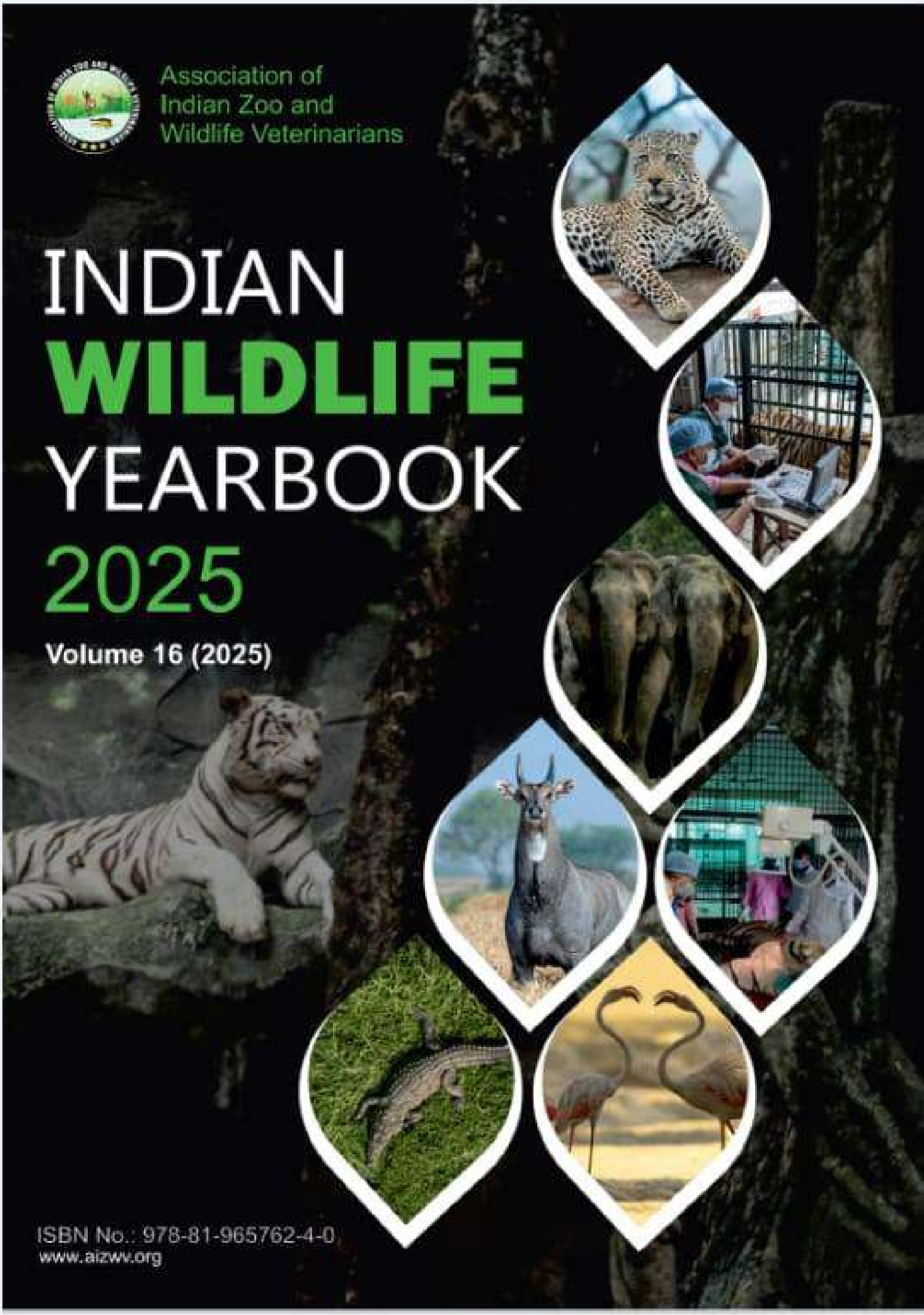

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Wound and posterior weakness in a captive sambar deer: Medical management & Laser therapy

