

Case report

SURGICAL MANAGEMENT AND ANTIBACTERIAL
THERAPY OF A BITE WOUND IN A GREEN IGUANA
(*IGUANA IGUANA*)

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Summary

Chaprazov, Ts., D. Georgiev & I. Borissov, 2010. Surgical management and antibacterial therapy of a bite wound in a green iguana (*Iguana iguana*). *Bulg. J. Vet. Med.*, 13, No 4, 259–263.

Traumatic injuries are common in green iguanas. In this clinical report, we follow out the surgical management and antibacterial therapy of a bite wound with loss of muscle tissue in one-year-old green iguana (*Iguana iguana*), referred to the Small Animal Clinic at the Faculty of Veterinary Medicine, Stara Zagora, Bulgaria. Some clinical and radiological signs of diagnostic importance and the condition of the lizard after the treatment performed are described. This is the first report about the therapy of a bite wound with muscle tissue loss in a green iguana in our country.

Key words: bite wounds, green iguana, reptiles, therapy

Green iguanas are relatively rarely raised as pets in Bulgaria. Traumas of various origin and severity are common in these reptiles. Wounds often result from poor conditions in terrariums or fights among animals (Knotek *et al.*, 1999). In relation with the specific anatomy of iguanas and their behaviour, superficial soft tissue wound (Bennett, 1989a), leg and tail fractures (Hernandez-Divers, 2001; Girling, 2003) are most frequently encountered. These conditions are diagnosed on the basis of clinical and radiography findings (Wellehan & Gunkel, 2004).

The commonest surgical interventions in reptiles include debridement and anti-

septic treatment of the wound, anatomical and functional repair of tissues (Hernandez-Divers, 2004; Mitchell & Diaz-Figueroa, 2004). Bite wounds are contaminated and therefore, their suturing in reptiles is not justified (Mader, 2005). Such wounds heal by secondary intention, under a scab. Secondary infections are relatively rare when local or systemic antibacterial therapy is performed (Bennett, 1989b).

In this report, we describe the diagnostic approach and the treatment of a bite wound with impaired integrity of the skin and the underlying muscle groups in a green iguana.

A male 1-year-old green iguana (*Iguana iguana*) weighing 180 g was admitted to the Small Animal Clinic at the Faculty of Veterinary Medicine, Stara Zagora, three days after a fight with another male iguana. The lizards shared the same terrarium of a size of 3×2×2 m and were reared at ambient temperature of 30°C. The light day was 16 h. Iguanas were fed vegetables and occasionally, their diet was varied with foods of animal origin.

The green iguana was lethargic and exhibited impaired locomotor function of the right hindleg and an unusual resting posture compared to the contralateral leg. Clinically, a lacerated wound of the skin, with trauma and lacerations of underlying muscles in the right femoral region was observed. The entire leg was swollen up to the knee joint, with a doughy elastic consistency (Fig. 1). Non-penetrating skin wounds were discovered over the body of the lizard as well.



Fig. 1. Bite wounds in the thigh region and the trunk with torn underlying muscle groups in a green iguana. The soft tissue oedema extends from the hip to the knee joint.

The anaesthesia was performed with tiletamine/zolazepam (Zoletil 50 mg/mL, 10 mg/kg, i.m.; Virbac Santé Animale) (Dinev & Simeonova, 2009).

The affected limb was radiographed in dorsoventral view. The structure of the femur was normal. There were no bone fractures in the traumatized area or elsewhere on iguana's body (Fig. 2).

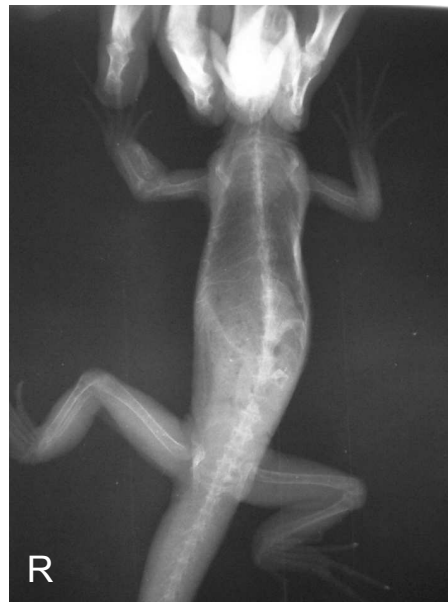


Fig. 2. Dorsoventral radiograph of the iguana – the right femur is intact.

