

Anesthetic Considerations for a California Sea Lion (*Zalophus californianus*) Undergoing an Enucleation Procedure

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Cinnamon, a 33 year-old female California sea lion, weighing 86 kg was housed at the Audubon Zoo in New Orleans, Louisiana. In the fall of 2008, Cinnamon was noted to have progressively poor response to training, inappetance, weight loss and complications of a chronic eye condition. Differential diagnoses for weight loss and poor response to training included environmental considerations (stress, water temperature, change in diet), response to pain, and systemic disease. Differential diagnoses for the eye condition included chronic irritation, developing glaucoma and infection. Medical management failed to resolve these problems, and the eye condition significantly worsened, prompting surgical intervention. The risks of anesthesia and surgery in this species were carefully considered, in light of the anatomy and physiology of this species.

On 1/8/2009, Cinnamon was sedated with a combination of butorphanol (0.2 mg/kg), midazolam (0.2 mg/kg) and medetomidine (0.01 mg/kg) administered intramuscularly. Ten minutes after signs of sedation were noted, anesthesia was induced using isoflurane via facemask. Intubation was performed with a 14 mm ID endotracheal tube, and anesthesia was maintained with isoflurane (1.5 – 2%). Ventilatory assistance was provided throughout the procedure. An intravenous catheter was placed in one of the interdigital vessels of the hind flipper. Intravenous fluids (Lactated Ringer's solution) were administered. Parameters monitored during anesthesia included heart rate, respiratory rate, indirect blood pressure, blood chemistries, end-tidal carbon dioxide, oxygen saturation, rectal temperature, and depth of anesthesia. A local block of the left eye was performed with 2% lidocaine. A trans-conjunctival enucleation procedure was performed. Naltrexone (0.01 mg/kg) was administered at the end of the surgical procedure. Buprenorphine (0.008 mg/kg) and meloxicam (0.12 mg/kg) were administered intramuscularly for analgesia. Cinnamon was extubated and recovered uneventfully from anesthesia.

This seminar will highlight considerations for anesthetizing otariids, including their unique anatomical and physiological adaptations, as well as challenges in performing procedures on captive wild animals in general. Etiology of eye disease in these species will also be addressed.

Selected references:

Haulena M, Heath RB: Marine mammal anesthesia. In Dierauf LA, Gulland FMD, editors: *Handbook of marine mammal medicine*, ed 2, Boca Raton, Fla., 2001, CRC Press.

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