Hepatic carcinoid in a dog: long-term survival following partial hepatectomy

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Case Presentation

Eleven-year-old female spayed Shetland Sheepdog.

Forty-eight hour onset of lethargy, inappetence and pigmenturia.

Bright, alert and responsive. Generous in body condition (BCS 7/9) with a weight of 8.0kg. Unremarkable physical examination with the exception that abdominal palpation was limited as the dog was tense.

Neuroendocrine neoplasms of the liver in dogs have an aggressive biological behaviour. Metastasis is common, therapeutic responses are rarely documented and prognosis is considered poor.

Here we describe the clinical presentation and long-term survival in a dog following complete resection of a hepatic carcinoid.

Laboratory sampling identified a regenerative anaemia (reticulocyte count $115.2 \times 10^9/l$ [ref.: $10 - 110$]; Haematocrit 0.23 l/l [ref.: $0.37 - 0.55$]), hyperbilirubinemia ($13.5 \mu\text{mol/l}$ [ref.: $0 - 10$]) and mild elevations in alanine transaminase (287 iu/l [ref.: $20 - 150$]) and alkaline phosphatase (402 iu/l [ref.: $20 - 180$]).

Thoracic radiographs were unremarkable.

Abdominal ultrasound revealed free abdominal fluid and a heterogenous mass associated with a left liver lobe. Haemoabdomen was confirmed by abdominocentesis and fluid analysis.

Partial hepatectomy was performed.

Histopathology, Immunohistochemistry and Transmission electron microscopy

Histopathology was suggestive of a hepatic carcinoid. Immunohistochemistry was positive for neuron specific enolase (NSE) and synaptophysin but was negative for chromogranin A, cytokeratin and S100. Transmission electron microscopy revealed small round electrodense granules consistent with neuroendocrine granules which confirmed the diagnosis of carcinoid.

Figure A. Neoplastic cells arranged in nests and rosettes; haematoxylin and eosin (x 40 magnification).

Figure B. Cells were diffusely and strongly positive for NSE (x20 magnification).

Figure C. Transmission electron microscopy. Evidence of round electrodense granules consistent with neuroendocrine granules (pink arrow) within the cytoplasm of a neoplastic cell. Scale bar = 2 microns.

The dog received no adjuvant treatment. Repeat staging (thoracic radiography and abdominal ultrasound), performed every 3 months, was negative for local recurrence or metastatic disease.

Nineteen-months post-hepatectomy the dog underwent cholecystectomy for a gall bladder mucocele. Repeated liver biopsies were consistent with neutrophilic hepatitis and no evidence of local recurrence was identified.

Clinical Significance

Despite the usual aggressive behaviour of neuroendocrine liver neoplasms, this case suggests that those presenting as a solitary mass with no evidence of metastasis at diagnosis may benefit from surgery and may experience long-term survival.

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