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Introduction

Biostimulation refers to the process of stimulating biological tissues using low-intensity laser light to enhance cellular functions. Low-Level Laser Therapy (LLLT) is a form of phototherapy that utilizes specific wavelengths of light to interact with tissues at a cellular level, promoting natural healing processes. Photo-biostimulation has anti-inflammatory, analgesic, antioedema and regenerative effects. The initial effect of near infrared laser light is stimulation of production of adenosine triphosphate (ATP), reactive oxygen species (ROS) and nitric oxide (NO). Migliario *et al.* (2023) documented that laser biomodulation therapy has been widely used for therapeutic purposes to produce analgesia, to modulate immune response and to accelerate wound healing and tissue regeneration. Jameie *et al.* (2014) suggested laser application at 980nm was also effective in promoting early functional recovery from neuropathic pain in rat model study. Many lasers machines are now programmed with very specific and detailed dosing information in their software. Operators enter patient specific data and anatomical information, and the software calculates the dose according to the science and experience incorporated in its algorithms (Smith, 2017).

Case presentation & Management

A female sambar deer (weight 150 kg appox) aged about 17 year observed with a wound with formation of pus was evident in superficial gluteal area in right hind limb. Initially treatment was started with irrigation of wound with lukewarm saline and 5% povidone-iodine lotion once daily, Inj Dicrysticin S 2.5 gm (Streptomycin Sulphate2.5 gm &Procaine Penicillin 15 lac, Penicillin G sodium 5 lac, Zenex AH) ½ vial BD x 5 days and Inj Conciplex(Vit B-complex, Concept Pharmaceutical LTD) 5 ml IM OD x 5 days. Afterwards the animals developed posterior paresis, prolong recumbency and inppetance. Then inj ceftiofur@ 2.2 mg/kg IM OD (Inj X-ceft 500, Alembic), Inj Neuroxin-M vet (Methylcobalamin, Vit B6 and niacinamide, Zydus AHL) 8 ml IM OD, Inj Melonex (Intas pharma) (Meloxicam 5 mg/ml) 8 ml IM OD and Inj DNS (Jedux) 500 ml IV was started and continued for 5 days (fig :1). Inj Vit A D3 E (inj Mota-H, Relife Pharmaceutical pvt ltd) 4 ml once in week and Inj calcimust 8 ml IM twice in week (Calcium levulinate, Cholecalciferol & cyanocobalamin, Vet Mankind) also administered for two week. After medicinal treatment quantity of pus drainage from wound reduced though wound was persistent but due to prolong recumbency the animal developed pressure sores over right thigh muscles. Animal was not able to stand without manual assistance. Then LTT Laser therapy in photobiostimulation (power 980 nm) mode through Lumix veterinary laser machine as per machine prebuilt protocol (fig :3) divided in four phases namely phase 1(continuous) with 1.5 kJ energy, 30 kHz frequency for 15 min followed by phase 2 (continuous) with energy 45.7 J, frequency 6 kHz for 1.3 min followed by phase 3(pulsed) with energy 16 J, frequency 80kHz for 1.30 min and final phase 4 (pulsed) with energy 45.7 J, frequency 6 kHz for 1.30 min. This laser therapy was extended for continuous seven days (fig: 2). Animal was lifted in standing condition for easy application of the therapy and protective eyewear worn by all personnel to prevent injury to retina. From 5th day of laser treatment the animal was able to stand during therapy by own without any assistance and wound size also reduced (fig: 5 &6). On 7th day animal was very active and started moving causing interruption during therapy. Then it was decided to stop the therapy from next day and kept on oral neurotropic multivitamin supplement (Syr Meconerv gold, Microlab animal health) 100 ml daily for 10 days and advised for movement in open kraal area adjacent to its night shelter (fig: 4).

Fig 1: Medicinal treatment in the recumbent sambar deer

Fig 2: Laser therapy in sambar deer

Fig 3: Biostimulation mode of the laser machine

Fig 4: Gait of the sambar deer in open area after treatment

Fig 5: Condition of wound before treatment

Fig 6: Condition of wound after treatment

Outcome:

Smith (2017) documented that for acute and chronic conditions, laser therapy should be prescribed as six to twelve treatments, patients should show noticeable improvement after three treatments, and significant improvement after six treatments. In present case noticeable improvement was observed from 5th day and significant improvement was seen from 7th day. After medical management and aid with laser therapy the animal can able to stand by own from resting posture and near normal movement in open kraal area.

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