

Rounds

Animal Health
Department
Medical Rounds

"medicine for all"



Caring for Stranded Marine Animals

NATIONAL
MARINE
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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.

Jan 24, 2012

Rounds Notes

1: 1-4 (2012)

Headlines News: Three little cooters

Reving up their metabolism

The three cooters with metabolic bone disease are growing well and continue to improve. I have up'ed their calcium and lettuce allotment with Reptomin®. Additional radiographs were taken to monitor their progress and minor changes were noted, but over-all they are doing well and should be ready for a spring release. Their pelvic canals are more clearly seen and I have less concern for one of these cooters suffering from egg binding in the wild (if any are female). Pierce has a small shell lesion that we are cleaning and treating topically with SSD.



Bruce: DV radiograph: bone density is still soft with loss of individual definition of vertebral column in the mid-body but the overall best mineralization of the group, the shell is most defined of the three cooters and there is less distortion of the phlanges. Minute linear densities in the periphery of the body cavity can be ingested calcium or small areas of dystrophic mineralization. Lungs and other soft tissue look good, shell is still soft of improved.

A: improved MBD, changes are present but should not preclude release in an aquatic reptile, there is less concern for egg-binding if this cooter is female.

Pierce: DV radiograph: bone density is still soft, misalignment at small joints such as LH D's 1, 2,3,4 P(2-3) or 3-4, and RH D's 2-4 P3-4 loss of individual definition of vertebral column in the mid-body. Possible folding of the L mid-fibula. Minute linear densities in the periphery of the body cavity can be ingested calcium or small areas of dystrophic mineralization. The coracoid and pelvic girdle look improved. Lungs and other soft tissue look good, shell is still soft of improved.



A: improved MBD, changes are present but should not preclude release in an aquatic reptile, there is less concern for egg-binding if this cooter is female.

Vesuvius: DV radiograph: bone density is still soft, misalignment at small joints such as LH D's 2,3,4 P3-4, and RH D 1 P2-3, D's 2-4 P3-4, loss of individual definition of vertebral column in the mid-body, fusion on the RH tarsus, folding of the LF humerus and some pinching of the coracoid apparatus/ pectoral support. Lungs and other soft tissue look good, shell is still soft of improved.

A: improved MBD, changes are present but should not preclude release in an aquatic reptile, there is less concern for egg-binding if this cooter is female.



Clinical Update: Getting Caught Up tissue enzyme elevations argue for caution

We have suspended Catch-22's fungal treatments with topical amorolfine 5%, and oral itraconazole due to elevation of a few tissue enzymes. In cooters that's about all I can say. We have the origin of serum enzymes mapped out pretty well in cats and dogs, and they have it down to a science with iso-enzyme specification in humans, but, well, cooters are always the last to benefit from modern veterinary advances in serology. The process is thus, tissues (liver, muscle, heart, etc.) each produce specific enzymes necessary for their diverse duties, proving strength and locomotion (bone and muscle), circulation (lungs and heart), and aiding with digestion/ detoxification (liver, pancreas), and if these organs are stressed, injured, very active or damaged, some of these enzymes leak into the blood where we can measure them. Sometime we are measuring a local effect, such as the actions of just taking blood, or we can detect more systemic effects. In this case the AlkP, AST, CK, and LDH were all elevated from previous values. In a cat a disproportionate increases in AlkP over AST or ALT (which was normal in this case) would argue for biliary disease (yes, cooters have a gall bladder), in cows an increase in LDH makes me think of liver problems, in cooters it's a little harder. AlkP may also come from bone which we know have higher activity in a head-start environment, and thus increased enzyme activity which can be an indicator of activity not just damage. These could also indicate liver problems associated with the medications we are using for the anti-fungal treatment (remember that TV commercial where you were assured that the doctor will check for liver problems with a simple blood test while you take your cholesterol lowering medication? well, these are the tests). Enzyme elevation is also not a indicator of function, in humans, cats and dogs (a perhaps not seals) more specific organ function tests are available such as a bile acids panel for liver function. Or their is good evidence that these values may be normal or at least typical (Innis, Tlusty et al. 2007) and while there is an upward trend in several parameters nothing too much may be going on.

Anyway, we've taken a therapeutic break and we recheck the values before continuation of the therapy.

| | date | Nov 17, 2010 | Aug 18, 2011 | Jan 6, 2012 | |
|-------------|--------|--------------|--------------|-------------|-----|
| | time | | 10am | 9am | |
| | lab | IDEXX | IDEXX | IDEXX | |
| | doctor | Williams | Williams | Williams | |
| | tech | kate | Williams | Williams | |
| ALKP | U/L | | 203 | 81 | 324 |
| ALT | U/L | <3 | | 5 | 6 |
| AST | U/L | | 36 | 39 | 64 |
| CK | U/L | | 181 | 356 | 375 |
| LDH | U/L | | 158 | 265 | 396 |
| ALB | g/dl | | 0.9 | 0.1 | 0.6 |
| TP | g/dl | | 2.4 | 1.1 | 1.9 |
| GLOB | g/dl | | 1.5 | 1.0 | 1.3 |
| CHOL | mg/dl | | 43 | 0 | 32 |
| GLU | mg/dl | | 67 | 44 | 59 |
| Ca | mg/dl | | 8.2 | 6.9 | 7.4 |
| PHOS | mg/dl | | 4.3 | 1.8 | 2.4 |
| K | mEq/L | | 3.8 QNS | | 3.3 |
| Na | mEq/L | | 137 QNS | | 138 |
| A/G | | | 0.6 | 0.1 | 0.5 |
| URIC | mg/dl | | 0.8 | 0.5 | 0.2 |
| entered by: | | crw | crw | crw | |
| hemolymph | | | | | |

Under the Microscope:

For those of you looking for a little marine mammal parasitic quiz please tune into the National Marine Life Center's new Marine Mammal Parasite of the Month @ <http://nmlc.org/2012/01/marine-mammal-parasite-of-the-month>

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Bibliography

Innis, C. J., M. Tlusty, et al. (2007). "Hematologic and plasma biochemical analysis of juvenile head-started northern red-bellied cooters (*Pseudemys rubriventris*)."
J Zoo Wildl Med **38**(3): 425-432.

The Massachusetts population of the northern red-bellied cooter (*Pseudemys rubriventris*) is listed as federally endangered due to its extremely restricted geographic range and low population. A captive rearing program has been used since 1984 to augment the population. Blood from 30 juvenile specimens from three rearing institutions was collected prior to release, and hematologic and plasma biochemical data were analyzed. Results were generally consistent with previously published data for other species of the family Emydidae. Basophils were the most numerous type of leucocyte. Results for some values varied significantly between institutions, possibly due to unrecognized differences in husbandry at each facility.

Fungal Treatment Quiz: Can you tell which side of Catch-22 has been treated with 5% amorolfine lacquer ?



Email me and I'll tell you if your *right*.