

Communication

[Comunicação]

**Chronic interstitial pancreatitis and chronic wasting disease caused by  
*Eurytrema coelomaticum* in Nelore cow**

[Pancreatite crônica intersticial e caquexia causada por *Eurytrema coelomaticum* em vaca Nelore]

M.A. Rachid<sup>1</sup>, H.M. Aquino Neto<sup>1</sup>, E.J. Facury-Filho<sup>1</sup>, A.U. Carvalho<sup>1</sup>,  
G.R. Valle<sup>1</sup>, A.C. Vasconcelos<sup>1</sup>

<sup>1</sup>Instituto de Ciências Biológicas - Universidade Federal de Minas Gerais  
Av. Antonio Carlos, 6627  
31270-901 – Belo Horizonte, MG

<sup>2</sup>Escola de Veterinária - Universidade Federal de Minas Gerais - Belo Horizonte, MG

<sup>3</sup>Pontifícia Universidade Católica de Minas Gerais - Betim, MG

Eurytrematosis is caused by *Eurytrema coelomaticum* and *E. pancreaticum* that live mainly in the pancreatic ducts of cattle, sheep, goats and buffalos (Travassos *et al.*, 1969; Mattos Junior & Vianna., 1987; Dorny *et al.*, 1996). In Brazil, eurytrematosis, caused by *E. coelomaticum* has been sporadically reported in ruminants in the central-western, southern and southeastern regions of the country (Mattos Junior and Vianna., 1987). *E. coelomaticum* is usually considered an incidental finding at necropsy or in slaughterhouses and leads to the condemnation of the pancreas during routine inspection. However, bovine eurytrematosis associated with chronic emaciation has been noted in beef cattle herds (Bassani *et al.*, 2006). The involvement of *Eurytrema* spp. with wasting disease in beef cattle has rarely been reported in Brazil, mainly in the State of Minas Gerais. This short communication describes the clinical and pathological findings of Nelore cow with eurytrematosis.

A beef cattle herd from Alto Jequitinhonha, northeast region of Minas Gerais, with a history of wasting disease affecting a small number of animals was studied. The animals were grazed on a *Brachiaria* spp. pasture and received adequate mineral supplementation and anthelmintic strategic treatments. Four Nelore cows and one bull from eighty-seven cattle became sick and died. Three years later, three cows from the same

herd presented progressive weight loss, apathy, emaciation, weakness and lateral decubitus. At fecal salt-flotation examination the affected animals were positive for *Eurytrema* spp., *Cooperia* spp. and *Haemonchus* spp. The urinalysis revealed glucosuria (glucose  $\geq$  2000mg/dl), ketonuria (ketone bodies: 160mg/dl) and pH=6,0. One cow was humanely euthanized due to poor prognosis. At the necropsy, the pancreas was pale, small, firm, and irregular, with areas of parenchymal destruction. Thickened and dilated ducts were filled with leaf-shaped trematodes (Figure 1A). The parasites were classified as *E. coelomaticum* based on typical morphological characteristics (Travassos *et al.*, 1969). Mesenteric and popliteal lymph nodes were reactive and the liver was enlarged, pale to yellow and had round edges. Histological findings showed intense parenchymal destruction of the pancreas with large areas of fibrosis and multifocal infiltrates of lymphocytes, plasma cells and macrophages, containing several brownish parasite eggs (Figure 1B-C). These eggs had an oval shape, with a thick and refractile wall. The remnant tissue showed dilated and hyperplastic ducts, partially filled with adult parasites (Figure 1B). There was also intense cellular degeneration of islet of Langerhans (Figure 1D). The liver showed moderate peri-acinar fatty change. The kidney had mild nephrosis with aggregates of protein casts within cortical and medullary tubules. The lymph nodes presented mild nodular hyperplasia.

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E-mail: milenerachid@gmail.com

