

Necropsy Report
Killer Whale (Orcinus-orca) Nootka
Age 28 yrs — SeaWorld of California

Name: Nootka (female) (aka- Knootka, T5, T005)

Species: Killer Whale (Orcinus orca)

Source: wild capture, March 1970, Pedder Bay, British Columbia, Canada, age: est. 2 yrs

Deceased: 03-13-1990, SeaWorld of California, age: est. 28 yrs

Reported cause of death (per NMFS MMIR data): Pyogranulomatous; Pneumonia

Necropsy info:

Tentative Diagnosis- Jim McBain, DVM (1990): In this case, death may have been due to the chronic, pneumonia. The apparent encephalitis may or may not have been important at the time of death. Histology may be enlightening in this regard.

Conclusions- Jim McBain, DVM (1990): (after histology & clinical pathology review) The cause of death appears to have been the result of a pyogranulomatous pneumonia with histologic evidence suggesting that Nocardia sp., and Aspergillus sp. were the etiologic agents. This finding is in keeping with the clinical assessment prior to death. Immunosuppression is often the essential ingredient in allowing Nocardia sp. and especially Aspergillus sp. to become established in the host. Chronic immunosuppression was apparent in this animal for several months prior to the onset of symptoms that ultimately lead to its death 7 months later. The immunosuppression was evidenced by very low total lymphocyte counts and circulating "T"-lymphocytic populations that were dominated by suppressor cells. This is often the case with immunosuppression in the aged individual.

Notes: Prior to reforms of the Marine Mammal Protection Act (MMPA) in 1994, holders of marine mammals for public display were required to submit necropsy reports (animal autopsy reports) for deceased animals, making the documents available to the public and scientific community. Presently, marine mammal parks in the U.S. are only required to provide a “cause of death” to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) which maintains Marine Mammal Inventory Reports (MMIR). Details of marine mammal deaths are now a closely guarded secret at U.S. entertainment facilities.

The Orca Project acquired the following documents from the National Marine Fisheries Service (U.S.A) via the Freedom of Information Act for deaths that occurred prior to implementation of the 1994 MMPA changes.

For more information visit www.theorcaproject.com

Necropsy, Autopsy, Veterinarian, NOAA, NMFS, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, MMIR, Marine Mammal Inventory Report, MMPA, Marine Mammal Protection Act, Killer Whale, Orca, Shamu, Death, Die, SeaWorld, San Diego, California, Nootka

SEA WORLD
GROSS NECROPSY REPORT

FACILITY: Sea World of California PROSECTOR: Jim McBain, D.V.M.

GENUS/SPECIES: Orcinus orca

ID NUMBER: SWC-Oo-8628/SW 90014 AGE: adult SEX: female

DATE OF DEATH: 3/13/90 DATE OF NECROPSY: 3/13/90

EXTERNAL MORPHOMETRICS: (metric only)

WEIGHT: 3810 kg

TOTAL LENGTH: 620 cm GIRTH AT AXILLA: 366 cm

GIRTH AT ANUS: 249 cm FLUKE WIDTH: 150 cm

GIRTH AT UMBILICUS: 396 cm DORSAL FIN HEIGHT: 61 cm

HISTORY: This animal experienced a chronic illness which first became apparent in late August 1989. She was maintained on antibiotic therapy until early December 1989. In December a deep mycoses serum panel as well as the appearance of a mycotic glossal lesion made us aware that the animal was suffering from a combined fungus and yeast infection. Treatment was begun with Itraconazole (Janssen Pharmaceutica) in combination with antibiotics. Itraconazole blood levels were monitored to maintain therapeutic levels. A special lymphocyte study was done that revealed a very high concentration of T-suppressor cells, which is consistent with a state of immunosuppression. This condition is thought to have been of several months' duration and probably an age-related phenomenon. During the last week of her life, immunomodulating medications were utilized in association with the antimicrobial treatments. The animal died quietly on March 13, 1990, 45 minutes after her last meal.

Code, in parentheses, for samples taken:

C = culture; V = virology; M = metals;

P = pesticides; E = electron microscope samples

GENERAL EXTERNAL APPEARANCE: (oral cavity, external nares, skin, eyes)
The skin of the dorsal fin is rough and cracked, probably the result of drying. There is one small crack in the skin on the lateral aspect of the blowhole. The skin is generally normal and free of lesions. Gingiva around the teeth has a papilliform appearance.

SUBDERMAL CONDITION: (blubber, muscles, lymph nodes)

The blubber thickness is good with a depth of 7 cm measured on the ventral abdominal midline. Muscle mass appears normal. A prescapular lymph node contains multiple firm foci.

CENTRAL NERVOUS SYSTEM: (brain, pituitary, spinal cord)

There is an area of apparent hemorrhage or hyperemia involving the left cerebellar hemisphere.

LOWER RESPIRATORY SYSTEM: (trachea, bronchi, lungs, lymph nodes)

Multiple firm irregular nodules involve both right and left lung lobes. These nodules range in size from less than 0.5 cm to over 20 cm in diameter. Many nodules appear to have coalesced. The nodules on cut section have a homogeneous consistency and a gray/white color.

CARDIOVASCULAR SYSTEM: (heart, aorta, major vessels)

There is a moderate amount of coronary groove adipose.

DIGESTIVE SYSTEM: (esophagus, stomach, intestine, rectum, cecum, lymph nodes)

There is a small mineralized concretion on the muscular surface of the esophagus. The stomachs are normal and contain a sizeable amount of fish in varying stages of digestion.

LIVER: (biliary system)

There is "cloudy swelling" with the edges of the lobes being slightly rounded. The parenchyma looks grossly normal.

REPRODUCTIVE SYSTEM: (testicles, ovaries)

The right ovary contains a large corpus luteum about 7.5 cm x 5.0 cm x 5.0 cm.

THYROID: The thyroid is very large but normal in appearance.

PARASITE SUMMARY: No parasites are found.

MICROBIOLOGY: *Nocardia asteroides* isolated from a lung nodule and blood culture. *Aspergillus* sp. isolated from stool. *Streptococcus sanguis* II isolated from brain and prescapular lymph node.

GROSS SUMMARY:

1. Pneumonia.
2. Cerebellar hemorrhage.
3. Corpus luteum, possibly persistent.
4. Thyroid hyperplasia.

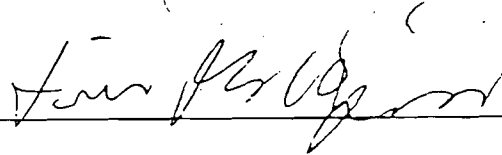
TENTATIVE DIAGNOSIS: In this case, death may have been due to the chronic pneumonia. The apparent encephalitis may or may not have been important at the time of death. Histology may be enlightening in this regard.

CONCLUSIONS: (after histology & clinical pathology review)

The cause of death appears to have been the result of a pyogranulomatous pneumonia with histologic evidence suggesting that Nocardia sp., and Aspergillus sp. were the etiologic agents. This finding is in keeping with the clinical assessment prior to death.

(Conclusion at bottom)

DATE: 4/6/90

SIGNED: 

Immunosuppression is often the essential ingredient in allowing Nocardia sp. and especially Aspergillus sp. to become established in the host. Chronic immunosuppression was apparent in this animal for several months prior to the onset of symptoms that ultimately lead to its death 7 months later. The immunosuppression was evidenced by very low total lymphocyte counts and circulating "T"-lymphocytic populations that were dominated by suppressor cells. This is often the case with immunosuppression in the aged individual.