

Fatal *Citrobacter* septicemia in a juvenile green turtle (*Chelonia mydas*): a case report

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Infections in sea turtles are almost always the result of immunosuppression. Gram-negative bacteria are the most common bacterial pathogens among sea turtles, which is not a surprising fact, since gram-negative bacteria are common isolates in healthy reptiles. This report describes the post mortem lesions in a juvenile green turtle (*Chelonia mydas*) that died during rehabilitation due to a severe celomitis. On November 12th, 2014 a juvenile green turtle was rescued by Projeto Tamar (Brazilian sea turtle conservation program) after stranding on Jurerê beach, Florianópolis, Santa Catarina State, Brazil. On admission, the animal measured 60 cm curved carapace length, 52.5 cm curved carapace width, and weighed 14.92 kg. The turtle exhibited signs of cachexia, dehydration, lethargy, anaemia (PCV 12%), positive buoyancy and it was covered with leeches and barnacles. The initial treatment consisted of ceftazidime (20 mg/kg IV), clindamycin (5 mg/kg IV), injectable vitamin supplement and intravenous fluids. Death occurred three days after initial supportive care and a complete necropsy, following a standardized protocol, was performed on the turtle, revealing a severe generalized celomitis, with multiple cystic structures and bulky caseous masses of different sizes, throughout the serous tissues of the coelomic cavity and following organs: liver, lungs, stomach, large and small intestines, ovaries, oviduct and urinary bladder. On cut the cystic structures had a typical onion appearance, with a fibrous layer lining it and multiple concentric laminated layers in its interior. Tissue samples were collected and fixed in 10% neutral formalin solution and sent to the Laboratory of Animal Pathology, in northern Rio de Janeiro State University Darcy Ribeiro (UENF). Swabs were taken from the contents of the cysts / masses and sent to a private laboratory, in Florianópolis, named Citovet®. The histological analysis revealed an inflammatory response characterized by a dense eosinophilic exudate, containing large numbers of heterophils. The cystic structures had a fibrous layer lining it and multiple

concentric laminated layers of keratin in its interior. On the other hand, the caseous masses (abscesses) also had a fibrous layer lining it, but a solid material of cheeselike consistency in its interior. Bacterial colonies were seen as thin basophilic granules within the abscesses and cysts. Two species of bacteria were isolated from the swabs: *Citrobacter freundii* and *Citrobacter amalonaticus*. Our results indicate that the turtle died from acute septicemia associated with *Citrobacter freundii* and *Citrobacter amalonaticus*. No evidence of clinically relevant infection by any other pathogens was found in the present case. Unfortunately, the source of infection remains unknown. Although we cannot positively determine whether these bacteria were primary pathogenic agents or secondary invaders, it seems likely that they are capable of producing disease in sea turtles.