

Combination of Chemical and Physical Restraint to treat an injured Rhinocerosus in the Kaziranga National Park

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Kaziranga National Park (KNP), with its marshy alluvial expanse, shelters about 1200 Great Indian rhinos (*Rhinoceros unicornis*) which is the world's largest population in a single place. This population accounts for about two thirds of the world's population of this highly endangered species. It is a challenging task for the wildlife department to keep poachers at bay for the horn of rhino brings a high price on the international market. Even some of the rhinos which escape with gunshot injuries may eventually succumb to injuries if not spotted and treated in time.

The rescue and treatment of these injured animals presents great difficulties due to the limited resources available to the state wildlife department. Furthermore, an animal immobilized with strong narcotics like immobilin can easily drown in the marshy habitat. Sedating the animals with milder tranquilizers which permit them to retain the use of some reflexes and then the judicious use of physical restraint with trained camp elephants is a safer option.

On 16th Sept. 1996, an adult rhino was spotted near the Chagalibeel in the Burapahar (Ghoraman) range of the western boundary of the KNP. The rhino was limping as the result of a gunshot wound (1.5 cm in diameter) over the shoulder. The injury might have been inflicted by a poacher during the recent flood when many of the rhinos stray into the nearby Karbi-Anglong Hills, crossing the National Highway or the nearby paddy fields. The injured rhino was guarded by the forest department personnel until veterinary aid could reach him.

On 18th September 1996, our veterinary team reached the site in two canoes. The rhino was spotted at the bank of the marsh below a high tension electric tower. The area was under about 5 feet of deep water and the nearest bank was about 50 meters away. The bank was muddy and uneven caused by the foot marks of rhinos and elephants.

The rhino was approached by two large, well-trained camp elephants, Joyraj a tusker, and Devilal a makhna, both very robust and courageous. Initially, the injured rhino attempted to charge. On close observation, the rhino was found to be in distress and there was growth of blue-green algae on its back indicating that the rhino was constantly in the water for several days. The rhino apparently preferred to remain in the swamp due to difficulty in bearing its body weight on land.

With the level of resources and preparedness, the prognosis was considered to be unfavorable. Under the circumstances, the objective of the treatment was to dress the wound and remove the bullet if possible and subsequently inject long acting antibiotic and supportive drugs.

Though Immobilin has proved to be a safe, efficient and versatile immobilizing agent for rhinoceros, the authors decided against its use because of (i) the proximity to

waterbodies, (ii) poor physical condition of the animal, and (iii) because surgical anaesthesia was felt unnecessary for achieving these minor objectives.

With the help of these trained elephants, the rhino was driven out of the deep waters to the muddy bank. A total of 1500 mg of Xylazine (15 ml, 100 mg/ml) was administered using projectile syringe in a Distinject system in two shots (10 ml in the brachiocephalicus muscle over the neck and 5 ml in the quadriceps femoris muscle in the hind quarters). The rhino, lame as it was, responded with a jerk but did not run away. After 7-8 minutes, the head dropped, the animal emitted an audible snore and salivated. Trembling of the body and drop in the respiratory rate were also noticeable. After 14 minutes, the animal was lying on the ground in a lateral position. The animal was approached and examined after 20-25 minutes of darting and was found to respond to nociceptive stimuli.

Both the elephants were used to hold the rhino in that position on the ground. The tusker had the added advantage of his tusks with which he maintained moderate pressure over the back of the rhino and did not allow him to move.

The high velocity bullet had fractured the neck of the scapula with possible damage to the radial nerve, leading to extensor paralysis. The wound was oozing offensive smelling sanguinous pus. The wound was drained, dressed properly with Tincture of iodine. However, the bullet could not be located on exploration. Probably the bullet has pierced through the neck of the scapula and entered the thoracic cavity. Now a long acting antibiotic (Oxytetracycline LA, 12000mg) - 60ml and concentrated B-complex (Concplex-30ml) was injected intramuscularly.

The treatment procedure took about 40 minutes and on completion, the elephants released their hold on the rhino. A team of forest guards were placed near the rhino to protect it from predators and poachers.

Xylazine is not the drug of choice for immobilizing rhinoceros as it causes inadequate levels of sedation. Increasing dose only prolongs the duration of sedation and not the degree of sedation (Keep, 1973). Etorphine (M99), Etorphine plus acepromazine (Immobilon) and Carfentanil etc. have been used by various workers (Jenkins, 1978; Keep, 1981; Sale and Woodford, 1981; Allen et al. 1991). However, these drugs and their combinations cause complete immobilization of the rhinos, and if used in this case, could have led to accidental drowning. Therefore, a combination of Xylazine sedation coupled with the physical restraint provided by trained elephants allowed safe handling of the injured rhino.

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