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CASE REPORT

Clinical and echocardiographic findings in an 8 year old Brown Swiss cow with myocardial abscess[☆]



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Abstract Intramyocardial abscesses are rare in cattle and may lead to unspecific clinical signs. This case report describes the clinical and echocardiographic findings in an 8 year old Brown Swiss cow presented with an intramural myocardial abscess. The main clinical findings were anorexia, drop in milk yield, fever, tachycardia, and hyperfibrinogenemia. Neither heart murmurs nor cardiac arrhythmias were present on auscultation. Transthoracic echocardiographic examination revealed a prominent intramural mass embedded in the left ventricular free wall and bulging into the lumen of the left ventricle. Diagnosis was confirmed at necropsy. A culture of the abscess grew *Trueperella pyogenes*.

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[☆] A unique aspect of the Journal of Veterinary Cardiology is the emphasis of additional web-based images permitting the detailing of procedures and diagnostics. These images can be viewed (by those readers with subscription access) by going to <http://www.sciencedirect.com/science/journal/17602734>. The issue to be viewed is clicked and the available PDF and image downloading is available via the Summary Plus link. The supplementary material for a given article appears at the end of the page. Downloading the videos may take several minutes. Readers will require at least Quicktime 7 (available free at <http://www.apple.com/quicktime/download/>) to enjoy the content. Another means to view the material is to go to <http://www.doi.org> and enter the doi number unique to this paper which is indicated at the end of the manuscript.

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Abbreviation

LV left ventricle

An 8 year old Brown Swiss cow was presented to the hospital with a 1-day history of anorexia and drop in milk yield. The cow was part of a dairy herd with 65 milking cows, fed with a total mixed ration containing grass silage. The cow was 275 days in milk and 10 weeks pregnant. The cow was referred without any treatment. On presentation the cow was depressed but responsive. The cow was in poor body condition, stood with its elbows abducted and was grinding its teeth. The cow was grade 3.5/5 lame in its left hind limb. The rectal temperature was 38.1 °C (reference interval 38.5–39.0 °C) and the ears were cool on palpation. The heart rate was moderately increased at 92 beats per minute (reference interval 60–80 beats per minute) and the respiratory rate was normal at 28 breaths per minute (reference interval 20–35 breath per minute). The mucous membranes were slightly pale and the capillary refill time was 3 seconds. Based on eye ball recession and skin tent, the cow was slightly dehydrated (5–7%). The jugular veins were not distended. Thoracic and cardiac auscultation revealed no abnormalities. Rumen motility was reduced, with 1 contraction per 2 minutes and there was a reduced amount of ruminal content. The withers' pinch test, the xiphoid pressure test and deep palpation with the closed fist of the cranio-ventral abdomen did not reveal evidence of pain. The glutaraldehyde test revealed clot formation at 3.5 min (normal 10–15 min), indicating elevated blood fibrinogen and/or globulin concentration. The rectal examination was unremarkable and the feces had a moderate amount of undigested fiber.

Further diagnostic work up included initially a complete blood cell count, a chemistry panel and an ultrasonographic examination of the thorax and abdomen. Radiographs of the reticulum were also taken. Hematologic analysis revealed a normal leukocyte count with $8.2 \times 10^9/L$ (reference interval $4.0\text{--}8.8 \times 10^9/L$), but increased total protein concentration (97 g/L, reference interval 63–86 g/L) and hyperfibrinogenemia (9 g/L, reference interval 5–7 g/L). Ultrasonography of the thorax and abdomen revealed no abnormalities and on radiographs the reticulum was normal in shape and position. There was no evidence of a metal opaque foreign body or a magnet.

Examination of claws of both hind limbs revealed heel erosions, deformation and deep horizontal fissures suggestive of chronic laminitis, and sole ulcers on the lateral claws. After therapeutic claw trimming under local anesthesia,^e a silicon block^f was placed under the left medial claw, bandages were applied and the cow was placed in a straw bedded stall. The cow then received 10 L of 0.9% saline with 5% glucose administered intravenously and ketoprofen,^g 3 mg/kg, intravenous, daily.

On the day after presentation, the cow developed more severe tachycardia with a heart rate of 120 beats per minute and its rectal temperature had increased to 39.6 °C. Because of suspected infection and persistent tachycardia, transthoracic echocardiography was performed to detect possible bacterial endocarditis.

Echocardiography^h was performed from the right parasternal window using a 2.8 MHz phased-array probe.ⁱ The cardiac valves appeared to be normal. On the right parasternal long axis view of the left ventricular outflow tract, a 9.2 cm × 9.2 cm circular, non-pendunculated mass was observed embedded in the free wall and bulging into the lumen of the left ventricle (LV). It did not appear to be associated with the mitral and aortic valves. The mass had a slight heterogeneous appearance and its echogenicity was comparable to other parts of the myocardium (Fig. 1A). The right parasternal short axis view at the level of the papillary muscles and the chordae tendineae showed that the mass was in close relation and not distinguishable from the anterior papillary muscle of the mitral valve (Fig. 1B and Online Video 1). The appearance of the myocardial mass in association with fever, hyperfibrinogenemia and shortened glutaraldehyde test suggested that the mass was an intramural abscess. The most important differential diagnosis was myocardial neoplasia. Owing to the poor prognosis the cow was euthanized.

A complete necropsy was performed. After opening the heart, a round, solid-elastic, yellowish, 8 cm × 9 cm mass, was identified in the free wall of the LV, 3 cm below the mitral annulus (Fig. 2A). From the mass, approximately 50 mL of yellow-green, creamy and friable fluid could be drained. The cut surface revealed a firm, elastic

^e 30 mL Lidocaine 2%, Streuli AG, Uznach, Switzerland.

^f Silkaform, Benzer Dental AG, Zurich, Switzerland.

^g Rifen 10%, Streuli AG, Uznach, Switzerland.

^h Logiq e, GE Healthcare, Glattbrugg, Switzerland.

ⁱ 3S-RS probe, GE Healthcare, Glattbrugg, Switzerland.

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