GA 881 February 5, 1998

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GA 881 was a large (250 cm) female *Tursiops truncatus* recovered dead, Code 2, from Eleven Mile Road, Galveston, December 13 1997. She weighed 155 Kg, and was determined by Jason Turner to be 27 years old, based on tooth aging.

Apart from a general impression of thinness, external examination revealed only an ulcer of the tip of the rostrum. Many *Xenobalanus* were present the on flippers and flukes. The size of the animal and the parasites suggest that this could be an off-shore dolphin. There were many intestinal adhesions some of which severely kinked the intestine, but did not obstruct it.

The lungs were moderately to severely involved by the vascular proliferation we have seen in essentially all adult animals over that past two years. Both lungs also had a heavy infestation with nematode worms.

The most striking feature was in the heart. The wall of the right atrium was thin and densely scarred. Inside the atrium, mostly filling it and protruding upward into the superior vena cava and downward to the tricuspid valve that separates the atrium from the ventricle, was a dense thrombus, or mass of clotted blood. This had been there for some time judging by structural changes in it. This was undoubtedly associated with obstruction to the flow of blood from the rest of the organs, as the liver showed prominent congestion.

In addition to the heart and lung problems, there was also well developed amyloidosis of the kidneys and several glands. Amyloidosis is the deposition of a particular protein material in the tissues. It interferes with normal tissue function.

We also found two ulcers in the forestomach, and many stomach flukes, typical of *Braunina*. While the uterus tubes and vagina are normal, the ovaries are strikingly small and smooth. They appear "infantile", in that they are small, smooth and devoid of corpora, inconsistent with the size and development of the animal. The pituitary gland is very large, indeed it was by far the largest we have seen in 7 years of dolphin necropsies.

How do we explain this odd combination of findings? First, each can be explained separately, as each (except the thrombus) has been found before. The lung lesion is very common in bottlenose dolphins in our geographic region. This case was severe enough to have caused some breathing difficulty. The amyloidosis is also seen before. We have reported several cases in *Tursiops* (Vet Path 32:311-314, 1995), but this case now brings us up to a total of six, or about 10% of all *Tursiops* examined here. This is an extraordinary incidence, especially since ours is the only report of this disease in the dolphin literature. We have no explanation for this at this time.

The atrial thrombus has a complex explanation. First, the wall of the atrium is densely scarred, and could not have contracted normally. This would allow the blood to eddy and stagnate in the atrium, which in other species (I am most familiar with man) is well recognized to be associated with spontaneous clotting. (A thrombus is a dense blood clot that forms in moving blood). The thrombus, filling the atrial cavity, interferes with the flow of blood through the chamber into the right ventricle. This causes congestion of all organs, and in this case, would also have interfered with the proper opening and closing of the valve between the atrium and the ventricle. While this is tolerable for a while, eventually it can cause heart failure. This animal already has abnormal lungs, which would also put a strain on the heart.

The next question is, what scarred the atrium? We think this resulted from myocardial injury, which we see very often in stranded animals, and have attributed, as we discussed in and earlier report, to severe stress. This injury occurred to this animal some time in the past, and the cause is not evident to us now. She also has a very severe degree of this myocardial injury throughout the heart, but this is very recent, and can be attributed to events of her final few days. We can only speculate what those might have been.

Finally, there is the question of the infantile ovaries in an animal of adult years. We are doing further studies on this problem, and will report the results at a later time.

We attribute this stranding to natural causes, with several well established diseases, any one of which could have brought her to the beach.