

## **BRIEF DESCRIPTION OF WOUND MANAGEMENT IN ONE HORNED RHINOCEROS IN CAPTIVITY**

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Kanpur zoological park is presently having four rhinoceros in its pride collection. Due to excellent record in rhinoceros breeding, the Kanpur zoo has been recognised as participating zoo for conservation breeding programme by Central Zoo Authority. Usually the mating among rhinoceros is violent and female is chased by male before mounting with frequent infighting and biting. The act may last for hours before coitus which is also a long process and sometimes takes more than an hour. Therefore it's very common among rhinoceros to sustain injuries during mating. Fowler and Miller (2003) described that various traumatic injuries result from accidents and from fighting with other rhinoceros. Intraspecific fights often result in severe lacerations in the greater one horned Asian rhinoceros because of their well-developed tusks. Blunt trauma and abrasions may also result from fights and from hitting obstacles in the enclosure during fight reactions.

Skin injuries in the rhinoceros have been reported by Arora (2003) as abrasion and superficial wounds on the maxillary and flank regions. He also described that during transportation in 1984 rhinoceroses had traumatic injuries, which lead to abscesses formation and even one had died of septicaemia.

The Kanpur zoo born male rhinoceros Rohit aged around 25 years has an excellent breeding record. On one occasion, although the mating was successful but male rhinoceros sustained several injuries on abdominal, thoracic and cervical region due to infighting.

### **Treatment**

Initially the wounds were treated with spray of povidone-iodine, antimicrobial ointment and herbal antiseptic lotion and were responding well but after some day instead of healing, the wounds began to show frothy secretion along with some exudate. It was not possible to treat the wound without anaesthetics which was not possible in every dressing. Sedation could have resulted into the injuries, tympani and recumbency complications due to the large size and heavy weight of the animal.

Therefore a unique method was devised by the zoo veterinarians by using a half horse power water lifting pump, thick walled PVC/Rubber tube with nozzle and a large container of

around fifty litre capacity. Tube with nozzle was connected at outlet end of the water lifting pump and on other end i.e. inlet end a thick walled PVC/Rubber tube was connected. The other end of inlet tube was submerged into a large container containing 2% potassium permanganate and 4% povidone-iodine solution. The rhinoceros was taken into his night house and the wounds were washed with the solution daily for two days and then alternatively for three more occasions. In order to prevent flies an herbal antiseptic lotion was also applied on wounds after washing with above mentioned antiseptic solution and was continued for several days even after cessation of washing by potassium permanganate and povidone-iodine solution. The animal was also supplemented orally with sulphadiazine - trimethoprim bolus @ 16 boli per day for four days followed by cephalexin bolus @ 10 mg/kg body weight for five days along with metronidazole 10 gm. per day for four days in bananas. Apart from this supportive therapy with tissue modifier (Vitamin E and Selenium) was given intermittently. Wounds began to show healing after five washings and completely healed after one month.

## Discussion

As described by Fowler and Miller (2003) that thick skin of rhinoceros allows abscesses to undermine and become more extensive than immediately evident. Swarup *et al.* (2009) compiled data from 35 zoos of the last ten years that out of 358 deaths of rhinoceros more than 180 were due to wounds and infighting injuries. In our case too initial response was good and at one occasion wound seemed to be appearing healthy but the undermine biofilm was providing favourable condition for bacterial growth especially anaerobic bacteria which was



Photo-A.

Materials used

1. container
2. water lifting pump
3. rubber tube with nozzle
4. povidone-iodine
5. potassium permanganate

