

Flap surgery in a green iguana (*Iguana iguana*) with a non-healing palmar wound – a case presentation

Tratamentul chirurgical al unei plăgi palmare atone la iguana verde (*Iguana iguana*) – prezentare de caz

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Abstract

In this clinical tutorial report for young vets, there is presented the clinical efficiency of a common surgery technique in a non-healing decubitus inflammatory crusted and pyogenic wound to a nine years male green iguana (*Iguana iguana*). The wound appeared two months before the reptile was presented to control and the bacteriologic culture made revealed a massive bacterial association where *Enterococcus faecalis* and *Staphylococcus epidermidis* were dominant. Consequently, the antibiogram was accomplished, the results indicating resistance to penicillin and chloramphenicol and respectively, efficacy to gentamicin, erythromycin and tetracycline. The initial treatment with gentamicin 5%, as topic application was started, but though the massive tissue destruction, the surgical way was chosen. Under anaesthesia, the area was scratched and the wound was debrided with scalpel until the bleeding occurred and skin was primarily closed with a surgical skin stapler, but this technique proven to be totally unsuited to green iguana, because of the skin's tension developed consequently the intervention. Following, the "twisted flap" surgical technique was accomplished, we considering this way as a choice one in iguana's case, and skin was sutured with no absorbable 2/0 nylon. After the local and general antibiotic treatment with enrofloxacin, animal was fully recovered, the suture points being removed after five weeks.

Rezumat

În această prezentare de caz de tip tutorial pentru practicieni se prezintă eficiența unei tehnici chirurgie simple într-un caz de plagă palmară atonă, inflamatorie și piogenică la o iguana verde (*Iguana iguana*) de nouă ani, sex masculin. Rana a apărut cu două luni înainte ca reptila să fie prezentată la medicul veterinar, cultura bacteriologică efectuată relevând o asociație masivă bacteriană unde *Enterococcus faecalis* și *Staphylococcus epidermidis* au fost dominante. Prin urmare a fost realizată antibiograma, rezultatele indicând rezistență la penicilină și cloramfenicol și respectiv, eficacitatea la gentamicină, eritromicină și tetraciclină. Tratamentul inițial a fost început cu gentamicină 5%, dar, distrugerea masivă a țesutului a impus apelarea la tehnica chirurgicală. Sub anestezie, zona a fost curățată până la țesutul sănătos, rana fiind debridată cu bisturiul până a avut loc sângerarea, pielea fiind închisă cu un capsator de piele chirurgical. Această tehnică s-a dovedit a fi nepotrivită pentru iguana verde datorită tensiunii mari din regiunea operată, prin urmare apelându-se la tehnica chirurgicală "twisted flap", noi considerând această tehnică ca cea mai potrivită alegere în cazul iguanei. După suturare și tratamentul local și general animalul a fost recuperate în totalitate, punctele de sutură fiind eliminate după cinci săptămâni.

Introduction

Green iguana (*Iguana iguana*) is now of the most popular reptile that can be purchased from pet shops in Romania and Europe.

Due to the advantages of this species, to be housed in terrariums (non-hibernate), long life expectancy in captivity (10 to 15 years), docile character, resilience and the lack of

special conditions required for feeding (herbivorous) and breeding (relative humidity 60-85%; temperature 29-33°C; BS = broad-spectrum lighting: UVB 290–300 nm), make from this a popular pet in many houses.

The main pathological problems that can be found in green iguanas are related to inappropriate diet, environment, and husbandry, being metabolic (MBD = Metabolic Bones Disease, kidney failure), internal (coccidia) or external (mites) parasitic origin, but also dermatological pathology, including here diverse injuries, can be present especially in the older individuals [1, 2, 4, 6].

Materials and methods

Case history

Ingo, a green iguana (*Iguana iguana*) male of nine years was presented to clinic with injured left front limb.

