Left ventricular mass in a Simmental calf: cavernous haemangioma

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Introduction

Haemangiomas are benign tumours of the vascular endothelium (4–6). Most haemangiomas are well circumscribed and are composed of variably sized vascular spaces. These spaces are filled with erythrocytes and are lined by a single layer of uniform endothelial cells. These tumours have been called cavernous or capillary tumours (5). Haemangiomas are common in older dogs but infrequently occur in other domestic animals (5). Haemangiomas can be seen in very young horses, usually on the distal limbs (4). They are most common in the dermis and subcutis, especially of the legs, flank, neck, face, and eyelids (5).

This report describes a cavernous haemangioma in the left ventricle in a 5-day-old female Simmental calf.

Case report

History

A calf was brought to our department for necropsy 8 hours after death. According to the animal’s owner, the calf became depressed and had diarrhoea for a day before it suddenly died. After this information a systemic necropsy was performed.

Necropsy and histopathological findings

No macroscopic findings were noted except for congestion of the intestines and a mass in the the heart. This encapsulated, roughly spherical mass was located in the left ventricle tightly bound to the endocardium. It had a dark brown colour and measured 2.7 × 2.9 × 2.3 cm (Fig. 1). Its cut surface was mostly dark in colour.

The heart with this mass was fixed in 10% neutral phosphate-buffered formalin, trimmed and dehydrated in a graded series of ethanol, and embedded in paraffin wax. Sections (4–5 μm) were cut and stained with haematoxylin and eosin (HE) and examined with an Olympus BX-51 light microscope. Microphotographs were also taken (Olympus DP 25). Some representative sections were also stained with Masson’s trichrome.

Microscopically, the ventricular mass was characterized by large, irregular blood-filled spaces lined by endothelial cells

Fig. 1  Cavernous haemangioma: dark-red soft, spherical, encapsulated mass located in the left ventricle strongly bound to the endocardium.

Fig. 2  Cavernous haemangioma: large, irregular blood-filled spaces lined by endothelial cells. Vascular structures with smaller lumen were also present (H&E stain; bar = 200 μm).

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Fig. 2 and small vascular spaces. The endothelial cells were well differentiated. The vascular spaces were separated by an oedematous collagenous stroma (Fig. 4), which occasionally contained haemosiderin-filled macrophages (arrows) and lymphocytes (Figs. 3, 4).

Discussion

Haemangiomas (2, 8, 14), haemangiosarcomas (1, 9), vascular malformations (3), angiomatosis (16) and vascular hamartomas (10, 12) have been reported in bovine foetuses and calves. Haemangiomas may be present at birth or soon after birth in children and foals, suggesting that they may be vascular malformations (5). Cardiac haemangiomas can occur in any part of the heart, but they are most commonly seen in right-sided cardiac chambers in man (7, 11). We found rare reports in the literature for animal cardiac tumours. Sugiyama et al. (13) detected cardiac vascular hamartomas in two slaughtered cattle. In a retrospective study in Japan Une et al. (15) described 44 cardiac angioleiomyoma in cattle ranging from 10 to 129 months old.

Due to the age of this calf, it could easily be assumed that this tumour had developed before birth. The histopathological investigation confirmed that this neoplasia could be clearly distinguished from a capillary haemangioma, a haemangiosarcoma and a malignant haemangioendothelioma. In the cavernous haemangioma, the large blood-filled channels lined by endothelial cells were separated by fibrous connective tissue (4).

To the best of the author’s knowledge, this is the first report of a haemangioma cavernosum in the left ventricle of a newborn Simmental calf.

Conflict of interest

The authors confirm that they do not have any conflict of interest.

References