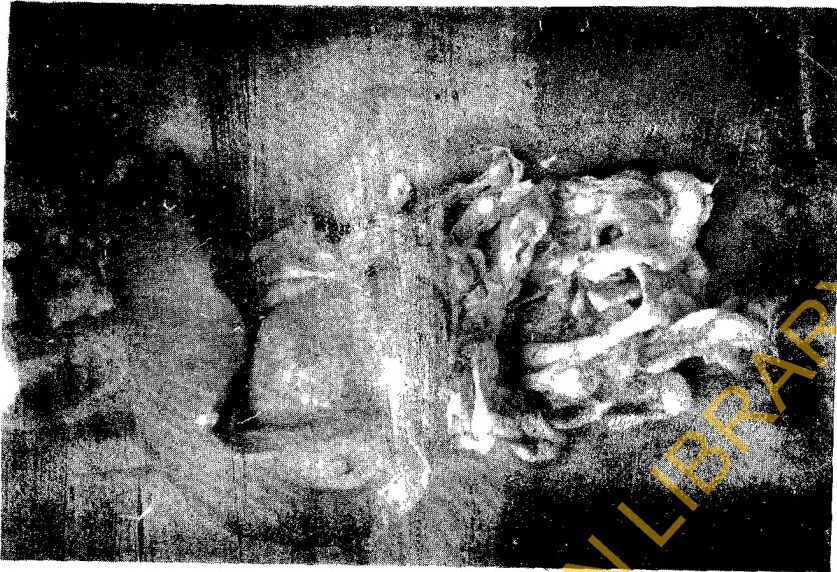


Fig. 1: Splenic lymphoma. Gross picture of the spleen showing pedunculated projection and excessive omental attachment

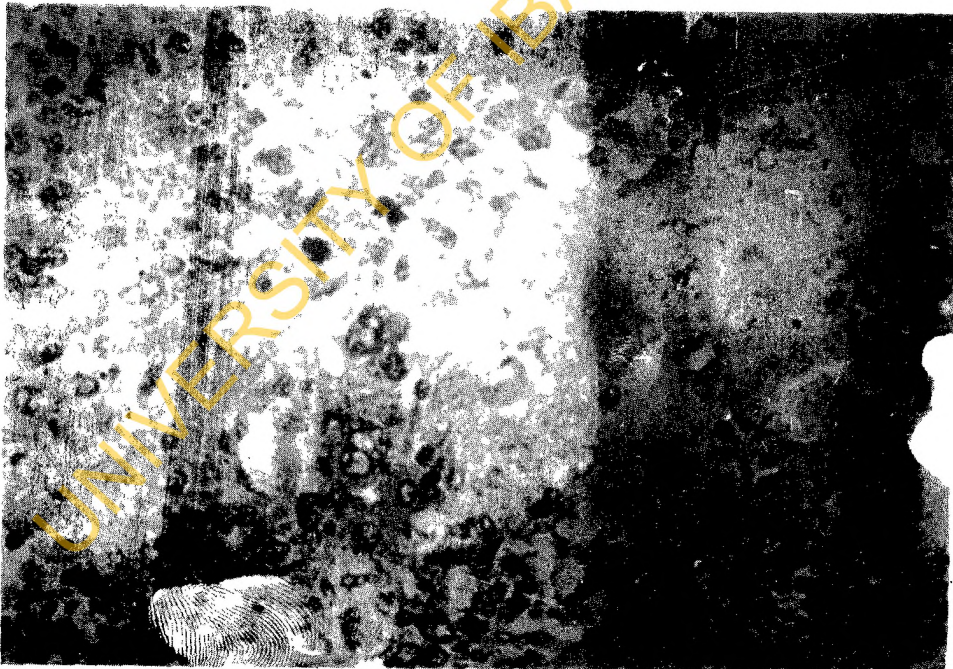


Fig. 2: Splenic lymphoma. Histopathology showing cells resembling reed stenberg cells(arrow)