

INTESTINAL ADENOCARCINOMAS WITH CHONDROID AND OSSEOUS DIFFERENTIATION IN TWO HORSES

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Introduction:

In horses intestinal adenocarcinomas are rare neoplasms. They occur more often in large than in small intestine. This presentation describes distinct clinical and histomorphological features of two small intestinal adenocarcinomas and their investigation by means of immunohistochemistry.

Material and methods:

Both tumours were fixed in 4 % buffered formaldehyde, decalcified (case No.1), processed routinely and stained with hematoxylin-eosin and picosirius red. Furthermore, immunohistochemistry (α -smooth muscle actin, desmin, cytokeratin 19) was performed using standard laboratory protocols.

Case No.1:

A 15-year-old Arabian mare developed marked signs of colic associated with an acute jejunal obstruction. Laparotomy revealed a 4 cm in diameter osseous, intraluminal mass which was surgically removed. The mare died from postsurgical complications.

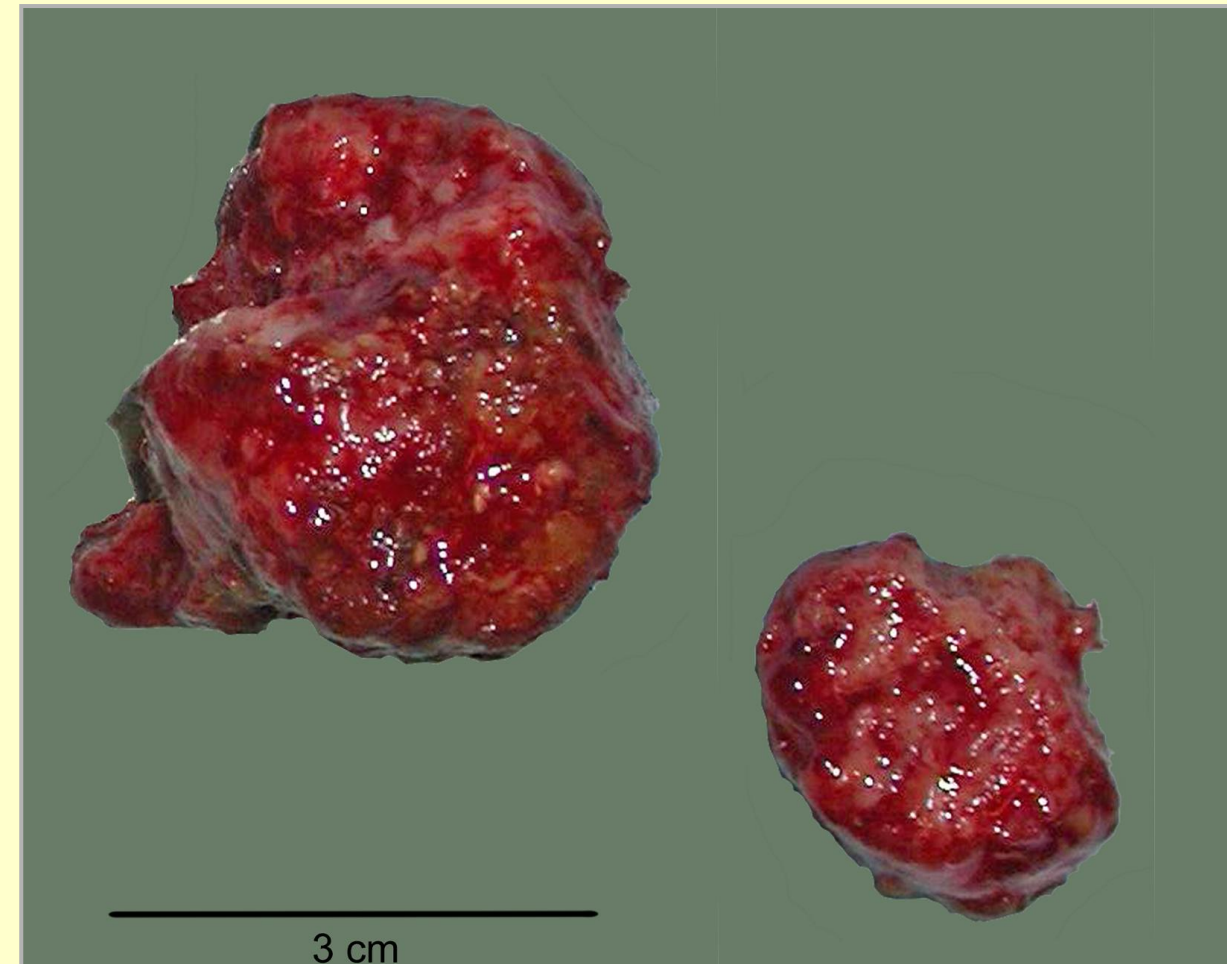


Fig. 1: Removed and splitted jejunal osseous mass.

