

GA 775

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GA 775, a 240 cm female *Tursiops truncatus* weighing 153 Kg, was recovered dead from the beach at Galveston State Park, Galveston, Galveston County, at 11:30 pm on March 18, 1996. She was found within 1 mile of the neonate which stranded on March 16, and may have been its mother, as she had delivered recently and was lactating.

External marks were limited to a few small pale depressed areas around the rostrum, which probably were dolphin pox scars. There were also 2 old healed scars over the right 6th and 7th ribs. The tongue had a couple of ulcers near the tip on the left side. There was ulceration of the upper left back gum line involving the back 3 teeth, and of the upper right back gum line involving the 1st back tooth. All teeth were worn. There were many *Xenobalanus* on the flippers, flukes, and dorsal fin. The blubber and muscle appeared normal.

The left humeroscapular joint appeared normal while the left had a small area of erosion. Both humeral condyles (shoulder joints) appeared abnormally large. The atlanto-occipital joints were normal.

A large amount of bloody thoracic and peritoneal fluid was present. The heart was grossly normal. The left lung was unusually nodular, and many lung worms were present in the distal airways. The right lung had many bloody spots on the surface, and like the left, had many worms in the distal bronchi. Microscopic examination later showed that the nodularity was caused by abscesses associated with the lung-worm. This animal also had a mild case of the lung vascular disease that is so common in our coastal *Tursiops*. The trachea,

bronchi, larynx, and pharynx were all normal. Both air sinuses contained many flukes, typical of *Nasitrema*.

A large abscess (approximately 8 x 8 cm) was present on the right medial thoracic wall between the 6th and 7th ribs. A second, smaller abscess (approximately 2 cm x 2 cm) was found on the lateral side of the 6th rib, which had a non-healed closed oblique fracture. A third and fourth abscess (each approximately 1 cm x 1 cm) were present on the left medial thoracic wall over the 3rd rib, which also had a closed oblique fracture.

The stomach was empty, indicating that she had not fed for a while. The wall of the second chamber was unusually thick, and the third chamber had 1 worm attached to the mucosal lining. The right lobe of the liver had a few areas of softening, suggesting necrosis. All other organs were normal.

The uterine horns were grossly dilated and edematous, approximately one week postpartum. A small amount (1 ml) of thick clear viscous fluid was present in the uterine horns. Nothing suggested the appearance of infection. One large clear fluid filled cyst was present in the left ovary, which was very much larger than the right, even after the cyst was drained. This was caused by a large corpus luteum, a physiological structure related to pregnancy.

The brain was very swollen, and compressed within the skull. The normal crevices (sulci) were squeezed shut, and the surface folds (gyri) were pressed flat. A depression mark on the surface of the brain corresponded to the bone structure of the skull.

During the course of the examination we collected blood for bacterial culture, and also cultured the abscesses, the abnormal joint, the fluid in the abdomen and the intestine. These all showed a heavy growth of an uncommon bacterium,

Edwardsiella tarda, and several others from different sites. Death is attributed to disseminated infection. The actual mechanism of death probably included the brain swelling, which can occur in sepsis, even if the brain is not overtly infected.

Comment: A case like this presents several issues. First, this animal was recently post-partum, not more than a week, according to Dr. Beth Turnbull, a veterinarian graduate student in our laboratory. Birth is a particularly dangerous time for a wild dolphin, as the risk of infection of the birth canal is great, as is the risk of predation by sharks, or of being struck by a boat in our busy waters. None of these seemed to be the case. Several abscesses were present, all loaded with bacteria. These were near rib fractures that had not healed. An otherwise healthy animal with an infection in tissues can wall off the infection to form a collection of pus; an abscess. If all goes well, the wall of the abscess thickens and scars, and the contents can become sterile over a period of time. Sometimes the process of walling-off fails, and the infection can become generalized, with the bacteria getting into the blood, and circulating throughout the body. The bacteria can then settle out in new locations to form new foci of infection. This seems to be what was happening with one of her joints. This is an important observation for us, as we have been finding a surprising amount of arthritis in our beached dolphins. Depending on the potency of toxins produced by the bacteria, this process of dissemination can be fairly indolent, and many abscesses can be established before the animal dies. If the bacteria make a more potent toxin, sepsis, sometimes called blood poisoning, can set in, and death is rapid. The resistance of the infected animal can vary over time, so the outcome of the process is not only determined by the bacteria. If the animal's resistance is low, from whatever reason, previously contained bacteria may escape from a focus of infection, and disseminate. Lowered resistance may be reflected not only in the growth of bacteria, but in the declining ability to cope with parasites. This seems to be the case in this animal. It may be that her adaptation was marginal, and that the stress of delivery of a calf was enough to make her especially vulnerable. We are

doing toxicological studies on all animals we necropsy, and these results may shed some light on this problem. It is not clear how the rib fractures relate here, as they do not seem to be recent, and the abscesses are near but not actually in the fracture sites, and also occur away from the fractures. The ovarian cyst is common and innocuous, and not related to her death.