J. Comp. Path. 2010, Vol. 143, 81–85

Available online at www.sciencedirect.com

ScienceDirect

ELSEVIER
www.elsevier.com/locate/jcpa

SHORT PAPER

Abdominal Fibrosarcoma Associated with a Retained Surgical Swab in a Dog

E. L. Rayner*, C. L. Scudamore†,‡, I. Francis‡ and S. Schöniger†

** Health Protection Agency, Wiltshire, † Department of Pathology and Infectious Disease, The Royal Veterinary College, University of London, Hawkshead Lane, Hatfield, Herts AL9 7TA and ‡ Pathology Department, GlaxoSmithKline R&D, Hertfordshire, UK*

Summary

An abdominal fibrosarcoma surrounding a retained surgical swab was identified in a 3-year-old neutered female rottweiler dog presented with chronic inappetence and lethargy. Laparotomy revealed a mass within the omentum, multiple hepatic masses and enlarged mesenteric lymph nodes. The dog was humanely destroyed and submitted for necropsy examination. Microscopically, the omental mass was consistent with a sarcoma surrounding centrally located fibres of foreign material and was infiltrated by epithelioid macrophages containing intracytoplasmic fibre fragments. Sarcoma tissue was also present in mesenteric lymph nodes, liver, spleen and lungs, and some affected lymph nodes contained intralesional epithelioid macrophages with fibre fragments. Immunohistochemical and electron microscopical examinations were consistent with a diagnosis of fibrosarcoma. By fibre analysis and electron microscopy, the intratumoural fibres were identified as cotton fibres with features identical to those obtained from a surgical swab. To our knowledge this is the first description of an abdominal fibrosarcoma associated with a retained surgical swab in a dog. Other examples of foreign body-associated sarcomas in the veterinary literature are vaccine- and implant-induced sarcomas.

Keywords: abdominal cavity; dog; fibrosarcoma; retained surgical swab

The retention of foreign bodies such as cotton surgical sponges or gauzes during surgery is rarely reported in veterinary literature (Pardo *et al*., 1990; Bradley, 1995; Merlo and Lamb, 2000; Mai *et al*., 2001; Miller *et al*., 2006). Retention of surgical swabs can lead to the formation of granulomas (Mai *et al*., 2001; Frank and Stanley, 2009; Deschamps and Roux, 2009), but also predispose to the development of malignant neoplasia (Pardo *et al*., 1990; Bradley, 1995; Miller *et al*., 2006). The present case report is the first description of an abdominal fibrosarcoma associated with a retained surgical sponge in a dog.

A 3-year-old neutered female rottweiler dog was presented for post-mortem examination. The clinical history provided described lethargy, depression, pyrexia and anorexia of 4-weeks duration. Routine ovariohysterectomy had been performed 2 years previously. Clinical haematology and biochemistry revealed marked hypoalbuminaemia, increased alkaline phosphatase and marked neutrophilia with a left shift. A firm cranial abdominal mass, which measured 6 cm in diameter, was diagnosed by abdominal palpation and confirmed by radiography. Exploratory laparotomy showed that the mass was located within the omentum and contained numerous adhesions to the intestinal mesentery. In addition, enlarged mesenteric lymph nodes and multiple variably sized nodular masses within the liver were observed. The omental mass was surgically excised and excisional biopsies were taken from the enlarged lymph nodes and hepatic masses. However, due to the severity of disease, the animal was humanely destroyed under anaesthesia. The body was submitted for necropsy examination together with the formalin-fixed omental mass and the excisional biopsies of liver and mesenteric lymph nodes.

On post-mortem examination, the omental mass was mottled tan-grey with a centrally located cavity,

Correspondence to: S. Schöniger (e-mail: sschoeniger@rvc.ac.uk).

0021-9975/$ - see front matter
doi:10.1016/j.jcpa.2009.12.009

which contained fibre bundles (Fig. 1). Necropsy examination also confirmed the presence of multiple variably sized hepatic masses and enlarged mesenteric lymph nodes. The hepatic masses were firm, tan-grey in colour and measured up to 6 cm in diameter. The enlarged lymph nodes measured up to $4 \times 4 \times 3$ cm, and on sectioning, the lymph node tissue was multifocally replaced by firm tan-grey tissue. Tissue samples of affected liver and lymph nodes and grossly normal tissues were fixed in 10% neutral buffered formalin, processed routinely, embedded in paraffin wax, sectioned and stained with haematoxylin and eosin (HE). Sections of the omental mass and liver with tumour metastases were subject to immunohistochemistry for determination of expression of vimentin (mouse monoclonal antibody V6630; diluted 1 in 500; citrate buffer pretreatment; Sigma–Aldrich, Poole, Dorset) and smooth muscle actin (mouse monoclonal antibody NCL-SMA; diluted 1 in 50; citrate buffer pretreatment; Novocastra, Laboratories Ltd., Newcastle upon Tyne). Transmission electron microscopy (TEM) was performed on formalin-fixed tissue and extracellular fibres of the omental mass and fibres of a cotton surgical swab (Nu-Care Products Ltd., Stewartby, UK). The tissue and fibres were post-fixed in 1% Millonig's buffered osmium tetroxide, embedded in Agar 100 resin, sectioned, stained with uranyl acetate and lead citrate and examined using a Hitachi H7500 transmission electron microscope.

