

Rounds

Animal Health
Department
Medical Rounds

"medicine for all"



Caring for Stranded Marine Animals

NATIONAL
MARINE
L I F E
CENTER

Notes

Veterinary Research
Department
Under the microscope

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Rounds Notes is a report on the health of animals at the National Marine Life Center from Sea Rogers Williams VMD for the staff, volunteers, and community of the center including professionals involved the captive care of similar species, the views expressed are not necessarily that of NMLC. Information in Rounds Notes should be considered confidential and used solely to benefit the health of aquatic animals everywhere.

Oct 16, 2012

Rounds Notes

4: 12- (2011)

Headlines News:Back in the saddle who rides seals anyway ?

The National Marine Life Center is proud to be a NOAA Fisheries approved satellite facility of the University of New England's Marine Animal Rehabilitation Center. As such we admitted our first seal patient in five years a young post-weaning Harbor seal who stranded in Maine with non-Flu like respiratory signs and wounds. The little male seal did well with initial rehabilitation and was dewormed, and treated with steroids and antibiotics. After the animal was considered stable the seal was transferred to the NMLC to break-in our new facility. The seal is named Townsend

[NMLC 12-018 PPv]. The plan was to get a seal into the system, see how our filtration worked, and gear up the staff and volunteers for daily feeds, maintenance, and paper work, and restraint refreshers for all.

Initially everything went well, the admit exam was normal, except for a minor abrasion, blood values normal. Bacterial counts in the pool have been within established limits, and we are working on reinforcing the netting and establishing a biological filter. Townsend is munching fish and vitamins and swims and hauls out with ease.

Over the weekend a few skin lesions "popped" up and Belinda noted a slight discharge to the left

ear. Two issues, and we'll deal with them separately.

The skin lesions could represent a poxvirus lesion. Many mammal species have their own pox virus and seals are no exception, unlike some of the very pathological viruses, seal pox has a very low mortality, but morbidity is common and the virus is very contagious. Lesions are raised nodules with hyperemia and alopecia, the skin lesions can last from three to ten months.



Like other pox lesions (think the protective if not repellent cowpox infection that protected milkmaids from the scourge of smallpox) they are zoonotic. In previous reports human infections have been mild but the risk can be decreased by 1) washing hands after working with the seal, 2) washing hands after working with the seal, 3) washing hands thoroughly after working with the seal, some additional precautions are 4) always wear and dispose of gloves 5) cover any breaks in the skin 6) use coveralls over cloths 7) use an effective disinfectant on anything that comes in contact with the seal, or the tank water.



We do not know that the lesions are in fact a viral infection, so biopsies were taken from the skin and will be sent to two pathology labs for a definitive diagnosis.

The ear discharge is perhaps more unsettling. You have likely heard me discuss middle ear infections in seals (otitis media) in the past, and this often silent disease can damage the seals ear drums and infect the bones on the skull with a chronic bacterial infection that will eventually eat away the tissue and invade the brain, causing a fatal meningoencephalitis, sometimes months or years after the initial infection. We don't understand why harbor seals are at such risk for this serious but not obvious infection, still, we have documented dozens of cases all confirmed by CT, surgery, or sadly, all too often, necropsy.

