

Clinical Notes - Individual Specimen Report
BURNET PARK ZOO

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Scientific Name: ELEPHAS MAXIMUS (no subsp)           Accession #: M00014
Common Name: Asiatic elephant                         Female
Name: Preya                                           Birth: 10.Feb.2000
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.....2000...

15.Feb.2000

Visual exam and palpation of umbilicus. No problems noted, skin wound appears to be healing well. No abnormalities noted on palpation. Continue 1:4 dilution of Nolvasan solution as flush until 2/17 then reassess wound. (GK)

17.Feb.2000

Weight: 134.8 Kg (297 Lb)

Hx: Monitoring of closure of umbilicus. BW=297 lbs
Proc: Examination while sleeping. The skin is closing nicely and there is a 2 cm gap still opened with some greyish material over the edges. Last monday, the gap was about 5 cm long, good progression of healing.
Plan: Continue to flush twice a day until closed. (NAM)

21.Feb.2000

BAR and nursing well, passed white "rubbery" mucoid material at the beginning of urination this morning. Sample collected directly from labia by keeper (clean sample). Taken to lab for analysis. Difquik revealed epithelial cells and a few neutrophils. Gram stain revealed gram positive cocci only.
Plan: Collect free catch urine sample as soon as possible. rule out urinary tract/ vaginal inflammation or infection. (GK)

22.Feb.2000

Weight: 147.7 Kg (326 Lb)

Hx: Monitoring umbilicus closure. Body wt 325 lbs.
Proc: attempt to visualize umbilicus. Failed because of activity level. Palpation revealed small 1.5 cm scar possibly closed umbilicus.
Plan: discontinue flushing, re-evaluate 2/24 (NAM)

24.Feb.2000

Hx: Keepers continue to note intermittent mucus in urine during urination. She is otherwise BAR. Continues to gain weight.
Proc: Voided urine sample sent to Cornell for urinalysis. (NAM)

7.Mar.2000

Hx: ~~Romani has marginal iron levels on last chemistry panel. Preya has levels at lower limit. BW today was 360lbs.~~
Plan: iron dextran injection to increase iron levels
Tx: 1mg/kg IM (360mg) in left triceps with small amounts of DMSO topically.
Plan: monitor site of injection for swelling, redness and pain.
Monitor for lameness. (NAM)

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9.Mar.2000
Keepers report no lameness or pain from wednesday's injection.
(NAM)

14.Mar.2000
Preya was taken for a walk outside the enclosure this morning with the adult cows. Sometime during the walk she sustained an injury to D4 on the right rear foot. The cuticle area around the nail is contused, with the dorsal portion of the nail being avulsed from the surrounding skin. The wound is approximately 5mm deep and extends completely along the nail bed. There was no hemorrhage present on examination. Tx: tetanus antitoxin 1500 IU SQ (just caudal to the left ear); Rx: spray affected area with chlorhexidine solution t.i.d. using a forceful stream from the spray bottle. Consider giving tetanus toxoid in 48-72 hrs. (GK)

16.Mar.2000
Hx: injury to nail from D4 right rear foot. Lameness has not increased. However Kirina stepped again on the foot and Preya was tender on that leg, holding the foot up intermittently. Keepers are succesful in keeping the lesion very clean by flushing.
Obs: the nail is more separated from the underlying tissues forming a pocket of about 2-3cm deep. There is no material accumulated in the pocket and no swelling is noted around the nail. The nail is still attached by the bottom pad and along half the length of its sides.
Plan: discussed with keepers, they will continue to monitor the condition of the nail and when and if necessary will trim it to avoid tearing of normal tissues. Monitoring of the foot will help determine if infection is starting. Will conitnue to flush as much as possible to avoid buildup of debris/sand/hay. (NAM)

