

SUCCESSFUL SURGICAL MANAGEMENT OF SPLENIC HEMANGIOMA BY TOTAL SPLENECTOMY IN A ROTTWEILER

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SUMMARY

A nine year old male Rottweiler was presented to the Veterinary Clinical Complex, Namakkal with the history of intermittent fever since past one week. Clinical examination revealed hyperthermia. Upon abdominal palpation, mass was palpated in mid ventral portion of abdomen. Ultrasonographic examination of abdomen revealed mixed echogenicity at the mid splenic area. The condition was tentatively diagnosed as space occupying mass in the spleen and decided to intervene surgically by total splenectomy. Animal was prepared for surgery after initial stabilization with appropriate fluid therapy and antibiotics. Under general anaesthesia, total splenectomy was performed. Splenic mass was submitted for histopathological examination which revealed cavernous hemangioma. The dog recovered uneventfully, highlighting the significance of timely surgical intervention in managing hemangioma of spleen.

Keywords: Dog, Hemangioma, Splenectomy

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Spleen is a secondary lymphoid organ that can be affected by both neoplastic and non-neoplastic nodules. Splenic neoplasia can arise from any of the splenic tissues viz., vascular, lymphoid tissue, smooth muscle, connective tissues, myeloid and adipose tissue. Splenic tumors may be benign (hemangioma) or malignant (hemangiosarcoma) (Bettini *et al.*, 2001). Splenic tumors were commonly reported in old and large breed dogs viz., Labradors, German shepherd, Golden retrievers, Boxers etc. (Ziogaite *et al.*, 2024). Clinical signs are typically vague, non-specific and include enlarged abdomen, anorexia, weight loss, lethargy, depression, vomition and diarrhoea.

Several splenic lesions like hematoma, hemangioma and hemangiosarcoma have similar ultrasound and gross appearance. Prognosis for splenic masses cannot be determined without histology which necessarily requires surgery. Ultrasound guided FNAC is not usually recommended for splenic tumours as the mass is highly friable and there is increased risk of haemorrhage. Splenectomy is the treatment of choice for splenic tumors when there is no evidence of metastasis.

A nine year old male Rottweiler weighing around 52 kg was presented to Veterinary Clinical Complex with the history of intermittent fever for the past one week. The animal looked dull and depressed, temp. 40.5° C with congested conjunctival mucus membrane. Abdominal examination revealed non painful palpable mass in the cranial ventral abdomen. Ultrasonographic examination revealed mixed echogenicity at the mid splenic area (Fig. 1). Haematological evaluation revealed leucocytosis and

neutrophilia whereas serum biochemical values were within normal physiological range (Table 1).

The case was diagnosed as splenic mass and decided to perform splenectomy. The ventral abdomen was aseptically prepared for surgery. Premedication done using Inj. Dexmedetomidine @ 5 µg/kg i/m and Inj. Diazepam 0.5 mg/kg i/v. General anaesthesia was induced using Inj. Ketamine @ 5 mg/kg i/v and maintained using Isoflurane under variable vapour pressure settings. Preoperative antibiotic Inj. Ceftriaxone @ 10 mg/kg i/v and analgesic Inj. Tramadol @ 2mg/kg i/v was administered.

A midline ventral skin incision was made from the xiphoid, extending caudal to the umbilicus. Spleen was identified and slowly exteriorised out of the abdomen (Fig. 2). Four vessels namely short gastric arteries, dorsal artery, main splenic artery terminating in the mid portion of the spleen and caudal omental branch coursing along the tail of the spleen to the greater omentum were ligated by applying single ligature at the abdominal side of each vessel while a mosquito forceps was applied on the splenic side using 2-0 monofilament absorbable suture leaving a small vessel stump on the abdominal side to prevent suture slippage (Figs. 3 and 4). Total splenectomy was done and the total length of the spleen was found to be 30 cm and the tumour mass at the center measured approximately length -9.2 cm and Width -7.4 cm (Fig. 5). Abdominal muscle was closed using polyglycolic acid 1 in cross mattress pattern, subcutaneous sutures using PGA 1-0 and skin sutured using polyamide 0.