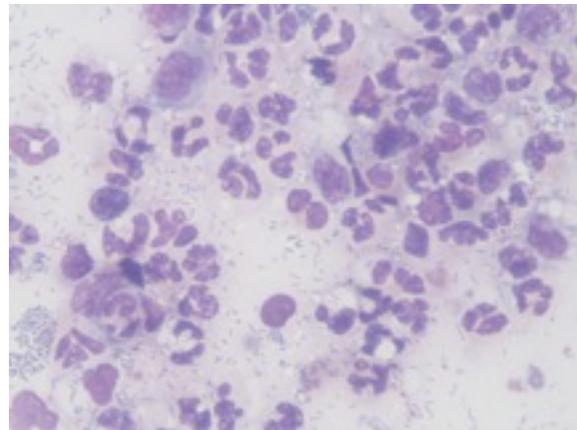
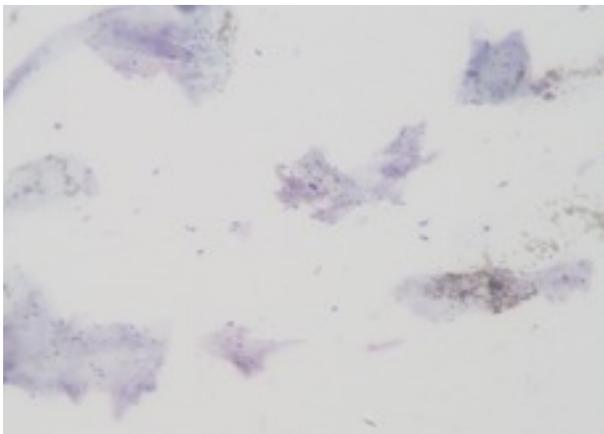
But a discharge alone does not a diagnosis make, so we started with the following.

- 1) cytology of the ears
- 2) survey radiographs of the skull
- 3) canalography of the skull

Here are the cytology results:

Right ear

left ear



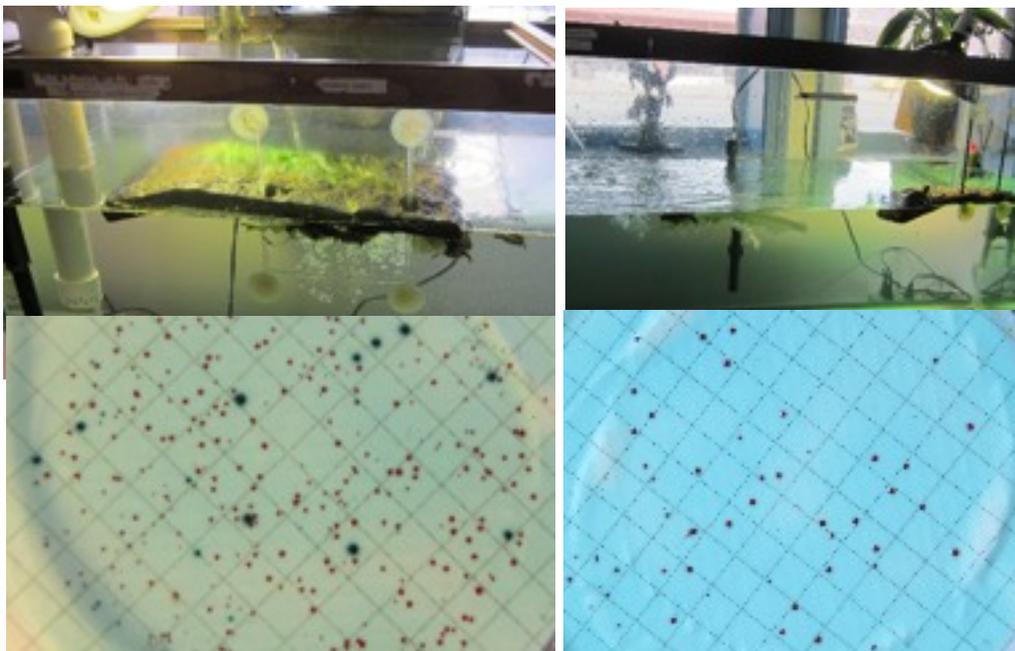


Not sure which you'd rather have, but while there are yeast, bacterial, and pigment on the right, the left has chronic active inflammation with intracellular bacteria (short rods) and clusters of bacteria. We have put the "itis" in otitis, but is this otitis externa or otitis media? The distinction is however, critical as the former is a relatively minor disorder and treated topically, and the latter a significant infection of seals which can carry a guarded prognosis for release and a poor long term prognosis despite treatment. No dye was detected in the left tympanic bulla so we cannot confirm otitis media at this time but will begin to treat for an

external ear canal infection, and use repeated evaluations to determine the true situation. CT could answer this question, but the sedation / anesthesia required carries significant risk of death. I do not hesitate to sedate an ill cat for dog for a diagnostic procedure that can provide critical case information, but anesthetic complications in phocids are much riskier, partly due to the well developed marine mammal dive reflex, which can be triggered by anesthesia. The biopsies will take a week anyway, so immediate plans for release have been put on hold.