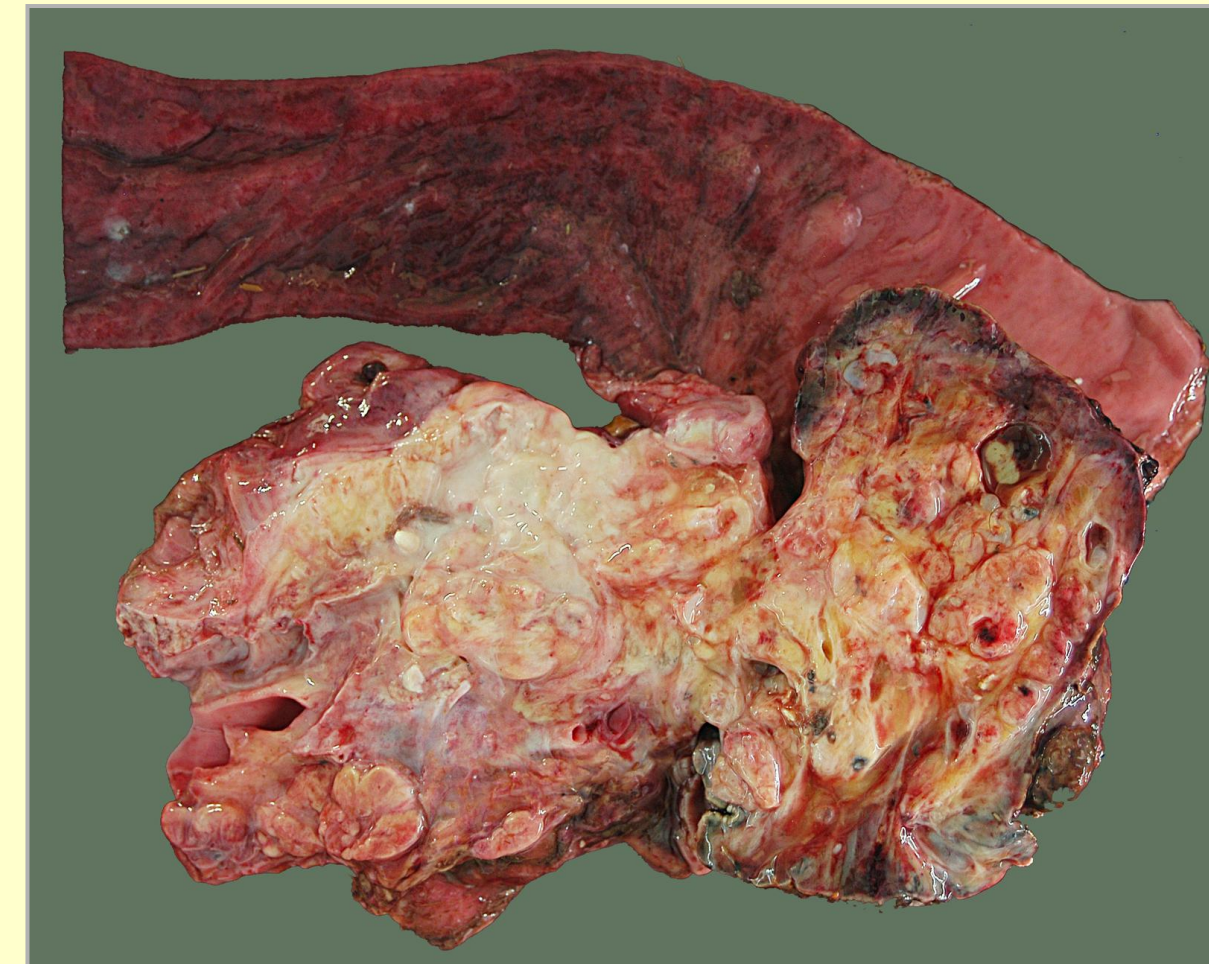


Fig. 2: Solid duodenal tumour partially occluding the gut lumen, infiltrating the mesentery root.

Case No.2:

a 6-year-old warmblood gelding showed long-term anemia and anorexia with unclear abdominal symptoms and was euthanized due to bad prognosis. Necropsy revealed an duodenal mass, 13x7x8 cm wide, located 20 cm caudally from pylorus, infiltrating the gut wall and the mesentery root with additional biliary liver cirrhosis.