Post-operative fluid therapy (Ringers Lactate and Dextrose normal saline) for 3 days, Inj. Ceftriaxone for 7

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Fig. 1. Mixed echogenicity in spleen



Fig. 2. Exteriation of spleen



Fig. 3. Ligation of gastro splenic ligament



Fig. 4. Ligation of caudal omental branch



Fig. 5. Spleen showing mass at the center

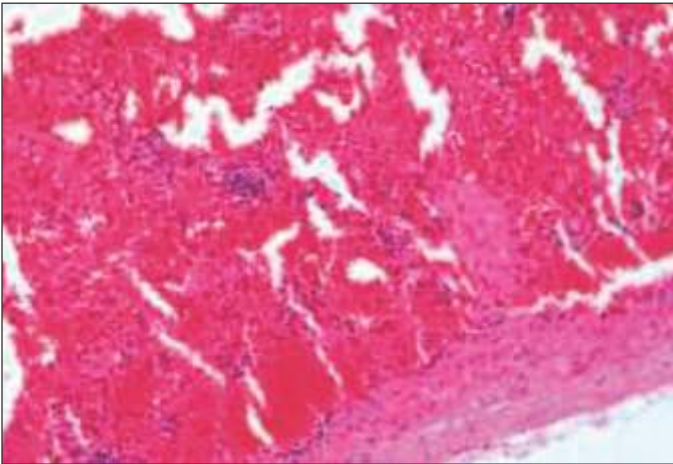


Fig. 6. Spleen-Wide blood filled vascular structures lined by single layer of endothelial cells. H & E x 400

days and Inj.Tramadol for 2 days were followed. Animal started taking liquids on 3rd postoperative day and solid food on 4th post-operative day. Surgical site was dressed on alternate days and sutures were removed on 12th postoperative day. Post operative blood profile is mentioned in table 2.

Histopathological findings revealed multiple vascular channels organized in a lobular pattern, lined by a single layer of flat to plumpy epithelial cells and supported by thin fibrous septa. The channels were filled with erythrocytes (Fig. 6). Based on the microscopic lesion the case was

Table 1. Pre-operative hematobiochemical analysis

Parameters	Value	Parameters	Value
Haemoglobin (g/dl)	12	Total Protein (mg/dl)	7
PCV (%)	36	Albumin (g/dL)	2.6
RBC ($10^6/\mu\text{l}$)	5.4	ALT (U/L)	112
WBC ($10^3/\mu\text{l}$)	23.11	SAP (U/L)	261
Neutrophils (%)	83	Bilirubin–Total(mg/dL)	1
Lymphocyte (%)	14	Bilirubin-Direct(mg/dL)	0.4
Monocyte (%)	3	BUN (mg/dL)	16
Platelet ($10^3/\mu\text{l}$)	4.8	Creatinine (mg/dL)	1.5

Table 2. Post-operative hematobiochemical analysis

Parameters	Value	Parameters	Value
Haemoglobin (g/dl)	12.4	Total Protein (mg/dl)	7.2
PCV (%)	41.6	Albumin (g/dL)	3.4
RBC ($10^6/\mu\text{l}$)	5.76	ALT (U/L)	20
WBC ($10^3/\mu\text{l}$)	14.3	SAP (U/L)	479
Neutrophils (%)	81	Bilirubin–Total(mg/dL)	0.7
Lymphocyte (%)	15	Bilirubin-Direct(mg/dL)	0.2
Monocyte (%)	4	BUN (mg/dL)	20
Platelet ($10^3/\mu\text{l}$)	8.2	Creatinine (mg/dL)	1.1

diagnosed as cavernous hemangioma.

According to Eberle *et al.* (2012) the splenic tumours affects the senior dogs (83%), with a median age of 10 years, which coincides with our present case whose age is 9 years. In the present case the diagnosis was challenging as there was only intermittent fever. This was in accordance to the findings of (Eberle *et al.*, 2012) and (Anoop *et al.*, 2023) who reported clinical signs associated with splenic tumors are non specific. Clinical signs vary according to the advancement of the disease. The haematological parameters are also normal except for neutrophilia. This coincides with (Wrigley *et al.*, 1989) who stated that haemato-biochemical parameters non-specific for splenic masses.

Splenectomy is the treatment of choice for both cancerous and non cancerous spleen because it is diagnostic as well as therapeutic. Post-operative complications of splenectomy include haemorrhage, arrhythmias, damage to the left pancreatic lobe and gastric wall because of devascularisation and acute infection. Wendelberg *et al.* (2014) in his study on risk factors for perioperative death in dogs undergoing splenectomy for splenic masses of 539 cases reported that 41 dogs (8%) died or were euthanized during or following surgery. Mortality in (24%) of these dogs was associated with hemorrhage and hemostatic dysfunction, while post-operative thrombosis was suspected in (32%) dogs that experienced unexpected peri-operative deaths. In the present case there was no such intraoperative and postoperative haemorrhage. The animal was closely

monitored for 3 months and showed no postoperative complications.

CONCLUSION

The case study implies that dogs with a normal haemato-biochemical profile and no particular clinical symptoms may develop splenic tumors. The prognosis is favourable for splenic masses that show no signs of bleeding or metastases. The case's success was made possible by early diagnosis, prompt surgical intervention, and suitable postoperative care.

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