

# PERIODONTAL DISEASE AND SYSTEMIC MYCOSIS IN A SALTWATER CROCODILE (*Crocodylus porosus*) (CASE 419.1)

## CASE HISTORY

Juvenile saltwater crocodile found dead.

## GROSS PATHOLOGY

**External findings:** The periodontal tissue is caseous and brown. Several of the teeth are soft.

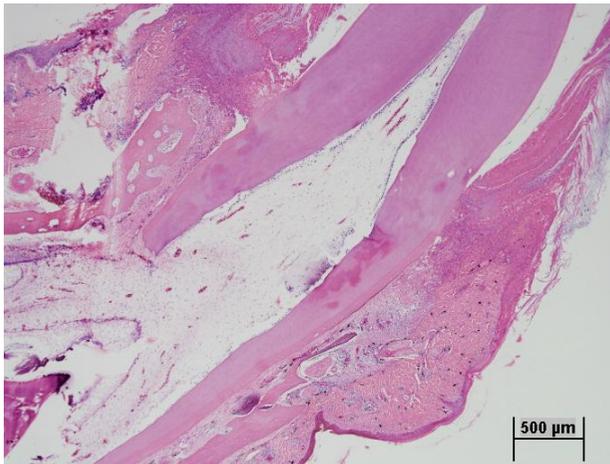
Hydration: good. Muscle mass: fair. Fat deposits: fair.

**Internal findings:** The coelomic cavity contains 3 mL of straw colored fluid. The mesentery and hepatic capsule appear thickened and opaque. There are multiple 4 - 5 mm white foci throughout the hepatic parenchyma. The gastrointestinal tract contains scant ingesta.

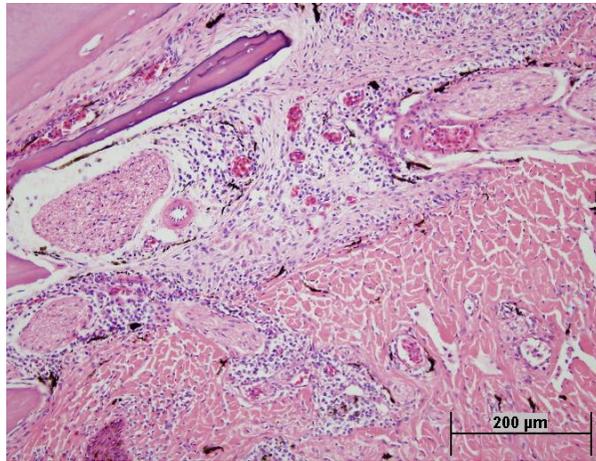
## HISTOPATHOLOGY

No visible lesions: pancreas, brain, ovary, kidney.

**Head - cross section:** There is extensive caseation necrosis of the periodontal tissues (Fig 1a). ZN negative bacterial colonies (not visible in pictures) and PAS- positive, septate, branching hyphae (Fig 2) are scattered throughout the necrotic debris. Hyphae penetrate into superficial granulomatous tissue. Blood vessels within the lamina propria are surrounded by 2 - 3 cell layers of lymphocytes and plasma cells (Fig 1b).



a) 4x



b) 20x

Fig 1. Tooth and gingiva. H & E

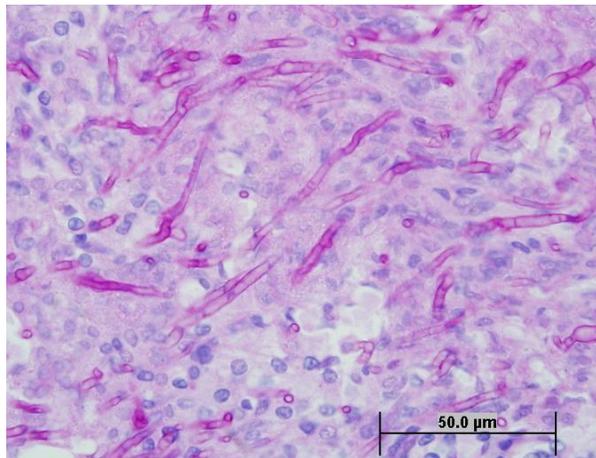
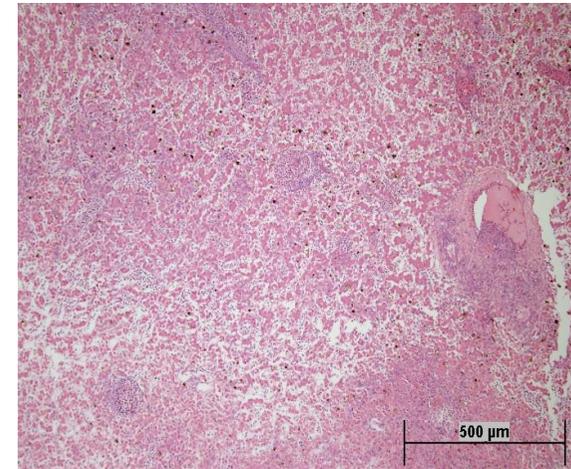
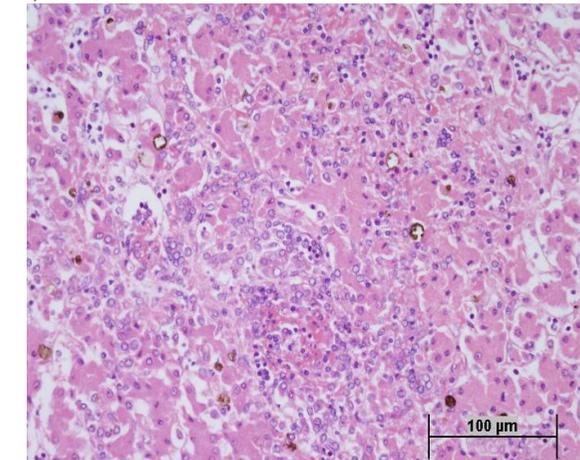


