Results and discussion: Vasectomy in captive animals is reported in Giraffe (Vogelnest & Ralph, 1997), Chimpanzee (Hoffman *et al*., 2002) and in Lion (Vasanth *et al*., 2002) and is found to be a better alternative to other measures in controlling of breeding in captivity.

Black Bucks are very timid animals and unplanned attempt to tranquilize may results in severe causalities. Darting from behind a camouflage will help to a greater extent in tranquiling these animals without exciting them. A smooth induction of anaesthesia and recovery was noticed using ketamine HCl and xylazine HCl combination that varied form 150-325mg and 5-30mg depending on the estimated body weight.

Post-operatively, one of the animal showed unilateral swelling of the scrotum on second day that might have been due to accumulation of blood from a small capillary bleeding. Treatment with oral anti-inflammatory drugs for a period of five days brought back the condition to normal. Otherwise, all the animals recovered uneventfully.

Subsequent observation over a period of eight months did not reveal any related complications and all the animals showed normal mating behaviour.

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Acknowledgement: We are very thankful to the zoo authorities and the supporting staff for providing the facilities and co-operation in conducting the operation successfully.

Infighting leading to injury in bull elephant

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plus web supplement of 1 page

An injured bull Asian Elephant (Image 1[w]), 9ft, was detected in Manikchua reserve, Angul Forest Division, Orissa. It was an adult bull, approximately 30 years old. The Elephant was moving slowly and a foul smell was noted.

It was decided to examine and treat the elephant under sedation on 30.iii.2006. The injured animal was in a forest patch that was very bushy and thorny and not ideal for darting. The animal was driven to open land by loud noise. The first darting, near Makarkanda nalah was not successful. As the animal then moved further a second dart was fired at 12.23hr. The dart consisted of 350mg of xylazine (3.5ml), 0.3mg atropine sulphate (0.5ml) and 100mg ketamine (1ml) in a 5ml syringe dart. After 11min the animal was still standing with drooping trunk and relaxed penis, but movement of ears and forelimb persisted. At 12.40hr another injection of 200mg xylazine and 100mg of ketamine was injected intramuscularly in the left hind limb, 5min after which the elephant was in deep sedation emitting deep snores.

On examination, three wounds were detected on the left side; one in the gluteal region, one in the abdominal region and the third on the forelimb. On the right side 11 punctured wounds were observed in the temporal and cervical regions, at the base of the ear and throughout the pinna. All the wounds were examined for presence of any metallic foreign body using a metal detector. No metallic object was noted. Then the wounds were dressed with hydrogen peroxide and turpentine oil. The wound cavities were irrigated with 5% povidone-iodine lotion and painted with Himax™ ointment.

As the elephant was in standing sedation the wounds of temporal and head region were dressed using a long stick wrapped with gauze and medicines. Other medicines administered were penidure-LA-24 lac i/u, esgipyrine-40ml, dexona-30ml and avil-10ml intramuscularly at different sites. All these procedures continued up to 1340hr and 5ml of yohimbine hydrochloride was injected intramuscularly for reversal. After 10min the elephant started moving and entered the thick forest cover.

The wounds might have been caused due to infighting between males for acquiring a mate. The tail of the elephant was without brush. The wounds were suspected to be one week old. It was deemed necessary to keep constant check on the movement of the elephant. However, by the next day the animal was found dead by forest officials about 5km away from the treatment site.

Post-mortem examination revealed large amount of blood clots with perforation of abdominal organs. The wounds were deeper and abscessed. Detailed and thorough check-up of the organs did not reveal any metallic objects. The histopathological examination of heart, liver, lungs, kidneys, intestine and stomach did not show any significant changes. The elephant may have succumbed to internal haemorrhage with septicemia.

Acknowledgement: Authors are thankful to the PCCF-cum-Wildlife Warden, Orissa for according permission to undertake the work.

[w] See Image 1[w] in the web supplement at www.zoosprint.org

Manuscript 1758; © ZOO; Date of publication 21 October 2007
Received 15 April 2007; Finally accepted 01 September 2007

Oesophageal obstruction in an Indian Mud Turtle *Lissemys punctata*

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plus web supplement of 2 pages

Ingestion of fishing hooks can cause severe oesophageal, stomach and intestinal lesions in turtles. Depending on their position in the digestive tract, foreign bodies and fishing hooks can either be removed by hand, with an endoscope or by means of a surgical operation (Bentivegna, 2004). The present paper describes removal of a fishing hook from the oesophagus of an Indian Mud Turtle *Lissemys punctata*.

An Indian Mud Turtle which had swallowed a fishing hook attached to a braided synthetic thread commonly used for fishing was presented to the surgery clinic of Orissa Veterinary College (Images 1 & 2[w]). History revealed that the turtle was caught in the fishing equipment from a pond on the outskirts of Bhubaneswar city. The general body condition of the turtle was good; weight of 2.2kg. Then it was radiographed in a dorso-ventral view using 57kV &10m as at 100cm FFD. The radiograph revealed a barbed fishing hook attached to a thread embedded in the oesophageal muscle (Image 6[w]). Ketamine hydrochloride 80mg was injected intramuscularly into gluteal muscle by drawing its hind limb. Within 5min the turtle was anaesthetized with its limbs and head prolapsed out of carapace. Examination of oral cavity did not reveal presence of

[w] See Images 1-8[w] in the web supplement at www.zoosprint.org

Manuscript 1635; © ZOO; Date of publication 21 October 2007
Received 02 September 2006; Finally accepted 28 August 2007

any ulceration or mucoid exudates. A nick incision was given on the tip towards the bent portion of the fishing hook and was palpated through the neck muscles (Image 4[w]). Then the fishing hook was taken out by holding its tip with a needle holder. The wound was irrigated with 5% povidone-iodine lotion and left unsutured. The temperature and respiration rates were recorded to be 25°C and 3/min. 70ml of 5% DNS was administered intravenously in the radial vein (Image 5[w]). A bite block was kept inside the mouth to keep it open for better breathing (Image 3[w]). A comparative radiograph showed removal of foreign body (Image 7[w]). Post-operatively the turtle was kept inside a water trough containing a low level of water mixed with 5% povidone-iodine lotion. This practice was continued until the turtle was able to raise its head 45° with respect to its body, move its fin in a coordinated manner and regulate its weight in a water column. The turtle was given fish, earthworm and insects as food. The turtle recovered uneventfully and it was released to its natural habitat. Careful examination of the radiograph revealed presence of eight eggs indicating that the turtle was a gravid female (Image 8[w]).

