GA 997

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GA 997 was a 228 cm long, 78 kg male Pan-tropical Spotted Dolphin (Stenella attenuata) recovered alive from Bryan Beach, Freeport, Brazoria County, Texas on May 30, 1999. While most of the animal seemed intact, there were two very deep and several shallower cuts, gouges and abrasions in the tail stock and the flukes. Clinical impression, based on observation of movements in the water was that the tendons the raise the flukes had been cut through in the tail stock, making him unable to swim. Over a period of days, it became apparent that the injury was such that the animal was never going to be able to swim without assistance. Expert opinion was that it was not feasible to repair the tendons, because of the lack of circulation in the area, and because of inevitable infection. Finally the tips of the flukes began to soften and slough off the epidermis. The flukes became obviously necrotic (dead), and it was deemed advisable to euthanize the animal. This was done on June 3, 1999.

Necropsy revealed a thin to emaciated animal, with the ribs, vertebra, and scapula visible when the animal was on its side. Several shark bites/lesions on side of the animal were also recognized. The right lobe of the fluke was overtly necrotic. The teeth seemed well used or worn and several were missing.

The lungs were both highly infested with nematodes, and mottled caused by focal inflammation. The heart, liver and spleen were quite soft, suggesting infection. The testes were typical of a mature animal.

There were several issues in this case that had to be addressed. The first was the repairability of the wounds and cut tendons, which was thought not feasible,

because of the second issue, the viability of the tissues, not only at the site of the wound, but distally, toward the flukes. In order for an incised wound to heal, the tissues on both sides have to be alive. This part of the dolphin anatomy is dependent for blood supply on only a few vessels, which had been cut in the wound. Thus there was not enough blood flowing to the fluke to keep it alive. The next issue is infection. We would expect that an open wound, especially one that is partly devitalized and therefore lacking normal resistance, exposed in a non-sterile environment such as the rehabilitation tank, will inevitably become infected. This was the case; not only was the wound infected, but there was (despite antibiotic treatment) bacteremia (bacteria circulating in the blood) demonstrated by culture of blood taken from the heart. Three pathogenic organisms were identified by the UTMB microbiology laboratory; Klebsiella pneumoniae, Clostridium bifermentans, and Fusobacterium sp. Another issue is the effect of the series of events, wounding, stranding, capture, maintenance in a strange environment (the tank) and persistent infection on the physiologic systems of the animal. Necropsy revealed a very severe case of necrosis of heart muscle fibers that we have learned to attribute to "stress" or an exaggerated alarm reaction in the animal, mediated by the adrenal glands. Finally, there is the question of the cause of the wounds.

It is a commonplace in the practice of forensic pathology to draw conclusions about the unknown cause of an injury from its appearance, based on experience with the known causes of similar injury. Many injuries occur in patterns, so stereotypic that the cause can be deduced with a high degree of confidence. This is how we can tell which is a bullet entrance wound, and which an exit; how we can tell in an automobile accident that a certain pattern of bruises on the chest were caused by a steering wheel and thus identify the driver, and by a particular pattern of leg and hip bone fractures whether a different victim was a passenger, and whether he was facing straight ahead, or sitting at an angle when the crash occurred. A bumper produces very typical leg fractures at a particular height, and

so on. We use pattern recognition frequently with dolphins, when we interpret parallel scratches as rake marks produced by another dolphin, and distinguish them from linear marks produced by fishing lines or by nets.

Sometimes we identify a cause by trying to imagine just what could have produced a particular appearance in a particular place. Long-time readers of these reports may remember my attributing a round depressed skull fracture in a dolphin to a sledge hammer blow, based on the diameter of the fracture, the diameter of the striking surface of a typical hammer, the accessible location on the side of the head, and my experience with similar lesions in humans. Another time I attributed a chest wall injury in a young bottlenose dolphin to a ram by an adult, based on the lateral location, diameter of the injury matching the size of a typical adult rostrum, the lack of scratches on the overlying skin, and the lack of any other wound. This was not a popular interpretation at the time, because dolphins were not supposed to kill their young. I think other reports indicate that they do in fact, sometimes kill their young.

What about our current case? The cuts in question were three deep slices, evenly spaced, and slightly angled. There were other gouges and smaller lacerations, but to my mind, the three parallel cuts were the key. I cannot visualize any cause other than a small boat propeller. I think our beautiful spotted dolphin was the victim of a boating accident. I can't tell whether he came up under the boat, or was overtaken. Pattern recognition can go only so far.