Case No.1

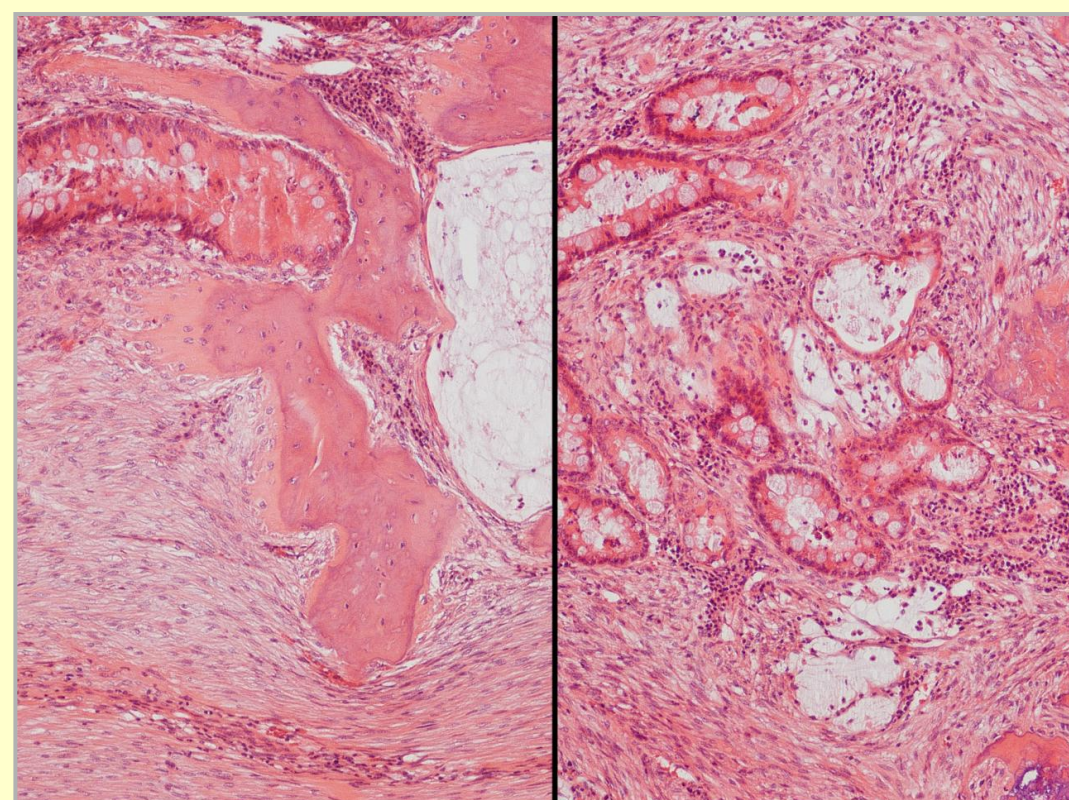


Fig. 3: HE. Note tubules filled with mucoid material adjacent to bone trabecules and spindeloid areas, 100x.

