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## Effective management of traumatic laceration in a Russell's viper (*Daboia russelii*): A case study on rapid intervention and recovery

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### Abstract

This case study outlines the successful treatment of a severe laceration in a Russell's viper (*Daboia russelii*), a species of significant medical and ecological importance, following an automobile accident. The viper presented with an elongated laceration along the right side of its cranial ribs. Due to the emergency nature of the injury, standard fasting protocols were bypassed, and immediate surgical intervention was undertaken. The wound was cleaned, desensitized, and sutured using a simple interrupted pattern with catgut. Post-operative care included administration of meloxicam and enrofloxacin, avoiding restrictive bandaging to mitigate stress and potential complications.

This case underscores the unique challenges in reptilian trauma management, emphasizing the importance of anatomical considerations, pharmacological aspects, and tailored post-operative strategies. The full recovery and subsequent release of the viper within 10 days of treatment exemplify the efficacy of minimalistic yet precise veterinary interventions in wildlife rescue scenarios.

**Keywords:** Bandaging, mitigate, laceration

### Introduction

This case study documents the successful treatment of a Russell's viper (*Daboia russelii*) after sustaining a severe lacerated wound from an automobile accident. Russell's viper is a species known for its medical significance due to venom potency (Warrell, D. A., 1989) <sup>[1]</sup>, but there is limited literature on physical trauma management in these species.

### Case Presentation

A mature male Russell's viper was presented with a history of an automobile accident. The viper exhibited an elongated laceration along the right side of the cranial ribs. Notably, the axial musculature, including the levator costa iliocostalis supracostalis lateralis superior and inferior, was intact but showed slight abrasion, with major injury involving the skin and scales (Gasc Jean-Pierre, 1981) <sup>[5]</sup>.

### Material and Methods

Given the emergency nature, standard fasting protocols (Fowler M. and Miller E., 2012) <sup>[3]</sup> were bypassed. The injury was cleaned, scrubbed with povidone-iodine, and desensitized using local infiltration with 2% lignocaine. Using polyglycolic acid no. 0, a simple interrupted suture pattern was employed. Post-operatively, the snake received meloxicam (0.2 mg/kg) subcutaneously and enrofloxacin (5 mg/kg) intramuscularly (Carpenter J., 2013) <sup>[2]</sup>

### Result and Discussion

The snake fully recovered in 10 days, showcasing the resilience of reptiles to surgical interventions and the efficacy of minimalistic post-operative care in such cases. The immobilization of the surgical part in reptiles is challenging, and application of bandages could interfere with their feeding habits, potentially leading to suffocation (Mader, D. R., 2006) <sup>[8]</sup>. The management of traumatic injuries in reptiles, particularly venomous snakes like



**Fig 1:** Local infiltration of the lacerated wound with diluted lignocaine hydrochloride 2% post flushing with normal saline (1A); The wound immediately post suturing using PGA no. 0 (1B).

Russell's viper, poses unique challenges. The successful recovery of the Russell's viper in this case study underscores several key considerations in reptilian veterinary medicine and wildlife rehabilitation. The resilience of reptilian tissue to trauma and subsequent surgical interventions is noteworthy. Reptiles' skin, particularly in snakes, exhibits significant elasticity and a remarkable capacity for regeneration (Alibardi, L., 2010)<sup>[1]</sup>. This elasticity was a crucial factor in the surgical repair and healing process of the viper's laceration. The use of meloxicam and enrofloxacin in this case aligns with the recommended practices in reptilian medicine (Mader, D. R., 2006)<sup>[8]</sup>. However, the pharmacokinetics of drugs in reptiles can vary significantly from mammals, necessitating careful dosing and monitoring (Plumb, D. C., 2011)<sup>[9]</sup>. The minimally invasive approach in post-operative care, avoiding the use of bandages, is consistent with the recommended practices for reptilian surgery (Jacobson, E. R., 2007)<sup>[7]</sup>. Reptiles often exhibit stress and complications with restrictive bandaging, highlighting the importance of tailored post-operative strategies (Warwick, C., *et al.*, 2013)<sup>[10]</sup>

This case highlights the importance of specialized knowledge and facilities for the rescue and rehabilitation of wildlife, particularly for species that are less commonly treated due to perceived dangers or lack of expertise (Gilbert, S., *et al.*, 2012)<sup>[6]</sup>, especially for species like Russell's viper, which may pose additional risks due to their venomous nature (Fry, B. G., *et al.*, 2009)<sup>[4]</sup>.

## Conclusion

This case underlines the critical role of prompt and tailored veterinary interventions in wildlife rescue scenarios. The successful treatment and subsequent release of the Russell's viper demonstrate the feasibility and importance of such interventions in conserving wildlife, even for species that are often overlooked due to their venomous nature. This case also reinforces the need for continued research and development of best practices in reptilian veterinary medicine and wildlife rehabilitation.

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