The treatment consisted in washing with sterile physiological saline, removal of dead tissues and foreign bodies, followed by treatment with 10% solution of povidone-iodine (Iodseptadon, Himax Farma Ltd, Sofia, Bulgaria). After the surgical therapy of the wound, silver sulfadiazine cream (Flamazine®, Duphar Pharma GmbH & Co) was locally applied for 14 days. Intramuscular injections of 5 mg/kg enrofloxacin (Baytril, Bayer Healthcare LLC, Animal Health Division, Shawnee Mission, KS) were administered over

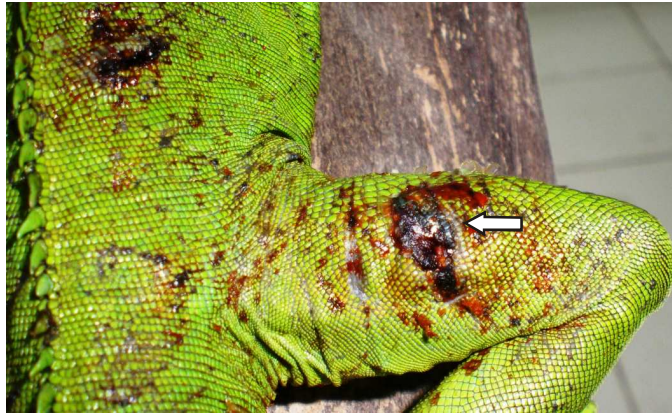


Fig. 3. Appearance of the oedema, wound surface (arrow) and limb's position after five days daily local and systemic antibacterial treatment.

5 days (Wright & Whitaker, 2001; Mader, 2005; Maxwell & Jacobson, 2007).

Five days after the debridement of wounds, daily local treatment with Iodseptadon and Flamazine and systemic antibiotic therapy, the wounded surfaces and the thigh oedema were significantly reduced (Fig. 3). The placement of the leg, both resting and walking, was normal.

A control re-examination was performed one month after the clinical examination of the patient. The wounds had completely healed. There was a discoloration of the skin at the site of skin defects, most pronounced on the leg (Fig. 4).

Bite wounds by rodents, males when reared together or other animals are commonly encountered in domestic reptiles (Wellehan & Gunkel, 2004). In some species, like green iguanas, males bite females in the shoulder region during the breeding period, causing large and hardly healing wounds (Girling, 2003).

Wound healing in reptiles occurs through the same stages as in birds or rodents, but over a much longer period (Vasiliev, 2007). The process is slow and takes no less than 4 to 6 weeks, as confirmed in our case too. The heterophil

infiltration is preserved in the area of the defect from the hydration stage to the complete epithelization of wound surface. That is why, skin sutures of reptiles are removed only after 6–8 weeks when the cicatrix was completely formed.



Fig. 4. One month after therapy cessation. No morphological or functional alterations of the affected leg are visible except for a certain discoloration (arrow) in the cicatrix area.

Bite wounds are potentially contaminated and secondary healing is recommended with regard to the possibility to

control infection (Swaim & Henderson, 1990). This is the principal reason for choosing the therapeutic approach to the patient described in this clinical case, despite that sometimes, unwanted side effects could occur (Mitchell & Diaz-Figueroa, 2004). Some of subsequent deformities could be only cosmetic, whereas others could result in permanent functional disability. Contractures in the region of joints and other mobile anatomical regions extend the recovery period and in particular, delay the epithelization of wounds healing by secondary intention (Bennett & Mader, 1996) but this was not observed in the therapeutic approach used by us.

Both local and systemic antimicrobial therapy is indicated in cases of bite wounds (Kaplan, 1996; Flammer *et al.*, 1998). Nevertheless, many drugs for veterinary use are not applied in reptiles, as there is no information about their therapeutic effect in this class of animals. The low rate of the metabolism and the slow conversion of therapeutic products are an additional obstacle (Jacobson, 1999).

Enrofloxacin (Baytril®) is among the most commonly used antibacterial drugs in soft tissue infections of green iguanas (Mitchell, 2006; Westfall *et al.*, 2006). In iguanas with lower body weight, enrofloxacin is eliminated faster than in larger ones (Maxwell & Jacobson, 2007), therefore necessitating application at 24-hour intervals.

The good outcome of the systemic therapy with Baytril® in this case of bite wound indicates that it could be applied when infection is suspected, prior to obtain data from bacteriological examination. The only requirement is the intramuscular application of the drug in the cranial half of the body due to the renal portal system and at intervals, corresponding to the body weight of iguanas.

Silver sulfadiazine cream at 0.1% (Mader, 2005) is a perfect local therapeutic drug against *Pseudomonas* spp. and other Gram negative microorganisms – common commensals in reptiles (Schumacher, 2006).

In conclusion, bite wounds in green iguanas with involvement of underlying muscles heal under secondary intention after debridement, local and systemic antibacterial therapy, without significant cosmetic and functional defects. The complete wound surface epithelization of wounds healing secondarily without tissue loss in green iguanas takes about 4 weeks.

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Paper received 29.06.2010; accepted for publication 09.09.2010

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