On microscopical examination, the abdominal mass was partially encapsulated and was composed of spindle-shaped to polygonal neoplastic cells. Most tumour cells contained a single ovoid to polygonal nucleus and a moderate amount of eosinophilic

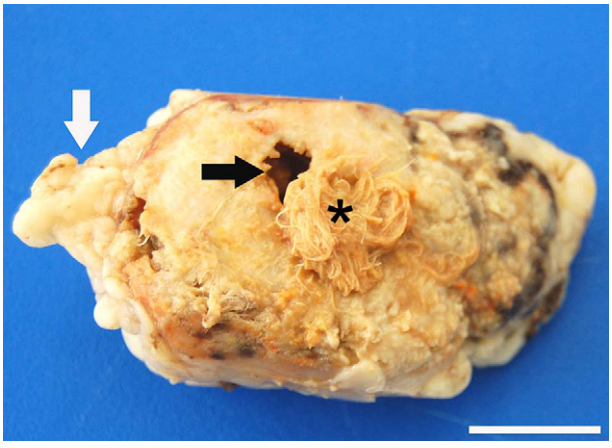

Fig. 1. The omental fibrosarcoma (formalin-fixed tissue) formed a relatively well-demarcated mass, which contained a central cavity (black arrow) with intralesional fibre bundles of foreign material (asterisk). The mass was surrounded by intact omentum (white arrow). Bar, 2 cm.

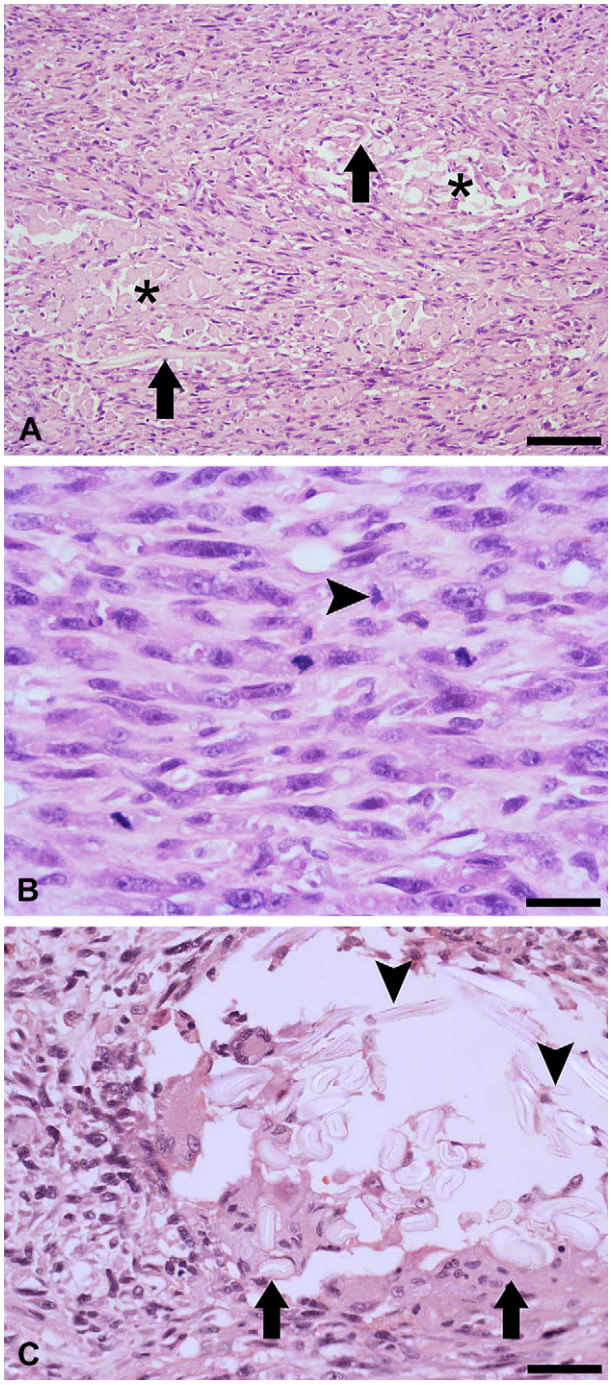

Fig. 2. (A) The fibrosarcoma contained multifocal areas of granulomatous inflammation (asterisks) with intralesional fibres (arrows). HE. Bar, 100 μm. (B) The fibrosarcoma was composed of bundles of spindle to polygonal cells with indistinct borders and a high mitotic rate. A mitotic figure is indicated by an arrowhead. HE. Bar, 10 μm. (C) Within the area of granulomatous inflammation, fibres and fibre fragments were located extracellularly (arrowheads) and within the cytoplasm of multinucleated giant cells (arrows). HE. Bar, 75 μm.