Death of Monterey Bay Aquarium Sea Otter Gidget Caused by Rapid-Onset of Sarcocystis Infection

The Monterey Bay Aquarium has determined that the rapid onset of an acute Sarcocystis neurona infection caused the death in February of Gidget, a 10-year-old female sea otter who was a popular member of the Sea Otter Exhibit and played an important role in the aquarium's surrogacy program for stranded sea otter pups. Her DNA was also used to sequence the sea otter genome.

In the wild, sea otters can contract and die from sarcocystis infections by eating prey infected with the parasite. Based on necropsy results (the animal equivalent of an autopsy in humans), and the rapid progression of her illness, the aquarium's veterinary medical team believes Gidget became exposed to the parasite either through her food or because a transport host like a passing seabird defecated into the open-air Sea Otter Exhibit.

The aquarium will continue to offer live food items - both wild-caught and aquaculture-raised - to rescued pups and the surrogate mothers who care for them, because exposure to live prey is a necessary component of the surrogate-rearing program that has been so successful in reintroducing stranded pups to the wild.

“We can't be certain precisely how Gidget was exposed to sarcocystis parasites," said Dr. Mike Murray, the Jane Dunaway Director of Veterinary Services for the aquarium. “We suspect it was an acute infection and not a recurrence of a pre-existing one, based on how dramatically her antibodies increased in a short period of time."

A rise in antibody levels generally indicates that the immune system is responding to an infection.

In the wild, Sarcocystis neurona parasites can enter ocean food webs when feces from infected opossums washes into the water. The parasite accumulates in the tissues of shellfish and crustaceans, and can infect sea otters that eat them, Dr. Murray said.

Before her death on Feb. 3, Gidget had chronic health problems, but Dr. Murray said he could not determine from the necropsy if those pre-existing conditions made her more vulnerable to infection. Kit, a second exhibit sea otter who rears stranded pups as a surrogate mother behind the scenes, experienced a similar spike in antibodies. Kit was treated but never developed symptoms of disease, he added.

We are sharing our experience with veterinary colleagues at other institutions that keep and exhibit sea otters, Dr. Murray said.

“Gidget touched millions of people, played an important role in our surrogacy program, and through her DNA made a lasting contribution to sea otter conservation," Dr. Murray said. “Her death makes us even more determined to add more safeguards to our processes for the sea otters in our care."

Gidget was found stranded on Morro Strand State Beach in San Luis Obispo County in October 2008 as a 10-week-old pup. After rescue, she was brought to the aquarium for care.

Gidget was declared non-releasable by the U.S. Fish and Wildlife Service and transferred to the Aquarium of the Pacific in Long Beach, California, where she was raised as part of its sea otter exhibit. On January 21, 2013, she came back to the Monterey Bay Aquarium to join the sea otter exhibit and to serve as a surrogate mother for other rescued otter pups. She reared four pups until she was retired from those duties for health reasons.

In December 2015, a sample of Gidget's blood was used by researchers at UCLA to sequence the sea otter genome for the first time.

The Monterey Bay Aquarium's Sea Otter Program has been researching and advancing the recovery of the threatened southern sea otter since 1984. To date, the aquarium has rescued over 850 ill and injured otters and returned many to the wild. The surrogate program team continues to raise and release stranded pups.They work with the Species Survival Plan coordinator for the Association of Zoos and Aquariums to place non-releasable animals at accredited aquariums and zoos across North America.

About the Monterey Bay Aquarium
With a mission to inspire conservation of the ocean, the Monterey Bay Aquarium is the most admired aquarium in the United States, a leader in science education, and a voice for ocean conservation through comprehensive programs in marine science and public policy. Everything we do works in concert to protect the future of our blue planet. More information at montereybayaquarium.org.