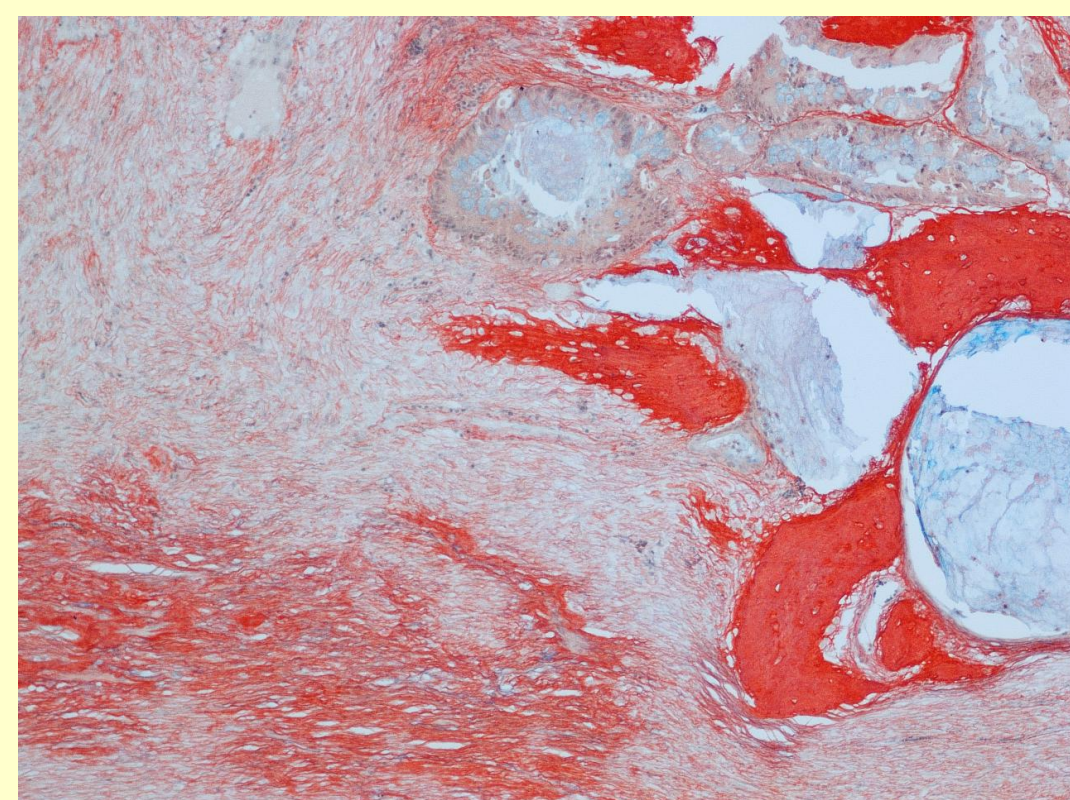


Fig. 4: Picosirius red. Spindle cells embedded in red-stained collagen matrix, 100x.

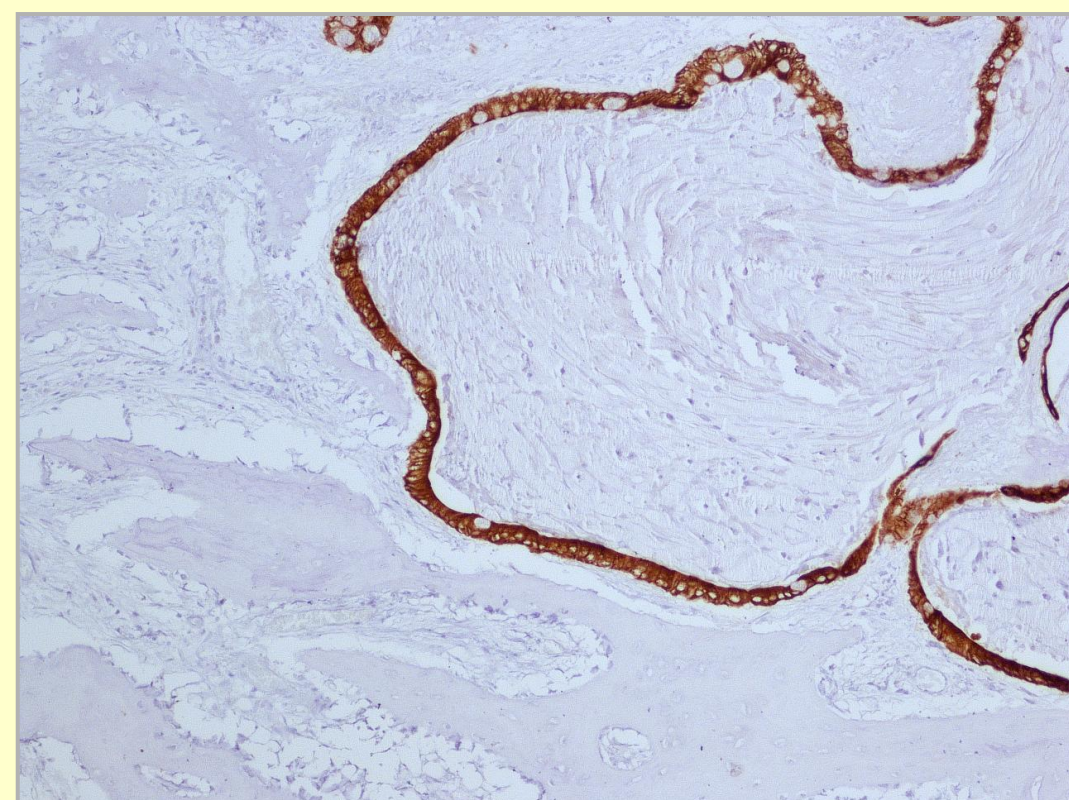


Fig. 5: Cytokeratin 19. Strongly positive epithelial cells in tubules filled with mucoid material, 100x.