20.Mar.2000
~~Hx: injury to right rear D4 nail. The nail is now hanging from only the pad and risk being pulled and tearing the pad if caught.~~
~~Obs: no swelling around the nail bed, no pain except when the nail is handled. No lameness seen. There is no material building up between the nail and the underlying structures.~~
~~Proc: keepers will try to cut progressively the nail to avoid accidental tearing and damage to the pad. Lidocaine 2% was given to spray topically, wait 10 minutes. Although it may not be effective for deeper structures, it may possibly help with the nail bed.~~
~~Proc: keepers applied 4.6ml of lidocaine to toe. After 15 minutes she was rubbing her toe without discomfort. The nail was cut off at the base of the pad. No bleeding was noted. The base of the pad that was still attached to the nail appears necrotic. Keepers will continue to observe, and trim if necessary. (NAM)~~

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21.Mar.2000

Hx: nail injury and avulsion of the entire nail of D4 from RR foot. The nail bed appears healthy. Dried skin and tissue surround the exposed tissues. No evidence of infection. The edges of the pad are ragged, but no debris is building up. Continue to observe and trim as necessary. (NAM)

.....2001...

20.Feb.2001

Hx-Annual vaccinations. Vaccinated with rabies (1 ml Imrab IM) on right triceps and tetanus toxoid (1 ml IM) on left triceps. Vaccination area was prepped by scrubbing it with chlorhexidine and alcohol. DMSO was applied to the area immediately after vaccination. This animal has not been trained yet for trunk washes, but as soon as the training is complete, she should be tested for Mycobacterium. (SF)

6.Mar.2001

Preya will begin desensitization to chaining in preparation for the birth of Targa's baby. She will need to be chained with the others because she will be in an area with Siri. If this does not go well, other alternatives are being considered (ie: alternate locations for Siri, etc.) Preya has been wearing her chain "anklet" for the past week or so without any problems. She is also lifting her rear leg(s) well for keepers. (KW)

18.Mar.2001

Preya's boli contain alot of sand. The boli are breaking apart upon impact. Training continues (led around, lifted feed, light rope work). (KW)

9.Oct.2001

Elephant Herpesvirus testing:

2ml of whole blood EDTA or Heparin, send on ice packs overnight

Laura Richman, DVM
John Hopkins School of Medicine
1650 Orleans St
Building CRB 316
Baltimore, Maryland 21231
410 955-8682 (NAM)

26.Oct.2001

Keeper report: tusks are almost at the point of breaking through. Very sensitive. (KW)

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.....2002...

22.Feb.2002

History: Beginning of annual physical and testing

Procedure: First trunk wash was performed using 60ml of sterile saline. Sample was submitted to NVSL for TB culture. (NAM)

26.Feb.2002

Proc: second trunk wash was performed today and submitted for TB culture at NVSL (NAM)

1.Mar.2002

Proc: third trunk wash was performed today and submitted for TB culture at NVSL; blood was collected for CBC/chem panel, vit. E and selenium levels. (NAM)

12.Mar.2002

Final phase of annual physical examination: Rabies and tetanus toxoid vaccines
The skin was surgically prepped and rabies (ImRab) 2cc was given IM in the right triceps, and tetanus toxoid 2cc on the Left triceps muscle. Both injections were followed by an application of DMSO to prevent swelling at the injection sites.
Plan: monitor the sites for swelling and pain. (NAM)

7.May.2002

Trunk Wash TB culture results:
Samples submitted 2/22/02, 2/26/02 and 3/1/02 all negative. (NAM)

1.Nov.2002

Ongoing discussion relating to disparate Vitamin E levels in the elephant group prompted a phone conversation with GVK and Dr. Ellen Dierenfeld at (ED) the Wildlife Conservation Society's Comparative Nutiriton Laboratory. ED's recommnedation for supplementation of d-alpha tocopherol (Emcelle-Purina) is approximately 1 IU(mg)/kg/day, which is much less than the 6 and 12mg/kg dose that has been offered to the female elephants and to the bull respectively. The WCS range for plasma Vit E levels in normal elephants is 0.5-1.0 micrograms/ml.RGZ cows range from 0.75-1.3 microrgrams/ml and the bull has ranged from 0.00-0.73 microrgrams/ml, depending on the laboratory that has been conducting the analyses and the total daily dose of Vit E that has been offered. Based on the information provided by ED, RGZ elephants are receiving 3-13 times the dose that may be required. ED went on to state that the RGZ bull (weight approx. 10,500 lbs or