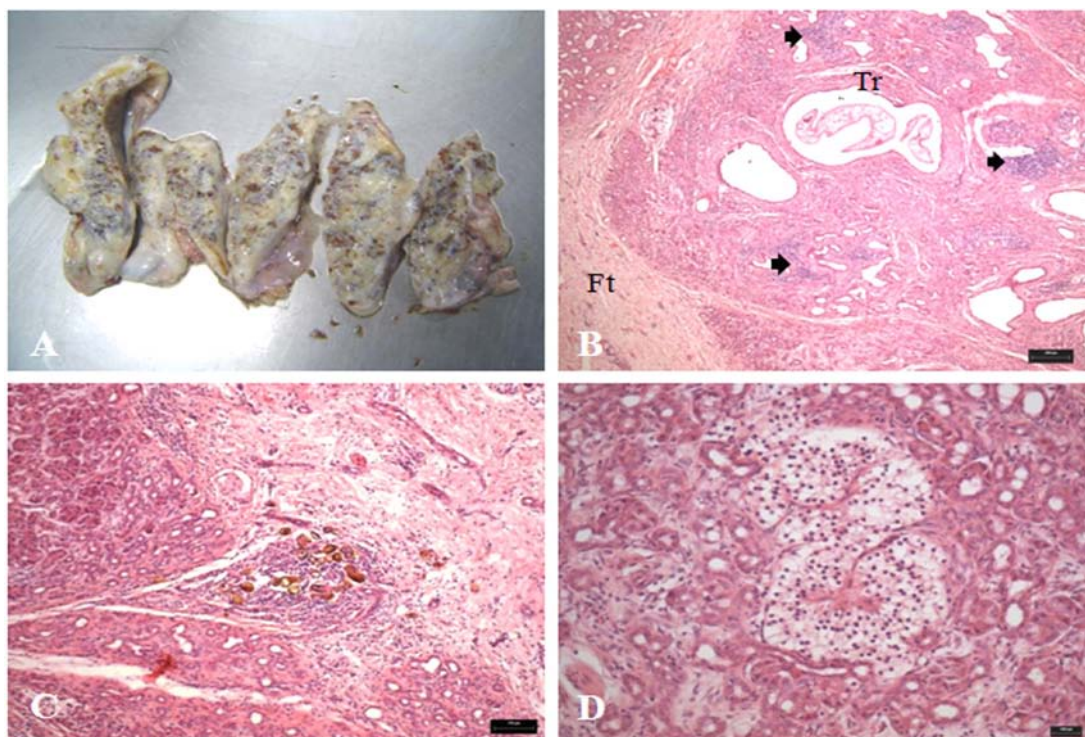


Figure 1. Pancreas, cow. **A)** Gross transversal sections, pancreatitis with marked parenchymal destruction and fibrosis. Note also the abundant black fluke pigment. Histological sections, HE stain (**B-D**). **B)** Dilated pancreatic duct containing adult trematode (Tr). Observe multifocal chronic inflammation (arrows) and band of fibrous connective tissue (Ft). Bar = 200µm. **C)** Several operculated, oval trematode eggs with a thick brown wall associated with chronic inflammation; Bar = 150µm. **D)** Islet of Langerhans with vacuolated cells. Bar = 100µm.

In the present report, the clinical signs of lethargy, weakness, recumbency, depression and emaciation were similar to those observed in cattle infected with *Eurytrema* spp (Ilha *et al.*, 2005). The gradual weight loss can be associated with severe pancreatic lesion of exocrine portion, important to enzyme secretion and responsible for diverse digestive processes and endocrine portion, related to the production of glyceic hormones (insulin and glucagon) (Pierzynowski and Zabielski, 1999). Glucosuria and nephrosis were also detected in sheep infected with *Eurytrema pancreaticum* (Graydon *et al.*, 1992). Cattle with eurytrematosis can exhibit regenerative anemia, high plasma amylase and glucose concentrations and mild increased in glucose levels (Ilha *et al.*, 2005). Blood glucose was not measured in this study. Another cow from the same farm with chronic emaciation revealed hyperglycemia and posterior recovery. Moreover, ketonuria observed in the present study could be attributed to increased lipolysis with ketone bodies synthesis. Histologically,

there was intense pancreatic destruction, which probably promoted pancreatic insufficiency. These pancreatic lesions were in agreement with other studies in cattle and sheep with eurytrematosis, which described similar changes (Graydon *et al.*, 1992; Ilha *et al.*, 2005).

In the present report the most remarkable finding was extensive pancreatic fibrosis associated to a large amount of pancreatic flukes as described by other authors (Ilha *et al.*, 2005; Bassani *et al.*, 2006). Generally, pancreatic eurytrematosis affects well fed animals, which are treated with adequate anthelmintic drugs and mineral supplementation (Ilha *et al.*, 2005). In conclusion, this report evidenced progressive weight loss and chronic pancreatitis in a beef bovine associated with *E. coelomaticum* in the State of Minas Gerais.

Keywords: wasting disease, bovine, eurytrematosis, pancreatitis

## RESUMO

A euritrematose bovina, causada por *Eurytrema coelomaticum*, tem sido relatada no Brasil. A doença pode afetar animais domésticos, incluindo ruminantes. Estes parasitos geralmente vivem nos ductos pancreáticos e ocasionalmente nos ductos biliares. Este estudo relata um quadro de caquexia em um bovino parasitado por *E. coelomaticum* proveniente de um rebanho de gado de corte localizado no Estado de Minas Gerais. O animal acometido apresentou perda progressiva de peso, glicosúria e cetonúria. Na necropsia o pâncreas apresentava-se diminuído de tamanho, brancacento, intensa e difusamente firme (fibrose). Vários ductos apresentavam-se dilatados e repletos de *Eurytrema*. Microscopicamente foi observada destruição extensa do parênquima pancreático e fibrose, ovos e parasitas intralésionais, hiperplasia ductal e inflamação multifocal crônica. Este relato descreve a perda progressiva de peso e pancreatite crônica associada a *E. coelomaticum* em bovino de corte no Estado de Minas Gerais.

Palavras-chave: caquexia, bovino, euritrematose, pancreatite

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