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## Clinical treatment of a leg problem in an adult bull elephant

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An adult bull elephant at Mikumi National Park, Morogoro, Tanzania, was reported to have a swollen left foreleg, which made it difficult for the animal to walk. The animal was emaciated, it could not feed and drink normally, and it did not put full pressure on the swollen foreleg when walking. We attempted to determine the cause of the problem through clinical and laboratory examinations.

The animal was immobilized using a combination of 12 mg etorphine and 40 mg azaperone administered using a Telinect® (USA) dart gun. Detailed clinical examination showed a stiff carpal joint that was permanently contracted. Manual flexing was impossible. An attempt to aspirate from the joint produced bloody fluids. The left foreleg was grossly enlarged compared with the right foreleg with the circumference of the left carpal joint some 18 cm larger than the right carpal joint. Haematological values showed a marked leukopaenia (decrease of the total white blood cell count) with a relative neutrophilia, lymphopaenia and monocytosis (table 1). This would be consistent with an animal in poor condition suffering from nutritional stress with perhaps a severe chronic infection. Although definitive diagnosis was

not possible, the case was tentatively considered as chronic arthritis based on the facts that the condition involved a joint and the joint movements were greatly altered.

Both antibiotics and anti-inflammatory drugs are indicated for treatment of foot pathology. Domestic animals having this type of ailment are usually treated using analgesics and anti-inflammatory agents for a considerable period, and rested (Fraser 1986). However, this is not possible with free-ranging wildlife. The elephant was treated using a combination of an anti-inflammatory agent (dexamethasone; Dexacotyl,® Coophavet, France) and a long-acting antibiotic (oxytetracycline; Oxyject,® Dopharma, Netherlands). The anti-inflammatory agent in this case was useful for reducing soft tissue swelling and providing analgesia. It has been shown that in an elephant, lack of mobility has serious consequences not only for the foot but on the animal's health in general. The compression and relaxation of the digital cushion serves an important function in pumping venous blood from the foot on its return to the central nervous system (Fowler 2001). Early ambulation for this elephant was therefore important.

Table 1. Haematological values of an elephant with swollen left foreleg compared with known reference values

Parameter	Case value	Reference values <sup>a</sup>
Total red blood cell count	2.4 x 10 <sup>6</sup> cell/μl	3.77 ± 0.25 x 10 <sup>6</sup> cell/μl
Total white blood cell count	1.95 x 10 <sup>4</sup> cell/μl	11.4 ± 0.98 x 10 <sup>4</sup> cell/μl
Packed cell volume	37%	—
Haemoglobin concentration	7.62 g/dl	7.04 ± 0.44 g/dl
<i>Differential leukocyte count (%)</i>		
Neutrophil	33	20.2 ± 0.6
Lymphocytes	50	69.1 ± 1.9
Monocytes	16	8.2 ± 0.03
Eosinophil	1	1.3 ± 0.03
Basophil	0	0.1 ± 0.08

<sup>a</sup> After Debbie and Claussen (1975)

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When using antibiotics on elephants, zoo veterinarians generally administer either an equine dosage extrapolated by a metabolic or allometric scaling technique or a dosage based on pharmacokinetic research (Mortenson 2001). The doses used in the present case were therefore empirically derived from manufacturer recommendation. A dose of 6 mg/kg (150 ml) of dexamethasone (recommended dosage for domestic animals ranges from 2 to 10 mg/kg) and 8 mg/kg (200 ml) of oxytetracycline (recommended dosage for domestic animals ranges from 10 to 20 mg/kg) was therefore administered. Dexamethasone was injected intravenously through the ear vein while oxytetracycline was administered by deep intramuscular injection below the base of the tail. Ten days after treatment, the animal's gait was reported to have improved, and it was foraging and had moved to a waterhole, which it had not been able to do before. We had planned to re-examine the bull's health status but it disappeared and we could not retrace it.

Leg problems are not uncommon in free-ranging elephants (Kenya Wildlife Service, pers. comm.), and when they occur they normally bring about death. They can result from being hunted—with bullets, spears and arrows, or snares—or from natural injuries such as from thorns. Young elephants appear susceptible (Richard Kock, pers. comm). As many cases likely go unreported, the incidence of leg problems in free-ranging elephants in Tanzania is unknown, although leg injuries are thought to be one

of the more common causes of death in a population. We therefore recommend that the appropriate authorities collect data on this aspect of elephant health.

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## References

- Debbie, J.G., and Claussen, B. 1975. Some haematological values of free-ranging African elephants. *Journal of Wildlife Research* 11:79.
- Fraser, C.M. 1986. *Merck veterinary manual: a handbook of diagnostic, therapy and diseases prevention and control for a veterinarian*. Rathway, NJ: Merck.
- Fowler, M.E. 2001. An overview of foot condition in Asian and African elephants. In: C. Blair, E.L. Sargent and U.S. Bechert, eds., *The elephant foot: prevention and care of foot condition in captive Asian and African elephants*. Iowa State University, Ames, Iowa. p. 3–7.
- Mortenson, M. E. 2001. An overview of foot condition in Asian and African elephants. In: C. Blair, E.L. Sargent and U.S. Bechert, eds., *The elephant foot: prevention and care of foot condition in captive Asian and African elephants*. Iowa State University, Ames, Iowa. p. 141–144.