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1.Nov.2002

4772kg) should only need approximately 5000mg(IU) total dose of Vit. E/day. ED stated that there are disparities between laboratories relative to results obtained for plasma Vit E levels in animals. As an example, the Michigan State University Nutrition Laboratory's values are often 2x's greater than those values obtained by WCS Compative Nutrition Laboratory. ED postulated that if we decrease the dosage of Vit E in the elephants, that the plasma levels may not be significantly altered (decreased) for up to a year, or may not be decreased at all as long as oral supplementation continues. Plan: 1)NAM will query Zoo Med Network to obtain information concerning the doses of Vit E that zoos are using for their elephants and the range of plasma levels that have been obtained over various time periods of continuous supplementation. Additionally, information will be attained relating to potential differences in these values between males and females 2)Consider decreasing the daily dose of Vit E in all elephants to 1-3 IU(mg)/kg/day.3)Concurrent with the changes in the doseages, we need to develop an protocol for blood sampling for Vit E analysis. In order to sort out some of the disparities described above, each sample should simultaneously be sent to 1-3 different laboratories. KW and CD need to discuss costs for the analyses (as an example, the WCS lab can run the assay and charges \$10-15/sample). (this entry has been copied to the clinical notes of all other RGZ elephants and dated 10/31/02). (KW)

.....2003....

7.Jan.2003

Keeper noted that she was tearing from her right eye on Friday, Sunday, Monday, and Tuesday. She is not painful or irritated. Plan: John was given eyestream solution to clean the eye and triple antibiotic ointment to apply as needed (NAM)

3.Mar.2003

Hx: no ongoing medical problem; annual physical examination and TB testing
Water was withdrawn for 2 hours prior to procedure. Trunk wash #1 performed with 60ml of Saline and submitted for mycobacterial culture to NVSL (NAM)

5.Mar.2003

Second trunk wash submitted for tuberculosis culture to NVSL. (NAM)

6.Mar.2003

Attempted blood draw from ear. She was very good but vein is hard to hit (lots of skin over vein). Keepers continue to practice with her. (KW)

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7.Mar.2003

Third trunk wash submitted for tuberculosis culture.
Rabies vaccine (2 ml) in right triceps.
Tetanus toxoid (1 ml) in left triceps. (GK)

10.Apr.2003

Hx: Keepers reported Preya has been ingesting sand when placed on the outside exhibit. Today keepers have seen her ingesting a piece of asphalt. By the end of the morning she passed feces with sand.
PE: Preya is QAR. Auscultation of the GI tract revealed normal peristaltic sounds. A rectal exam was performed. Several normal and sandy boli were removed. No abnormalities were noticed on palpation of accessible structures. An enema was performed using 4-5 gallons of warm water with the animal passing a small amount of normal feces. Blood was collected for equine chemistry panel. Plan: allow Preya to walk freely tonight inside and have full access to water; offer her 2x the normal amount of wet bran and hay only overnight; observe the consistency and amount of boli passed overnight; John M will come in at 9PM to check Preya and have night keeper check on her throughout the night; JM to give lmg/kg or 24 ml (est wt 1,181) of Banamine if Preya is very uncomfortable and call Dr.K; RC or TC to collect blood for CBC or minimally PCV/TS AM Friday; Dr. K will call in the morning for a progress report and revise the plan if necessary. (GK)

11.Apr.2003

Preya was reported yesterday to be acting colicky. The Vet was informed and a rectal was performed as well as a warm water enema. Blood was collected, enough for a Chemistry panel. She was watched closely overnight for further signs of Colick. Keepers report that Preya remained quiet and "mopey" overnight and into the morning, but no further signs were noted. Preya's fecal output is less than normal, but her urine output remains good.
This morning, keepers report no real change in Preya's attitude or fecal output. They report her to be slow moving, and remaining "mopey". Another blood sample was taken for a CBC (performed in-house, as well as being sent to Cornell) and a urine sample and fecal sample were collected (also performed in house and sent to Cornell.) The fecal sample was negative and the Urine sample had no significant findings other than the dipstick showing blood in the urine. She is eating slow, but well, consuming 100% of the bran the keepers are offering her, as well as apples. She is reported to be finicky with her hay. At the end of the day the keeper noted that her tongue had slight color changes, lower toward the tip of the tongue with some purplish spots. Dr. Kollias was kept informed of all changes with Preya and is researching possible causes and/or treatment

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12.Apr.2003

Specific gravity was 1.028 (or 1.030 at Community hospital), few casts were seen, RBC mild, few WBC, many bacteria (but free catch in hand) and some amorphous material (with suspicious spirochete morphology). The Community Hospital analysis failed to confirm Leptospirosis organisms.

