Recovery of an Elephant Calf from Articular Fracture

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Introduction

Asian elephants occasionally break a leg when working and may have to be destroyed. If the injury is a simple fracture, however, the ends of the bone will often knit if the animal is rested for about 3 months. Such a leg fracture occurred in the case of an elephant calf 'Deepa' in Assam State Zoo cum Botanical Garden, Guwahati, and was treated effectively by using locally available resources and proper care. The elephant calf recovered and is walking normally.

The calf of an Asian Elephant (*Elephas maximus*) was rescued at the age of about 15 days from Deepar Beel by Assam State Zoo, Guwahati, on 5 September 2000. The female calf suffered from "navel ill" and "opacity of left cornea" initially. The daily diet of the calf included feeding with milk 8-10 times, bread, banana fruit (*Athia Kol*), grass and calcium supplements.

On 1 November 2002 the calf was reported to be suffering from lameness of forelegs, later confirmed as 'Anasarca' due to which the calf could not bear its own weight of about ½ a tonne. However, continuous treatment with Pepsid I/M 5 ml injection, Melonex (analgesic) 7.5 ml given intramuscularly, additive calcium and minerals, calcium injection 10 ml, Sodisalicylus 3 g in 20 cc distilled water intravenously, Proteinex supplement, Rumilac bolus, Diclofenac 8 ml, Calphos and Fumitone syrup brought about improvement. Intramuscular injection with Penidure LA 24 was also administered to prevent infection.

On 13 February 2003, the same calf slipped down from a hillock, approximately 20' – 25' high and could not stand since then. Though the diet intake was normal, the calf always preferred to remain in lateral recumbency position and efforts to bring the calf to sternal recumbency position proved futile.

Materials and Methods

Treatment was initiated in the form of Rinstose (450 ml X 6 bottles), Dexona (5 ml X 3) and Novalgin (30 ml X 4 – 15 ml I/M daily) and Dicrysticins. As the calf preferred to remain in lateral recumbent position, a 'sling' was made by using local materials like rope and gunny bags to lift the calf to a standing position and sternal recumbency by using chains and pulleys tied to an iron structure, designed for the purpose.

The animal was lifted twice daily, regularly by using this mechanism. Though the calf was comfortable initially in this position, it could not stand for a period exceeding an hour without painful cries.

Saline was administered regularly to supplement the diet intake which was reduced in due course.

The diet included milk, slices of bread and *Athia Kol* at times. As there were no signs of recovery, it was decided to radiograph the limb, though no facilities existed in the Zoo for the purpose. With great difficulties, an X-ray machine was ultimately managed from Dispur Poly Clinic, Ganeshguri, Guwahati and the calf was X-rayed in the Zoo at about 8.30 P.M. on 28-2-2003 and the reports revealed the condition to be of an articular fracture of the right tibia near the stifle joint. The X-raying effort was the first of its kind in Assam State Zoo. X-ray reports of right fore leg and left hind leg revealed normalcy. As a future course of action, temporary immobilization and plastering of the right hind leg was done on 1-3-2003 by using cotton and bamboo splints. To protect the calf from cold weather and mosquitoes, special care was ensured in the form of fire regularly, and provision of mosquito net.

Result and discussion

The experts from College of Veterinary Science, Khanapara visited the calf on 6-3-2003 and appreciated the immobilization work done. They removed the bandage to examine the leg and remarked that there was improvement and again temporarily immobilized the affected leg by using the same procedure/mechanism. Lateral recumbent position of the calf resulted in development of bed sores over the body. From 5-3-2003, treatment was continued in the form of Cefatox (2g X 20 vials, distilled water 5 ml X 50) 2 vials twice daily for 5 days, DNS (500 ml X 40 bottles) 4 bottles twice daily for 5 days, Biviral Forte (10ml x 5) 1 vial I/M injection daily for 5 days, regular dressing with Betadine, application of fly repellant and Dexamethasone 5 ml I/V prior to DNS. Further, the stifle joint of left leg developed ankylosis and abnormal soft callus formation occurred in the fractured area of the right leg. However, regular lifting of the calf with sling and netting, intermittent change of the animal position during lateral recumbency to avoid further aggravation of bed sores and regular dressing of the wound helped in quick recovery.

A news item in the Journal of the American Veterinary Medical Association (1980) describes an adult circus Asian Elephant that sustained a fracture of the tibia and fibula. Surgical repair was elected and a steel plate was applied to the fracture site. The Elephant was weight-bearing post-operatively which caused the plate to bend and necessitated the addition of an external metal brace. The plate was removed at four weeks and an external splint was applied. At 3 months the elephant was non-weight bearing on the opposite hindleg, the callus at the fracture site had broken down, and the animal was euthanized (Mikota *et al.,* 1994).

An intramedullary pin was used to repair a humeral fracture in a four year old Asian elephant (Jarofke, 1981). The report focussed on the anaesthesia regimen but the pin was removed at a subsequent date so it was presumed that the fracture had healed.

Although fractures in very large animals are usually associated with a poor prognosis, several successfully

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treated cases in elephants have been reported. Oosterhuis and Nelson (1981) used a cast to immobilize a simple fracture of the distal one third of the tibia and fibula on an adult female African elephant. A water activated poly urethane cast was attached to a stainless steel pin that was driven transversely through the proximal tibia. The cast extended from the stifle to the foot. Two longitudinal straps were incorporated into the cast on the medial and lateral sides. Four cast changes were required and the fracture was completely healed by 15 weeks.

Often in the case of simple fracture in Asian elephants, the ends of the bone will knit if the animal is rested for about 3 months. Dislocations are also known but such cases are hopeless, since it is impossible to reset the joint in such a powerful and usually uncooperative animal (Eltringham, 1982).

Evans (1910) has stated that fractures in elephants are very rare and when occur are usually due to external violence or falls, etc., Chances of recovery are good in simple fracture but if the animal shows no signs of recovery within 3 months, it should be destroyed.

In the instant case however, there was lot of discouragement from many quarters that the efforts would be futile and death of the calf is inevitable. However by ensuring round the clock care and attention of the calf as detailed above, the calf survived and is hale and healthy. The calf has since been shifted to its original place of hillock in the company of other Zoo elephants.

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