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Acknowledgement: Authors are thankful to L.A.K. Singh, Senior Research Officer and K.L. Purohit, Range Officer O/o Chief Wildlife Warden, Orissa, Bhubaneswar for identification of the turtle.

Paraplegia in a Tiger *Panthera tigris*

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plus web supplement of 1 page

A male tiger Rohit aged 13yr of Nandankanan Zoo was unable to bear weight on his hind limb. He was treated with powdered oral calcium tablets (Shell-cal, 500mg, 4no), nervine tonics (Neurobion tablets, vitamin B complex with B12, 2 no), oral analgesic (Tramadol hydrochloride, 100mg, 5 no) offered in beef for five days. There was no improvement and the tiger developed wounds due to limb dragging. It was decided to examine the hind quarters both physically and radiologically. On 03.01.2006 the tiger was darted with a mixture of 1.2mg atropine sulphate, 200mg xylazine hydrochloride and 400mg ketamine hydrochloride using a pressure gun (Image 1[w]).

After 12min the animal was lifted on a tarpaulin strap and brought out of his pen. Temperature, respiration and heart rate were recorded to be 99.6°F, 17/min and 98/min, respectively (Image 2[w]). Radiograph of both the limbs in lateral and dorsal-plantar views were taken starting from stifle joints to digits (Images 3[w] & 4[w]). A ventro-dorsal view of both the hip joints was also taken (Image 5[w]). Blood samples were collected for haematological and blood protozoan examination. Ringers Lactate 500ml and DNS 5% 500ml was administered intravenously. Neurobion injection (vitamin B complex with B12) 3ml x 4 ampoules and Tramadol hydrochloride injection 100mg, 1ml x 2 ampoules were injected intramuscularly. The tiger was revived from anesthesia by i/v administration of 2ml (20mg) of yohimbine hydrochloride (Antagozil) (Image 6[w]). Radiographs did not reveal any fracture or dislocation of the bones. Blood examination for protozoan parasites was negative. The haemoglobin, total leukocyte count, neutrophilic count and eosinophilic count were recorded to be 12g/dl, 9300/mm³ of blood, 80% and 10% respectively. Ceftriaxone sodium 1g (Monocef) and Neurobion 10ml were administered intramuscularly once daily for five days with a dart gun. Thereafter, cartigen, glucosamine sulphate (Pharmed Ltd., Mumbai-1) 500mg x4, Neurobion (vitamin B complex with B12) two tablets and multivitamin tablets with trace mineral *i.e.* vitA, vitD, vitB1,2,6,12, vitE, ferrous sulfate, cupper sulphate, manganese sulfate and zinc sulfate, Supradyn (Nicholas Lab., two no.) in beef was administered for 15 days. The tiger started bearing weight and walking on his hind limbs (Image 7[w]). After ruling out infection, inflammation, traumatic, toxic and parasitic causes, it was concluded that the tiger was suffering from nutritional problems, hence multivitamin with trace mineral tablets were administered. Eldridge (1997) stated that it is difficult to determine what specific mineral is in imbalance when examining an animal's symptoms, because the clinical signs for one mineral imbalance can be exactly the same as for several other minerals. Again deficiencies of minerals and excess intake of minerals may present the same symptoms. In late 1980 seven cheetah cubs of Zoological Institution in Southwestern United States suffered from various levels of ataxia and hind limb paralysis which were successfully treated by both injectable and oral copper supplement. However, copper deficiency, a nutritional problem is usually considered in carnivorous animals on a diet primarily of poultry, which may be particularly vulnerable to copper related deficiency. In this case, however, the tiger was maintained on beef.

[w] See Images 1-7[w] in the web supplement at www.zoosprint.org

Manuscript 1713a; © ZOO; Date of publication 21 October 2007; Received 29 January 2007; Revised received 11 June 2007; Finally accepted 02 September 2007

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Acknowledgement: Authors are thankful to the Director Nandan Kanan Zoo for permitting them to undertake the work.

Amblyomma tick infestation in Indian Rat Snake *Ptyas mucosa* from Chandrapur district of Maharashtra state

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Snakes are commonly affected by bewildering variety of parasites resulting in severe health hazards, amongst which ticks play a pivotal role in morbidity and mortality. Tick infestation not only results in anaemia, owing to their blood sucking habit, but also transmits certain blood borne diseases. Information is lacking on tick infestation in snakes from Maharashtra. Hence, the present communication documents the first report on occurrence of *Amblyomma* ticks in a Rat Snake (*Ptyas mucosa*) from Chandrapur district of Maharashtra state.

An 8ft-long female Rat Snake rescued from Chandrapur (Maharashtra) was observed with heavy tick infestation all over the body and beneath the scales. Ticks were removed manually by applying alcohol on exposed part of the body and were collected in a specimen bottle,

Manuscript 1782; © ZOO; Date of publication 21 October 2007; Received 20 May 2007; Finally accepted 25 September 2007