Incident Report- Beluga whale, ID ‘Havana’

Summary
A female beluga whale ID ‘Havana’ under research permit #22629 was moved from Marineland in Canada to Mystic Aquarium. While the whale initially acclimated well for several months, the whale developed medical issues in the Fall of 2021. Despite 24-hour care and intensive medical, behavioral, and nutritional support provided by a team of veterinarians including several that are board certified by the American College of Zoological Medicine, the whale died.

Complete Description of Events
A female beluga whale ID ‘Havana’ was transported successfully to Mystic Aquarium on May 15, 2021, from Marineland in Canada. Preshipment diagnostics and transport planning conducted by Marineland veterinarian, Dr. June Mergl, and overseen by the Canadian Food Inspection Agency, a Canadian science-based regulator with a mandate encompassing food safety, and animal and plant healthy, included bloodwork indicative of healthy, stable condition, negative for all infectious diseases tested, and gastric sample and respiratory sample testing that were normal. The transport was also approved by Mystic Aquarium veterinarians, board certified by the American College of Zoological Medicine.

The transport occurred without incident or complication on May 15, 2021. In the weeks following transport the whale appeared normal and the whale’s bloodwork began showing evidence of a systemic inflammatory process so antimicrobial treatment was initiated on May 27, 2021. On July 29, 2021, the whale developed blepharospasm (squinting) in the right eye and began treatment for keratopathy. An ophthalmologist with expertise in marine mammals was consulted on treatment, which was implemented. The whale was diagnosed with hemorrhagic gastritis on September 7, 2021, which responded well to treatment. On November 6, 2021, the whale stopped eating and was noted to be periodically swimming with closed eyes and contacting wall during swimming from time to time. For this reason, the whale was moved to an off-habitat pool to allow for closer monitoring and more directed medical and nutritional support. The whale was treated for three episodes of hemorrhagic gastritis (November 8, 2021, December 20, 2021, and January 24, 2022), all of which responded well to treatment with gastrointestinal medications. The whale remained on daily nutritional support to maintain body condition, including fish gruel, and eventually moving to assist feeding whole fish as she improved.

Between November 2021 and February 2022, the animal periodically exhibited abnormal swimming behaviors. The first significant abnormal episode occurred on November 11, 2021, where an abnormal swimming pattern and tachypnea (elevated respiratory rate) were observed. The whale was started on antibiotics, continued on supportive care, and returned to normal. Subsequent episodes of abnormal behavior were observed over the following 3 months that were short in duration, variable in character (listing, rolling ventral, sinking, appearing disoriented, changes in swim character) and, for each, the whale resumed normal behaviors and swim pattern thereafter. Numerous diagnostics were conducted during this time including infectious disease testing, neurological examinations, and imaging, and did not determine any cause for this behavior. Several veterinarians with cetacean expertise were brought in to consult on this whale’s case and ensure that everything possible was being done. The whale remained under treatment for chronic systemic inflammation with antimicrobials and other supportive medications during this time.

Pulmonary abnormalities were first diagnosed via lung ultrasound on February 9, 2022, and the whale was promptly started on new oral antimicrobial medications that day. The prior lung ultrasound, conducted on January 12, 2022, was normal, without indication of pulmonary pathology. On the evening of February 9, 2022, when the whale first demonstrated a marked change in respiratory effort and character, veterinarians switched the whale’s treatment to injectable antibiotics and a third-generation
antifungal agent. The whale had an improved appearance during the day on February 10, 2022. Despite 24-hour care and intensive medical management, early in the morning on February 11, 2022, the whale exhibited an abrupt period of high energy and disoriented swimming and died soon thereafter. The whale was transported later that day to the University of Connecticut Pathobiology Laboratory for necropsy. A gross necropsy report (Accession # 22-310) is attached to this incident report. Cause of death is pending histopathologic review.

This death was the result of a health issue and is unrelated to any research being performed.

Attending Veterinarians
Molly E. Martony, DVM, Diplomate American College of Zoological Medicine
Eric T. Anderson, DVM, Diplomate American College of Zoological Medicine
Supervised by Allison D. Tuttle, DVM, Diplomate American College of Zoological Medicine

Research Samples Collected

A summary of research samples collected on this animal at Mystic Aquarium follows:

- The animal provided behavioral saliva samples on May 14, 15, 16, 21, 25, 27; June 3, 17, 18, 25; July 16; Aug 3, 2021.
- Microbiome samples (oral, skin) were collected under behavioral control on June 15, 24; July 15, 22, 2021. A microbiome skin samples was also collected opportunistically in the stretcher on May 14, 2021.
- An opportunistic fecal sample was collected from the pool on June 17, 2021.
- Blood was obtained upon arrival on May 14, 2021.
- Respiratory exhale (blow) samples were collected opportunistically on May 14, 2021, and then behaviorally on June 17; July 8, 16, 22; August 3, 2021.

We believe this to be an animal health event and in no way related to the research being conducted. Research sampling was paused on August 6, 2021, and no samples were taken for research for the entirety of the animal’s illness.

Identification of Steps to Reduce Risk of Additional Events

This case was an unpredictable health issue in an animal that had been cleared by qualified veterinarians in Canada and the United States to be transported. We have ensured and will continue to ensure that medical conditions in one whale do not pose risk to the others. As research sampling paused on August 6, 2021, and the whale was not sick until the Fall of 2021, we do not believe research contributed to this case in any way. Similarly, no communicable diseases that could impact other whales have been identified.

Accredited by the Association of Zoos and Aquariums (AZA), the Alliance of Marine Mammal Parks and Aquariums (AMMPA), the International Marine Animal Trainers Association (IMATA), and certified by American Humane (AH), Mystic Aquarium consistently provides the highest quality medical and husbandry care to our animals. Our veterinary program is led by experienced veterinarians who are board-certified specialists in zoological medicine and our facility has over 4 decades of experience in providing the highest quality husbandry care for belugas. With a strong focus on preventative medicine, our animals are well-monitored during periods of health and receive prompt attention to all medical or behavioral concerns. A fully functioning clinical lab and veterinary hospital equipped with portable ultrasound, endoscopy, and radiography are on site for immediate diagnostic results when any condition
arises. When necessary, Mystic Aquarium provides 24-hour care to our animal collection. A 24-hour monitoring system has been in place for belugas at Mystic Aquarium for months and was in place for the entirety of this animal’s medical issues and continues to present day. Recently the aquarium has hired 2 additional veterinarians experienced in the care of cetaceans, 3 certified veterinary technicians, and complete second and third shift staff for husbandry and life support systems operation, ensuring robust staffing for all 3 shifts. Additionally, 3 veterinarians-in-residence have been retained for veterinary support and consultation, and we are consulting with beluga experts across the country. This exceptionally high platform of animal care ensures the maximal welfare for all our animals. We will continue to provide our consistently exceptional animal husbandry and veterinary care as we move forward.