treated with broad-spectrum antibiotics, analgesics and tetanus toxiod injection intramuscularly and metrinidazole and furzalidone combination as intra uterine therapy.

The antibiotics and analgesics treatment was continued for three days in the feed and the animal was kept under observation. There was regular progress in her feed consumption and finally the animal recovered completely. Roberts (2002) reported that incidence of dystocia in posterior presentation of foetus in unipara is high. The findings of Adams and Bishop (1963) who opined that 85% of all the dystocias were in heifers. In the present case dystocia (posterior presentation) coincides with the above author reports, since the animal is unipara and also it was in first parturition.

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Anaesthetic and surgical management of epulis in a Black Bear *Selenarctos thibetanus*- A case report

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Tumours connected with jaw are termed epulis. Such tumours have been reported in cattle, buffaloes and camels (Tyagi & Singh, 1993; Parikh *et al*., 1997) but rarely in wild mammals (Bell, 1968).

This Brief deals with anaesthetic and surgical management of epulis in a female domesticated Black Bear (*Selenarctos thibetanus*) of approximately 3 years of age weighing about 160kg. There were two tumourous growth of varying size at the level of both the upper canines. The growth on the right was bigger than that on the left side. The tumours were slow in occurrence since last six months. Radiograph of snouts in dorso-ventral projections demonstrated bony growth of varying size originating from both lower canines and involving entire cranial aspect of mandible (Image 1[w]).

The animal was prepared for general anaesthesia by keeping off feed and off water for twenty four and twelve hours respectively. The bear was premedicated with atropine sulphate @ 0.01mg/kg bw. After 30 minutes of premedication a combination of xylazine @ 2mg and ketamine @ 8mg/kg bw was injected i/m in the thigh muscles by controlling the animal manually. Sedation was observed within 15min and the animal went into lateral recumbency. After 25min post xylazine-ketamine administration, 45ml of 5% thiopentone sodium was injected in recurrent tarsal vein to induce general anaesthesia. The level of anaesthesia was maintained by giving a booster dose of 30ml of 2.5% thiopentone sodium solution after 60min after first thiopentone sodium injection.

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

During sedation, the animal showed few bouts of vomiting reflexes without any vomitus, along with salivation and irregular respiration. However, these symptoms disappeared after induction of general anaesthesia and the animal stabilized with regular pattern of respiration and heart beats, though pharyngeal reflexes remained active during entire 120min period of operative procedure. Tumours along with the affected bony tissue was resected by gingivectomy. The removed mass of right and left side growth was 200 and 75g in weight, respectively. Haemostasis was carried out by electrothermocautry. Gum wound edges were closed with linen suture by putting simple interrupted mattress sutures. The bear did not show any symptom of pain during surgical intervention and completely recovered from anaesthesia after four hours of its induction. Postoperative care included daily intramuscular injections of strepto-penicillin @ 10mg/kg bw for five days. Daily mouth wash with povidone-iodine solution followed by smearing of operated site with povidone-iodine ointment was carried out thrice a day preferably after every feed for a week. Sutures were removed on the 12th post-operative day. On the 20th post-operative day 1ml of vincristine was injected intravenously. Uneventful recovery was observed without any complication.

In the present case deep sedation was observed following intramuscular administration of xylazine and ketamine combination which facilitated restrain of animal for intravenous injection and aseptic preparation of site, but it did not produce satisfactory level of surgical anaesthesia required for drastic surgery of mouth cavity for tumour removal. Addison & Kolenosky (1979) and Singh *et al.* (1997) have also recommended xylazine-ketamine combination for chemical immobilization of wild carnivores. In the present case use of thiopentone sodium following xylazine-ketamine, produced satisfactory level of surgical anaesthesia for removal of tumourous growth without intubation of trachea as the laryngeal reflexes were present throughout the period of surgical intervention.

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Rehabilitation of an injured Indian Cobra *Naja naja*

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The Indian Cobra *Naja naja* is one of the most persecuted snakes due to its notoreity as a poisonous snake and people's panic. An injured cobra was presented to the surgery department, Orissa Veterinary College for treatment by volunteers of the "Snake Help Line", an NGO looking after the wellbeing of snakes. The cobra measuring about 1.5m was immobile and remained with its hood

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raised. The snake was restrained in a 1-litre measuring glass cylinder and opening around its body was covered with cotton. External examination revealed a depression at the mid-dorsum (Image 1[W]). Hence a radiograph was taken to identify any spinal injury. Radiograph revealed fractured vertebrae (Image 2[W]).