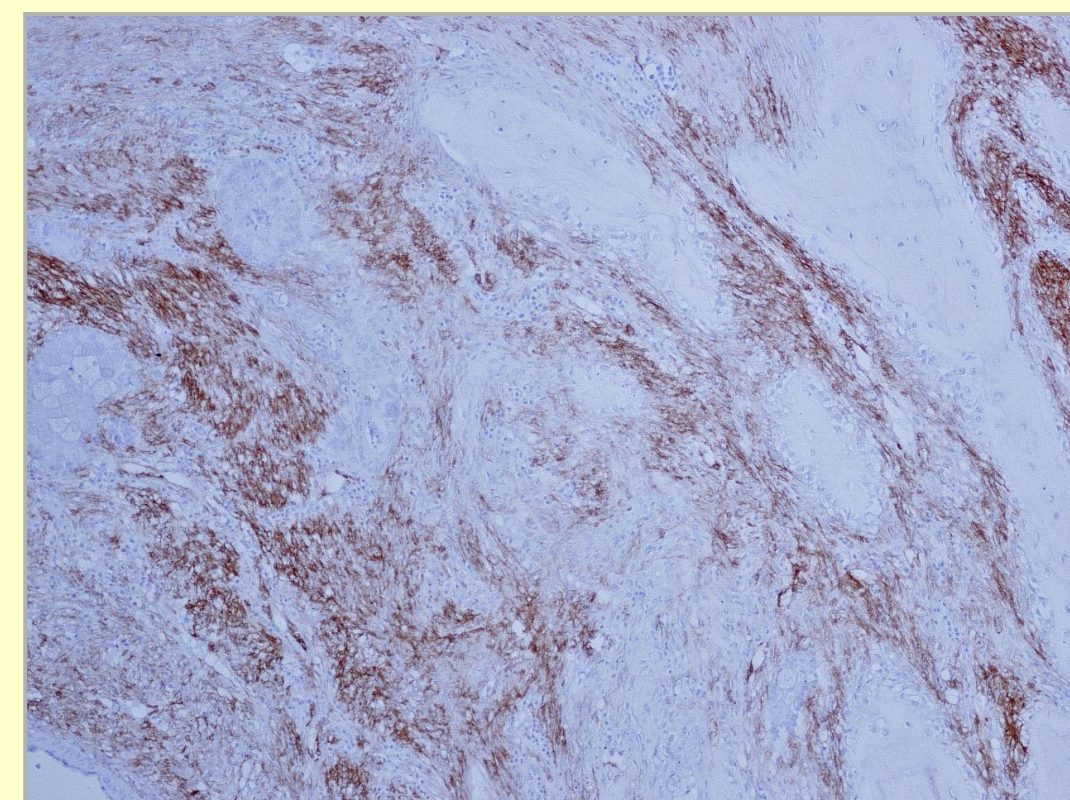


Fig. 6: α -smooth muscle actin. Extensive areas of spindle cells are positive, 100x.

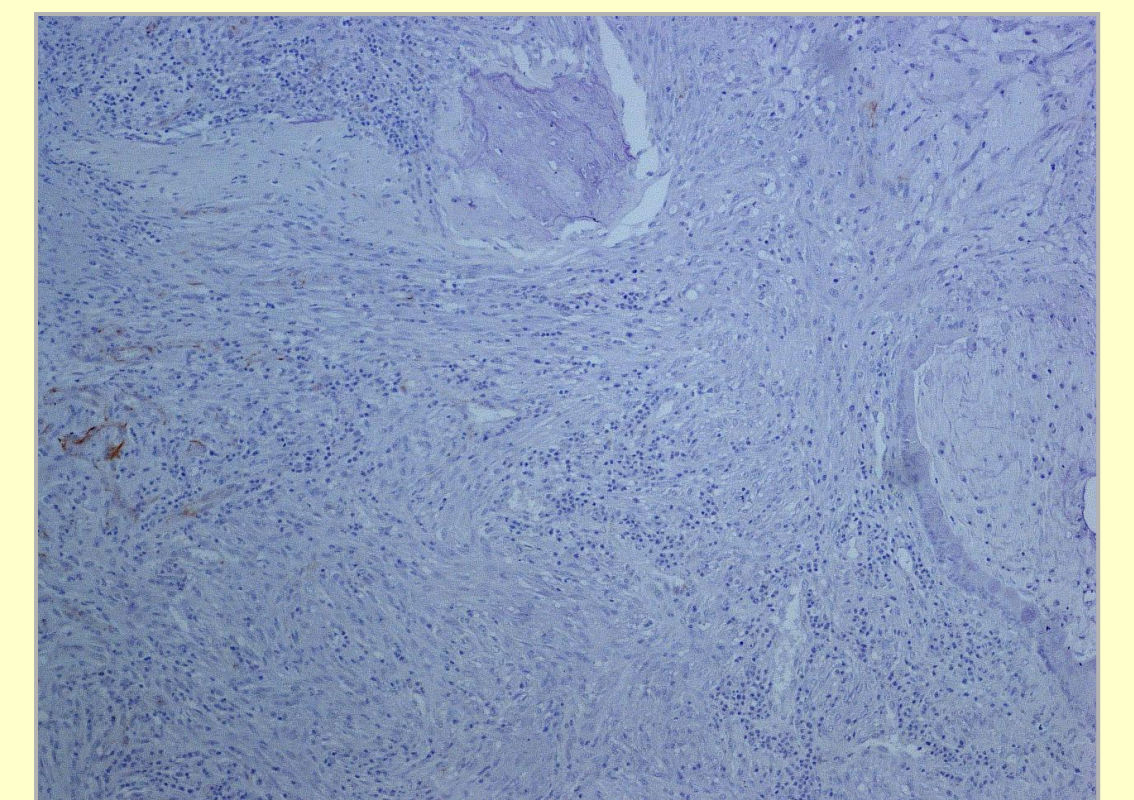


Fig. 7: Desmin. Spindle cells are negative, only few vascular smooth muscle cells are positive, 100x.

