

Splenectomy & Short-Term Survival



In dogs, splenic masses are common and possibly life-threatening. Although there is information available about long-term survival in dogs undergoing splenic surgery, less is available regarding short-term survival. In this retrospective study, the medical records of 539 dogs were reviewed. All had undergone splenectomy for known splenic mass at a large academic referral hospital. The most common malignant tumor was hemangiosarcoma ($n = 228$); the most common non-neoplastic lesion was hematoma ($n = 104$). Perioperative mortality rate was 41/539 (7.6%). Twenty-one dogs died following cardiopulmonary arrest, and 20 were euthanized because they were considered moribund. Causes of death included uncontrollable hemorrhage ($n = 10$), known or suspected portal system thrombosis ($n = 9$), suspected pulmonary thromboembolism ($n = 4$), known or suspected pneumonia ($n = 4$), and known or suspected disseminated intravascular coagulation ($n = 3$). For each decrease in platelet count of 10,000 platelets/ μl at admission, odds of death increased 6%. Platelet counts may serve as a valuable gauge of overall coagulation status in smaller practices where coagulation testing may not be readily available. Dogs with a PCV $<30\%$ or dogs that developed cardiac arrhythmia during surgery were twice as likely to die as dogs with a PCV $\geq 30\%$ or dogs that did not develop arrhythmia. Results indicate that reductions in perioperative mortality rate could

potentially be achieved through improved recognition and treatment of hemorrhage and thrombotic and coagulopathic syndromes.

Global Commentary

Splenic masses are a common disease in general practice. Most cases are probably asymptomatic until there is acute blood loss caused by splenic mass rupture, which is why the survival of these cases is challenging. This study found 3 risk factors for perioperative death; whether the mass was neoplastic was not a risk factor. That is a key point in decision making—not only for practitioners but also for pet owners. For them, it is difficult to authorize surgery in cases where long-term prognosis is guarded. In this paper, we see that the risk factors for peri-operative death are the same in neoplastic and non-neoplastic lesions, and all surgeons know that a mass with neoplastic aspects can be a hematoma or vice versa. The risk factors reported here can be useful in clinical cases, and our efforts need to be focused on preoperative stabilization and monitoring to reduce the perioperative mortality rate.—*Esteban Pujol, DVM, DECVS, Spain*

Source

Risk factors for perioperative death in dogs undergoing splenectomy for splenic masses: 539 cases (2001–2012). Wendelburg KM, O'Toole TE, McCobb E, et al. *JAVMA* 245:1382–1390, 2014.

Early Diagnosis of Hemangiosarcoma

Splenic hemangiosarcomas (HSAs) are common vascular tumors in dogs. As prognosis for these tumors is poor, differentiation from other benign splenic masses would be helpful. It is hypothesized that vascular endothelial growth factor (VEGF) might play a role in growth of these tumors. VEGF is an endothelial cell-specific mitogen that regulates angiogenesis and is stimulated by hypoxia, inflammatory cytokines, growth factors, hormones, and oncogenic mutations. It has been proposed to be a diagnostic marker of malignancy. This study investigated whether serum VEGF could differentiate splenic HSAs from nonmalignant splenic hematomas using a commercial enzyme-linked immunosorbent assay (ELISA). Serum VEGF levels were significantly higher in dogs with splenic masses

compared to healthy dogs but did not differ significantly between dogs with HSAs and those with hematomas. This serum ELISA measured VEGF 164 isoform, which may not be the dominant angiogenic factor in HSAs and hematomas. Further studies are necessary to investigate possible roles of other angiogenic factors, including other VEGF isoforms. VEGF has potential clinical utility as a diagnostic marker for dogs with splenic lesions; however, it may not be useful for distinguishing between different types.

Commentary

In the quest to find early markers of neoplasia for diagnosis and/or therapeutic targets, VEGF has been widely studied in patients with cancer, including HSA. Results are controversial, and this test is

not helpful in distinguishing neoplasia from benign conditions. Surgical excision and histopathology remain the gold standard for diagnosis and treatment of canine splenic tumors. Early diagnosis may be achievable by regular screening of geriatric patients with bloodwork and imaging; however, the benefit of early diagnosis is unknown in patients with HSA. Our therapeutic arsenal is limited, and the cost of regular screening is high.—*Cecilia Robot, DVM, DACVIM (Oncology)*

Source

Serum vascular endothelial growth factor in dogs with haemangiosarcoma and haematoma. Frenz M, Kaup F-J, Neumann S. *RES VET SCI* 97:257–262, 2014.

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