A two inch wide micro pore adhesive tape was applied to the body of the snake to a length of 10in including the injured segment. A 50ml disposable plastic syringe, cut at both the ends and slit longitudinally into two equal halves, made smooth by filing on hard surface, padded suitably with cotton and gauze, was placed as splint on the lateral aspect of the body over the micro-pore bandage previously applied (Image 3[W]).

The volunteers were advised to keep the snake in a limited confinement. The snake was again presented after 20 days for removal of the bandage. After restraining the micro-pore tape was cut open (Image 4[W]). On releasing the snake on the ground it exhibited slow movement. The volunteers were advised to keep it in confinement for another 15 days. The snake recovered uneventfully. The volunteers reported that they have released the snake in its natural habitat.

[W] See Images 1-4 in the web supplement at www.zoosprint.org

Bone plating for tibial fracture repair in a Black Buck *Antelope cervicapra*

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Fracture repair in domestic animals is a routine procedure but the same in wild animals is rare. Though fractures do occur in wild animals, lack of personnel to capture, facilities to perform surgery, complications during anaesthesia, problems in postoperative management prevent anybody to make an attempt. In this present study a case report of bone plating for tibial fracture repair in a wild Black Buck *Antelope cervicapra* is discussed with detailed anaesthetic and surgical procedure.

Case history: A female Black Buck aged around 12 years was presented to the college hospital with history of limping in the left hind limb. The zoo veterinarian had treated the case with analgesics and anti-inflammatory drugs. Temperature, pulse and respiration were within the normal range. Palpation of mid shaft of tibia revealed crepitation and the animal was also evincing pain. No external injury was noticed. Plain radiography revealed complete fracture of tibial mid shaft (Image 1[W]). It was decided to perform internal stabilization under general anaesthesia.

Anaesthesia and surgical procedure: The animal was prepared for surgery; food and water withheld for 12 hours. Preoperatively, 500mg of metronidazole, 5% dextrose normal saline and ciprofloxacin were injected i/v. The animal was anaesthetized using combination of xylazine hydrochloride (40mg) and ketamine hydrochloride (150mg) given i/m. The animal was positioned in lateral recumbancy. The medial aspect of tibia was prepared for aseptic surgery. A 6cm cutaneous incision was made and separated fascia and muscles. The proximal and distal fractured segments of the bone were identified and the site irrigated with normal saline solution to remove debris and blood clots.

[W] See Images 1 & 2 in the web supplement at www.zoosprint.org

Using extension and counter extension the two segments were reduced to normal alignment. Eight holed Shearman's stainless steel bone plate was kept inside and 3mm cortical screws were used to stabilize the bone plate to the fractured segments (Image 2[W]). Also circlage wire was applied to prevent loosening of the plate. The muscles were sutured using no.1 chromic catgut. Sub cuticular sutures were applied to prevent dead space. Cutaneous incision was closed using no.1 braided silk. Tincture benzoin seal was applied to the suture line. Plaster of paris cast was applied to the limb for external immobilization leaving an adequate window for dressing of surgical wound. The animal received metronidazole (500mg), ciprofloxacin (500mg), 5% dextrose normal saline (1000ml) i/v for five post operative days along with dressing of wound.

Xylazine and ketamine provided satisfactory anaesthesia for the entire surgical procedure without any complications (Lumb & Jones, 1996). Similar anaesthetic protocols were also reported by Jalynski (2003) for treating fractures in sheep. Bone plating with cortical screws provided effective stabilization of fractured segments. External immobilization with plaster of paris cast prevented movement of segments and allowed regular dressing of the surgical wound. Pre-, intra- and postoperative use of antibiotics and fluids provided aseptic conditions of site without any problems.

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Occurrence of *Babesia* infection in Leopard *Panthera pardus* at Nagpur

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Babesiosis is a tick-borne haemoprotozoan disease caused by *Babesia* sp. and characterized by pyrexia, haemolytic anaemia, haemoglobinuria, jaundice and death. In India, babesiosis is widespread and recognized as one of the serious problem of major economic significance in domestic animals, although, sufficient information is not available on incidence of the disease in wild animals (Arora, 1994). Hence, these cases of babesiosis in Leopard *Panthera pardus* from Maharajbagh Zoo, Nagpur, Maharashtra are reported here.

Two 15-year old male leopards died at Maharajbagh Zoo, College of Agriculture, Nagpur with a history of anorexia, dehydration, convulsions and lumbar pain. Postmortem examination was performed; heart blood smears were prepared, stained with Leishman's stain and

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

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