Terrapins, Cooters, and Turtles, oh my . . .

new red-bellies may have a shedder



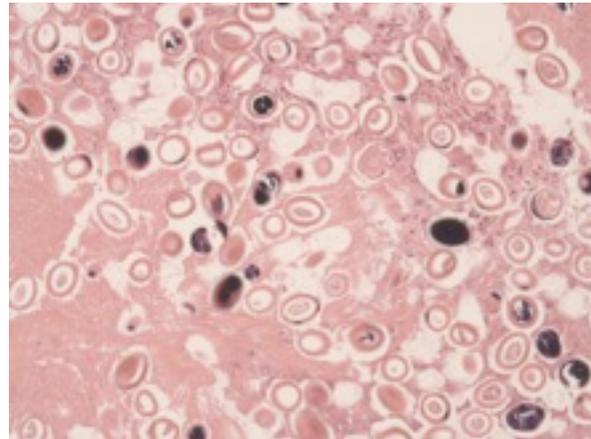
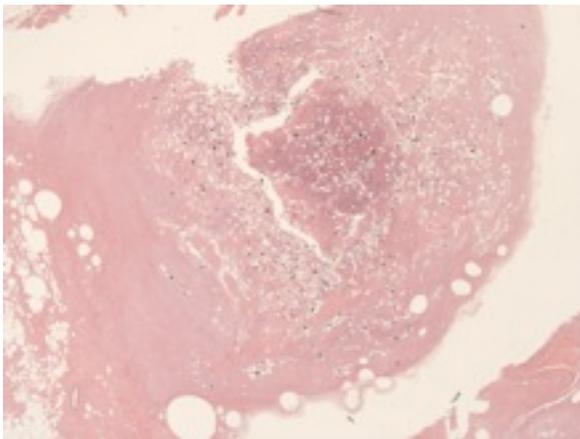
We monitor the bacteria levels in the cooter tanks the same way we measure those in the sea turtle and marine mammal pools. The marine mammal standard is less than 1000 coliform bacteria/100ml of water. Our test distinguishes between general

coliform bacteria (mostly Gram negative rods) and *E. coli*, the universal human fecal bacteria, they are selectively stained blue. While some strains of *E. coli* are dangerous and some outright

frightening, we live with a sea of *E.coli* inside of us and they are for the most part good neighbors. Reptiles are not universally steeped in *E. coli*, so when small numbers of *E. coli* were detected in the cooter tanks I assumed we were not washing our hands and food well enough when cleaning and working with the new cooter tanks. We started to do a microbial wash of the lettuce, and did I mention hand washing ? But the bacteria persisted. We split the cooters into two similar tanks and only one tank tested positive. My interpretation, we may have a shedder, a cooter colonized by *E. coli*. From a veterinary stand point colonization vs infection is a critical determinant, as all of the cooters appeared healthy. By the process of segregation and testing it would be a simple procedure to see who (or whom) our little culprits were, but with total numbers controlled and no known or visible pathology we bundled our cooters back into 1 group. While I pondered if there was any action required on my part, the *E. coli* silently disappeared from our coliform counts. So was it the increased hygiene ? spontaneous clearance from the GI of one or more cooters, I guess we'll never know for sure. Oh well. Some read the future in tea-leaves, I have, for better or worse leaned an arcane art that studies different matter.

Under the Microscope:Crassicauda of the SQ **if you ever wondered about the pathology of this uniquely cetacean parasite**

Some biopsy samples from a common dolphin tissue with a suspected *Crassicauda* infection were evaluated and we were able to confirm the infection by the egg morphology, host, and location. While the actual worm was not found in the samples examined, evidence of their presence is abundant, and much like the spirorchid pathology it seems to be the eggs that incite the pathology.



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