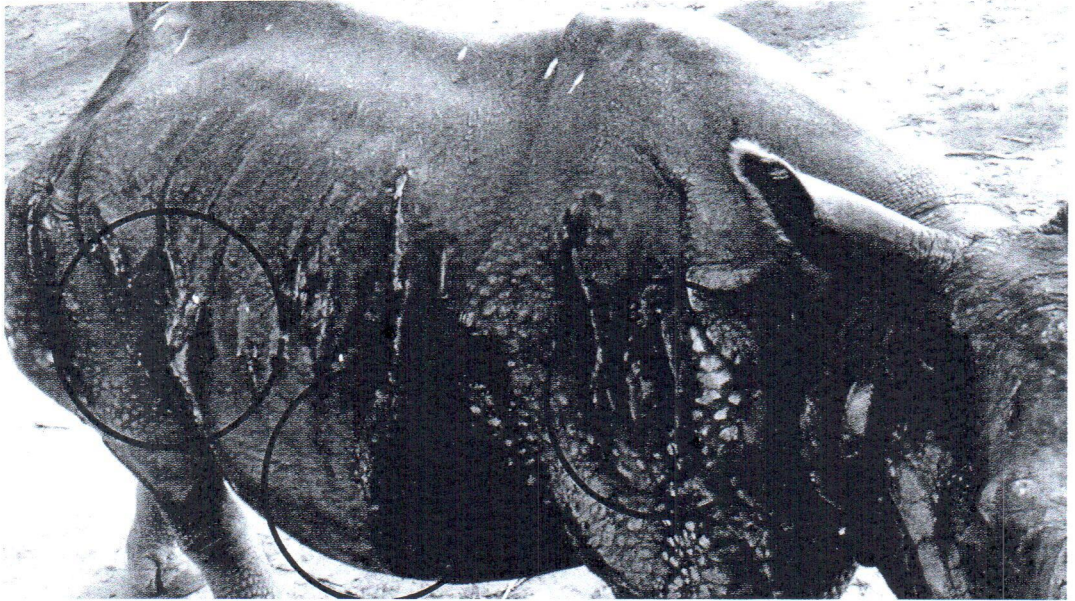


Photo-B. Application of antiseptic cream after cleaning of wounds.

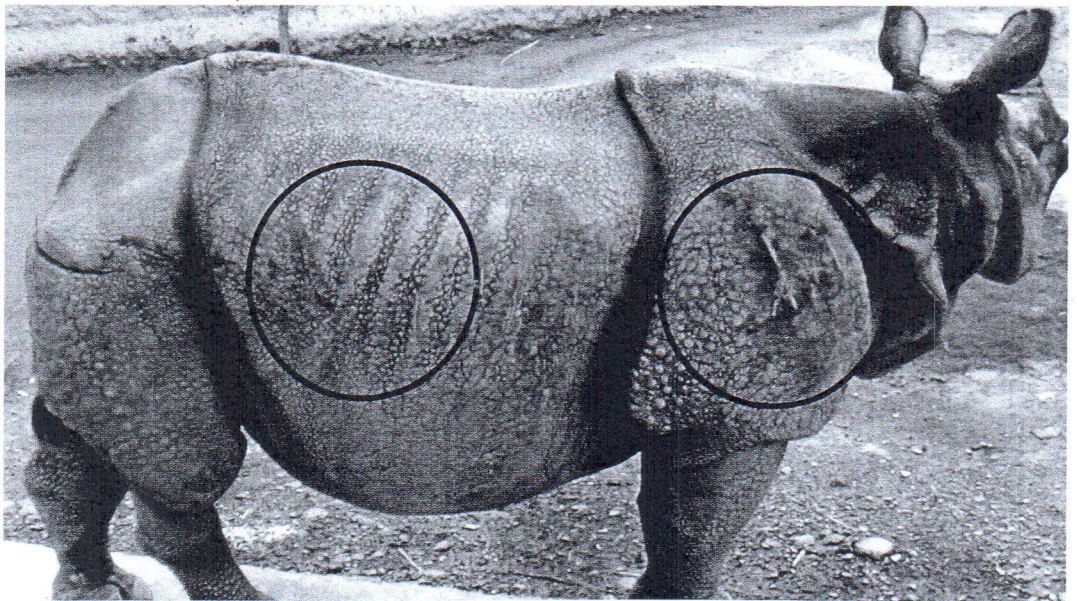


Photo-C. Healed wounds after treatment.

evident by frothy secretions from wounds. Removal of pyogenic layer from lacerated wound remains a challenge for the zoo veterinarians as it's not possible to sedate animal daily for dressing of wound especially mega herbivores. Hence the only option left to remove pyogenic layer was to make some arrangement in such a way that the animal could be approached from a distance. So above described method was devised and the pressurised solution which came out of nozzle was able to remove pyogenic layer and debris from wounds and also made a coating of solution which further prevented microbial growth. The nozzle tube could be used from a safe distance, in the instant case wall of the night house was used by the zoo veterinarians to pressure clean the wound with the help of above described method. Herbal lotion which was sprayed on the wounds helped in fly prevention and thus aided in healing. Antibiotic was changed to cephalexin and metronidazole (due to presence of anaerobes in the wound) because sulpha drugs being bacteriostatic might have not responded well due to occurrence of pus in the wounds which was not evident initially.

The method devised by Kanpur Zoological Park, Kanpur is very simple and the required materials are easily available in any hardware/machinery shop. Keeping in view the high mortality of rhinoceros due to wounds/injuries in the zoos, the method will certainly prove helpful in treating not only rhinoceros but other mega herbivores such as elephant, giraffe and hippopotamus.

### **Acknowledgement**

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### **References**

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