Assessment: her present condition could be due to:

- sand colic or partial impaction
- herpesvirus infection (although her signs are mild)
- side effects of famciclovir (including nausea, anorexia, headaches etc..)
- possible renal disease (such as leptospirosis)

Based on today's clinical findings, we elected to give:

- 1- Banamine 0.5 mg/kg, depending on response to be given every 12 hours IM
- 2- Continue Famciclovir but decrease dose to 10mg/kg TID rectally
- 3- Procaine Pen G: 22,000UI/kg (90ml) SID IM
- 4- Metamucil is considered superior to bran for evacuating sand in GI; her dose is 1kg q6-24 hours (mixed with 8-16 liters of water, mixture gels up rapidly and should be ingested promptly)

Around 3:00 more urine was passed; this sample was cloudy but still dark gold colored.

Blood collected will be submitted to

- 1- PCR herpesvirus
- 2- Leptospirosis serology (full large panel)
- 3- If serum is still available chem panel

6 more fecal boli were passed at the end of the day; they were moist and contained very little sand.

Plan: treatment as described above; collect urine daily and evaluate analysis

Discussion with Dr T. Divers at CU: based on the description Preya may be having a sand impaction or sand colic. If HR is high, think Small bowel; if HR is normal, then it could be in the stomach or colon. If abdominal tap is elected, it should be performed with ultrasound confirming free fluid in abdomen. Metamucil is better than bran; dose is 1g/kg. Her dose is about 1 kg to be mixed with 8-16 liters of water. IV fluids: about 4 liters per hour will allow for rapid expansion of vascular system and increased fluids to the gut (LRS or normosol good but add KCl). Do not give butorphanol; banamine dose should be 0.5mg/kg BID to allow complications to stay unmasked. Monitor heart rate.

Laura Richmond's telephone numbers: (240) 632-4741 (office) or (410) 491-2294 (cell) (NAM)

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14.Apr.2003

Bloodwork and urinalysis results (collected on 4/11):
 Urinalysis: yellow, cloudy, pH 5.0, 1+ protein, 1+ glucose, 3+ blood,
 specific gravity 1.030.
 CBC: mild mature neutrophilia 8.4 thou/ul (2.5-6.9) and mild
 lymphopenia 1.3 thou/ul (2-10). Remainder within normal limits.
 (SC)

16.Apr.2003

Fecal parasitology (collected 4/11): no parasites detected.
 Aerobic culture and Salmonella culture still pending. (SC)

18.Apr.2003

Results on fecal culture for large animal enteric pathogens
 -Aerobic culture- no significant organism
 -Campylobacter jejuni, Salmonella and Yersinia cultures-negative
 (GK)

23.Apr.2003

Note:
 Preya's heart tissues were unequivocally very positive for Elephant
 Herpesvirus with PCR. The serum submitted from Karina, Mali, Preya,
 Targa, and Romani yielded nebulous results on the ELISA. The cut off
 level is still unclear and the samples were all in the grey zone.
 According to Dr Richman, these results are low compared to other
 institutions which experienced an outbreak of this disease.
 - We will get serum samples from Siri and Indy today and submit them
 tomorrow.
 - Results from serum samples from March are still pending.
 - In 2 weeks we will collect samples from every one and submit for
 another ELISA
 - Once the ELISA is perfected, we can retrospectively study the
 elephants' serum around the time that Targa had her stillbirth.
 (SC)

15.May.2003

HX: TB tested via trunk washes (#2 and 3) on 3/7/03, and 3/5/03
 culture send to NSVL, were negative. (NAM)