Case No. 2

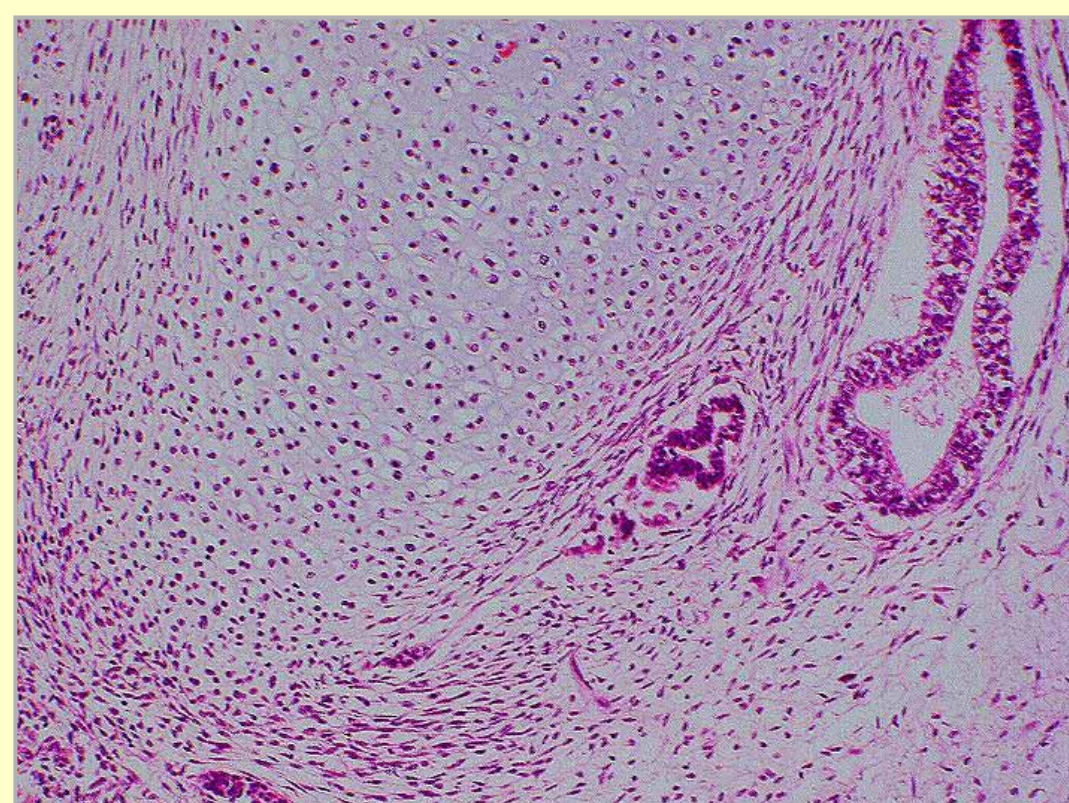


Fig. 8: HE. Tubular structures surrounded by spindle cells and central area of cartilage production, 100x.