The animal was presented with a non-healing inflammatory palmar wound, crusted and pyogenic.

The wound appeared two months before the reptile was presented to control and the bacteriologic culture made revealed a massive bacterial association where *Enterococcus faecalis* and *Staphylococcus epidermidis* were dominant.

Consequently, the antibiogram was accomplished, after the known methodology. Samples taken directly from the wound were streaked on 5% sheep blood (BAP = blood agar plate) (Merck; Darmstadt, Germany), a general purpose medium for the cultivation of microorganisms and the visualization of haemolytic reactions and incubated aerobically at 36°C for 48 hours.

After incubation a second passage was accomplished on high-strength agar and an antibiotic test ring TRG 8 VET 1 (Mast Diagnostica GmbH; Reinfeld, Germany) was applied.

The results revealed resistance to penicillin and chloramphenicol and respectively, efficacy to gentamicin, erythromycin and tetracycline (figure 1- I).

Topic initial treatment was started with gentamicin 5%, but though the massive tissue destruction, the surgical way was chosen as a better alternative.

Before surgery a full clinical examination was performed, and the animal accurately weighed. The animal was covered with a warm towel to calm down and maintained at 28 °C temperature.

The general and local anaesthesia was applied after the technique presented by Nardini et al. (2014) with Propofol 1% (Rapinovet, Intervet; München, Germany), dose 10 mg/kg.bw associated with Isoflurane 2% (Isoflo, Intervet; München, Germany) and oxygen, (0.8-1.2 litre / minute, concentration range, 0-5%), through an adjustable dial, coupled with a separate oxygen flow meter (at the range, 0.2-4 L/min).

Local aesthesia was made with local infiltrations with Lidocaine HCL 2% (Lidocain 2%, Albrecht, Germany), 1ml S.C. around the plague [5].

Surgical technique

Initially the area was easily scratched and wound was debrided with the scalpel until bleeding.

After debridement, pus removal, disinfection with 3% peroxide, washing with 0.9% NaCl and administration of Enrofloxacin local, wound edges were close and stapled with a surgical skin stapler (Leukoclip SD Skin Stapler, Praxisdienst; Longuich, Germany). Following the case evolution, the chosen technique had proved to be unsuited to green iguana, because of the skin's tension developed consequently (figure 1 a, b, c, d, e).

This fact determined to renounce to staples and the "twisted flap" surgical technique was accomplished.

This is a technique in plastic and reconstructive surgery where any type of tissue is lifted from a donor site and moved to a recipient site with an intact blood supply.

This is different from a graft, which does not have an intact blood supply and therefore relies on growth of new blood vessels [3].

Skin was sutured with Ethilon wire non absorbable nylon (Ethicon, Germany) No. 2/0 (figure 1 f, g, h, i, j, k).



Figure 1. Surgery stages: a, b, c - debridement and local disinfection, d, e - stapling and staples removal; f, g, h, i, j - "twisted flap" surgical technique and suture; k- application of protective bandage; l - antibiogram

Post-operative

After surgery to the animal it was applied a protective bandage, changed once a week and general antibiotic therapy with enrofloxacin (Powerflox 50 ad us.vet., Virbac; Glattbrugg, Switzerland) dose: 2.5 mg/kg.bw., S.C., once for three days.

Results and discussion

Animal was fully recovered after the local and general antibiotic treatment, the suture points being removed after five weeks.

The twisted flap surgical technique accomplished demonstrated his efficiency, we considering this way as a choice one in the

case of green iguana atone wounds surgical treatment.

Following this case evolution, we do not recommend the surgical skin stapling, this technique had proven to be unsuited to green iguana, because of the skin's tension developed consequently.

As it concerns the anaesthesia and antibiotherapy we consider that the association Propofol – Isoflurane is an excellent choice for this reptile species.

We agree with other authors in what concerns enrofloxacin efficiency in the reptilian pathology, we obtaining similar results in our case [3].

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