Fig 2. Gingiva.. PAS 100x

**Liver:** The hepatic parenchyma has been markedly and multifocally altered by the presence of coagulation to caseation necrosis adjacent to blood vessels filled with mononuclear cells and fungal hyphae. Hyphae often penetrate the walls of these blood vessels (Not visible this illustration).



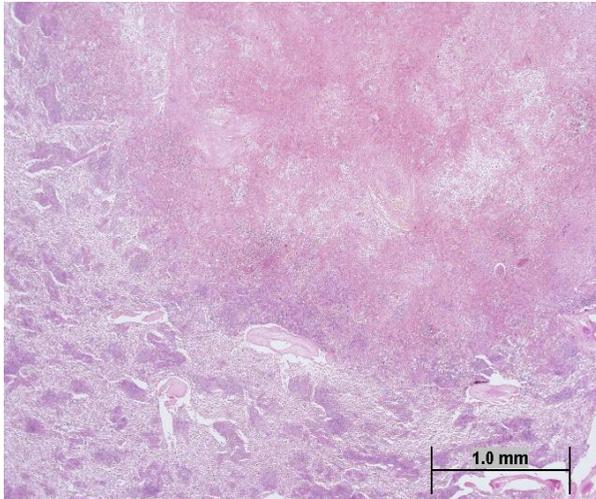
a) 10x



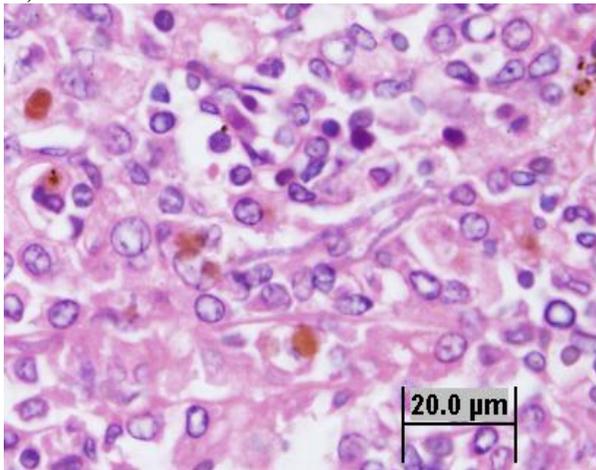
b)40x

Fig 3. Liver. H & E

**Spleen:** The splenic capsule is thick. There is segmental coagulation to caseation necrosis of the splenic parenchyma (Fig 4a). Hyphae as described above are evident within the necrotic tissue (Fig 4b). Scattered reticuloendothelial cells contain cytoplasmic brown, granular pigment.



a) 4x



b) 100x

Fig 4. Spleen. H & E

**Lung:** The mesobronchus is filled with a cellular exudate, and proteinaceous fluid. Branching, septate fungal hyphae are scattered throughout this luminal material. The respiratory interstitium is mildly cellular.

**Oesophagus:** There is a scattered cellular infiltrate throughout the lamina propria. The mucosa appears

attenuated, covering a bed of granulation tissue.

**Myocardium:** The endocardial cells are plump and basophilic. Epicardial epithelial cells are also reactive, and rounded.

#### BACTERIOLOGY

Liver: *Paecilomyces lilacinus*

Kidney: *Paecilomyces lilacinus*

#### MORPHOLOGICAL DIAGNOSIS

Multifocal necrotising mycotic hepatopathy and splenitis

Ascites

Diffuse necrotising periodontal disease

#### COMMENTS

The crocodile most likely suffered periodontal infection initially. Fungi then spread from the periodontal tissues through the blood stream to other organs such as the liver and spleen. *Paecilomyces lilacinus* was cultured from liver and kidney samples that had been frozen at the time of necropsy. It is interesting to note that the fungus was isolated in these frozen samples within 6 days of streaking SAB agar containing antibiotics.

It would be well worth examining any cagemates of this animal for evidence of soft, brown periodontal exudates.

#### REFERENCES

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MASLEN, M.; WHITEHEAD, J.; FORSYTH, W. M.; MCCRACKEN, H.; HOCKING, A. D. Systemic mycotic disease of captive crocodile hatchling (*Crocodylus porosus*) caused by *Paecilomyces lilacinus*. *Journal of Medical and Veterinary Mycology*. 1988. 26(4): 219-225.