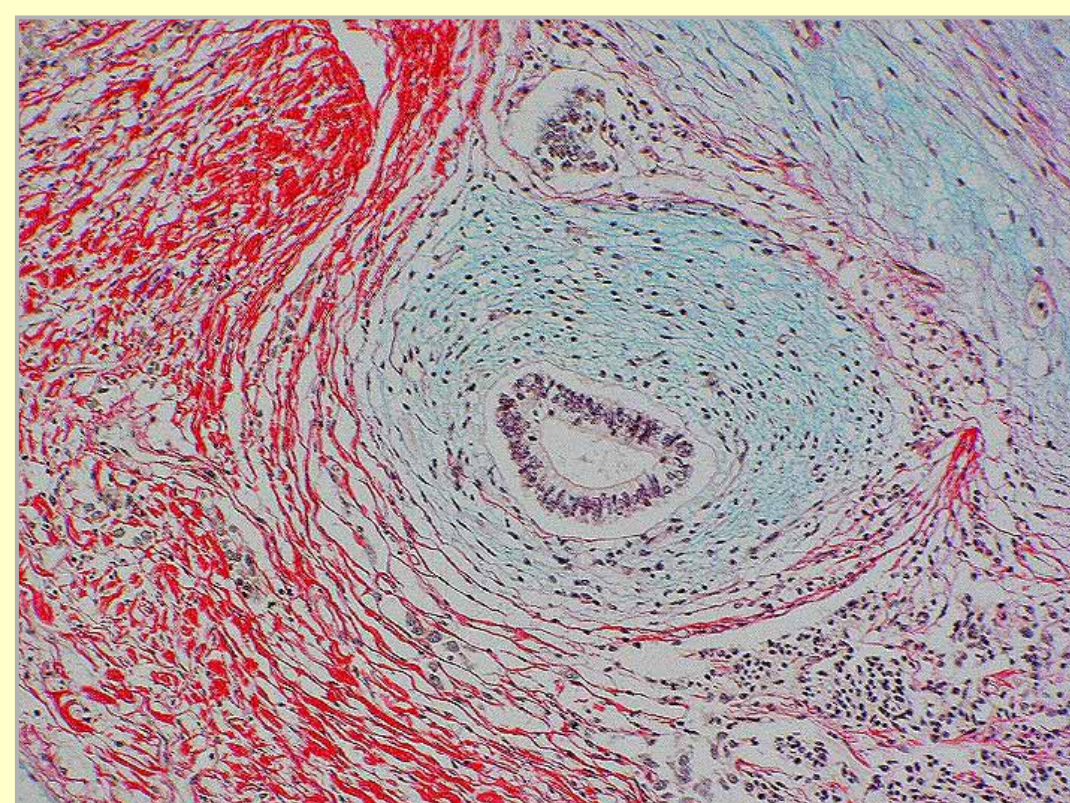


Fig. 9: Picosirius red. Central spindle cells embedded in mucoid matrix. In periphery a collagen-rich matrix, 100x.

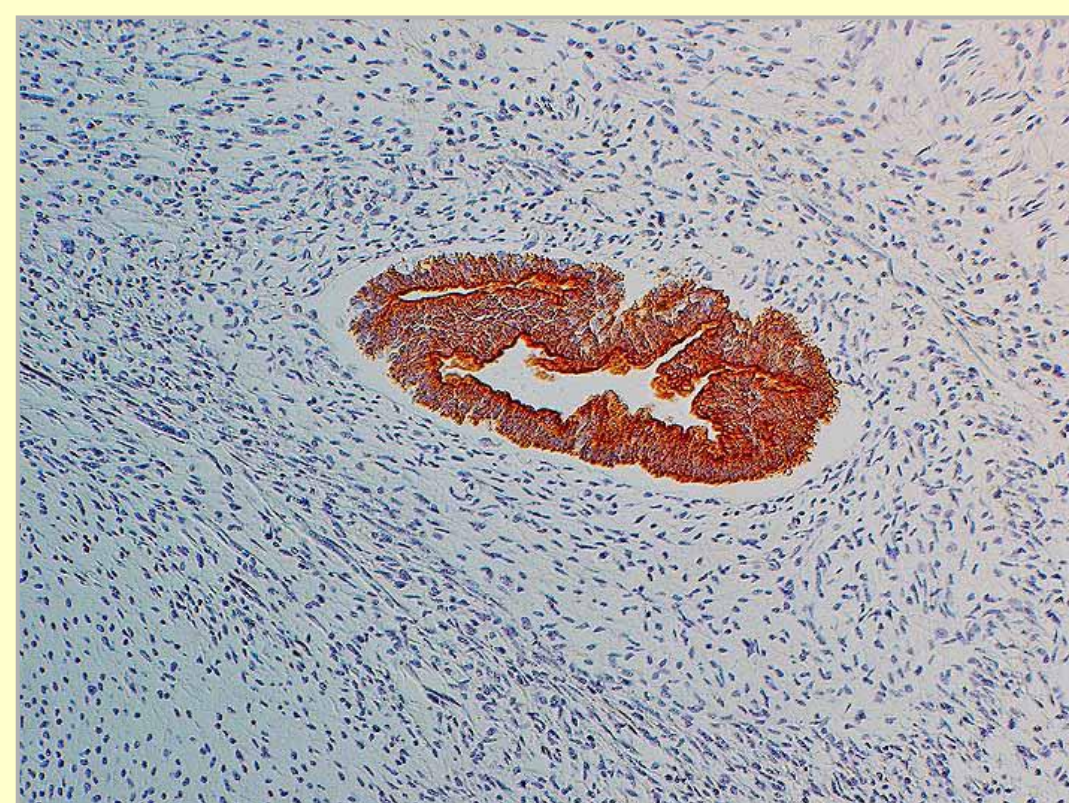


Fig. 10: Cytokeratin 19. Neoplastic epithelial cells were strongly positive, 200x.

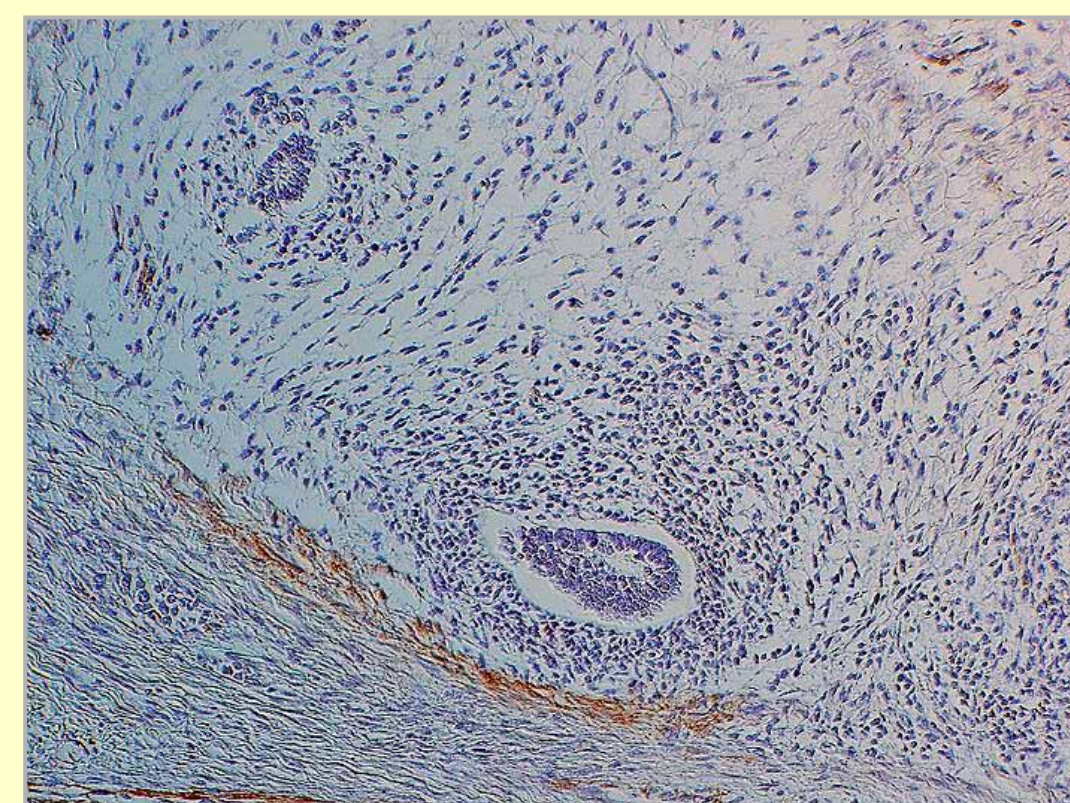


Fig. 11: α -smooth muscle actin. Positive spindle cell bundles only within collagen-rich matrix, 100x.



Fig. 12: Desmin. Negative spindle cell component, 100x.

Results:

Pathohistologically, in both cases the intestinal mucosa was focally replaced by an epithelial neoplasia characterised by variable sized tubular structures with intraluminal mucoid material or cell debris (Fig.3,8). Epithelial component of both tumours revealed an intensely positive staining for cytokeratin 19 (Fig.5,10). The tubular structures of case No.1 were surrounded by spindle cells embedded in variable amount of collagen fibrils (Fig.4). Most of these spindle cells were positive for α -actin (Fig.6) and negative for desmin (Fig.7). On the other hand tubules of case No. 2 were enclosed by spindle cells in mucoid matrix (Fig.9) with negative staining for α -actin and desmin. In the outer circumference few spindle cell bundles were only positive for α -actin (Fig.11,12). Extensive formation of woven bone trabecules (only case No.1, Fig.1) and multifocal islands of cartilage were seen (Fig.8). Only case No. 2 showed infiltrative growth but metastasis were not seen in both cases.

Literature:

1. Honnas CM et al.: Small intestinal adenocarcinoma in a horse. J Am Vet Med Assoc, 1987 Oct 1; 191 (7):845-6.
2. Moran JA et al.: Small intestine adenocarcinoma in conjunction with multiple adenomas causing acute colic in a horse. J Vet Diag Invest, 2008 Jan; 20 (1):121-4.

Discussion:

Equine small intestine adenocarcinomas are diagnosed rarely. Clinically affected horses may show colic symptoms or anorexia but even secondary lesions like anemia might be recognized first. Most cases are identified at necropsy but a diagnosis in time could allow tumour excision with at least a one-year survival as described in literature (1,2). The morphology of presented tumours was highly variable: case No.1 showed an extensive spindle cell component predominantly of myofibroblast-type, extensive production of collagen fibers (desmoplasia) and a vast osseous metaplasia. Immunohistochemically two different spindle cell components were found in case No. 2. One of myofibroblast-type and one embedded in mucoid matrix probably too undifferentiated to react with α -actin or desmin.

Summary: The histomorphology of equine intestinal adenocarcinomas could be highly variable. A definitive characterisation might therefore be difficult. Diagnoses of intestinal tumour biopsies in horses should be done under immunohistochemical control as spindeloid, α -actin positive reacting tumors must not be a leiomyoma/-myosarcoma but could be epithelial!



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