Case Report

Acute kidney injury following rhabdomyolysis and sepsis after non-poisonous desert monitor bite

Address for correspondence:
Dr. Poonam Gupta, Department of Anaesthesia and Intensive Care, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi - 110 029, India.
E-mail: p.gupta182@gmail.com

Access this article online

Website: www.ijaweb.org

DOI: 10.4103/ija.IJA_241_17

Quick response code

Poonam Gupta, Pradeep Kumar Verma

Department of Anaesthesia and Intensive Care, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India

ABSTRACT

The desert monitor, *Varanus griseus*, is a species of desert monitor lizard found in North-Western India. They are believed to be non-poisonous. We report a case of Indian desert monitor bite leading to acute renal failure following rhabdomyolysis and severe sepsis. Prompt diagnosis and treatment resulted in the favourable outcome. This is author's intent to highlight the complication that may occur after Indian desert monitor bite.

Key words: Acute kidney injury, desert monitor, envenomation, rhabdomyolysis, skin and soft tissue infection

INTRODUCTION

Very few cases of an animal bite are reported in the emergency ward. Infections following animal bite are uncommon but if they occur, may be severe in nature and may progress to potentially fatal sepsis.

Chandan Goh as commonly known is a species of monitor lizard found in North-Western India and reported to be non-poisonous.[1]

We report a case of acute renal failure (ARF) secondary to rhabdomyolysis with sepsis, coagulation disorder and cellulitis of right leg after the bite of monitor lizard (GOH). The aim is to alert the treating physician of such possible complication that may occur after non-poisonous Indian desert monitor bite.

CASE REPORT

A 45-year-old healthy male patient presented in medical emergency ward following 2 days of witnessed lizard (GOH) bite while he was passing through the fields. His chief complaints were severe pain, marked swelling of the right leg and decreased urine output. On the day of admission, the patient was conscious with Glasgow coma scale (E4V5M6) and stable vitals. Next day, his condition deteriorated in the ward, developed respiratory distress with a respiratory rate (RR) of 34–36/min, oxygen saturation 85%–90%, PaO_2 64.1 mmHg at FiO_2 0.4, PCO_2 22.7 mm Hg, pH 7.29 bicarbonate17.2 mmol/L and BE (−) 15.4. He was shifted to Intensive Care Unit (ICU) and treated with invasive mechanical ventilation. His total urine output was ≈350 ml over last 24 h and it was tea coloured.

Local examination of right leg revealed extensive cellulitis with marked oedema extending up to the lower abdomen. On the dorsal aspect of the right lower leg, there were two big hemorrhagic bullae measuring 5" × 3" and 2" × 3" and many smaller bullae on dorsal aspect of foot [Figure 1]. Doppler study of the right leg ruled out compartment syndrome. Blood investigations on day 2 (ICU) suggested that patient

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Gupta P, Verma PK. Acute kidney injury following rhabdomyolysis and sepsis after non-poisonous desert monitor bite. Indian J Anaesth 2017;61:837-9.

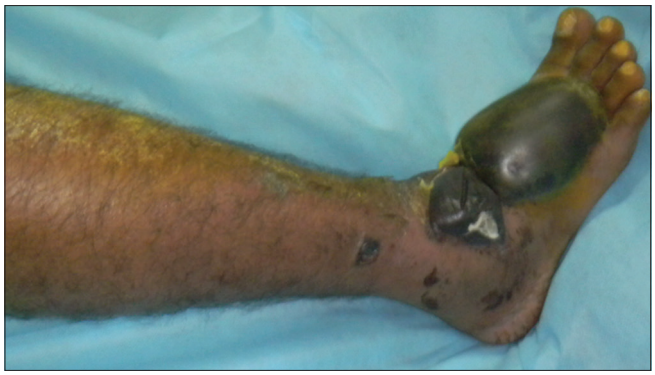

Figure 1: Haemorrhagic bullae after monitor lizard bite

had developed neutrophil leucocytosis, intravascular haemolysis and acute kidney injury (AKI) [Table 1].

In ICU, the patient was given intravenous (IV) antibiotics (injection tigecycline 100 followed by 50 mg BD) and injection metronidazole 500 mg 3 times a day). Normal saline was infused under central venous pressure guidance followed by injection frusemide 40 mg IV. The patient, however, remained oliguric. Urinalysis revealed reddish brown urine with 3+ protein, pH 6, positive for blood, 20–25 red blood cells and 2–5 white blood cells/high-power field. This led a suspicion of AKI due to Rhabdomyolysis. Raised serum creatinine kinase (5340 U/L; [normal range 0–177 U/L]) and serum myoglobin (>500 ng/ml [N~0–85 ng/mL]) confirmed the diagnosis of rhabdomyolysis.

Haemodialysis was initiated as urine output was <30 ml overnight with deteriorating renal profile. In ICU (day 8), after five daily haemodialysis, patient's general condition improved. He was successfully weaned off the ventilator on 6th day. His creatine kinase (CK) levels and serum myoglobin also showed decreasing trend and returned to normal on 13th day [Table 2].

After 15 haemodialysis sessions, urine output improved to 2 ml/kg/h. Nutrition was initially provided with enteral renal formula (Fresenius Kabi) and subsequently on oral renal diet.

Patient was shifted to ward on day 18 in ICU and discharged from hospital after 3 weeks.

DISCUSSION

The desert monitor, *Varanus griseus*, is a species of monitor lizard found throughout North Africa and South Asia. Nine species of monitor lizards are

Table 1: Biochemical parameters

Parameters	On day of admission (day 1)	In ICU (day 2)
Hb (g%)	11	5
TLC (cell/mm^3)	7400	17,600
Platelet count (lakhs/mm^3)	120×10^3	<11×10^3
Serum Na (mEq/L)	147	130
Serum K (mEq/L)	3.3	5.7
Blood urea (mg%)	84	230
Serum creatinine (mg/dl)	3.5	9.1
Liver function test	Normal	Normal
APPT (s)	Normal	53
PT/INR	17/1.03	23/1.3

APPT – Activated partial prothrombin time; PT/INR: Prothrombin time/internationalized normalized ratio; HB – Haemoglobin; TLC – Total leucocyte count; ICU – Intensive Care Unit

Table 2: Trend of muscle enzyme, serum creatinine

	Day 3	Day 8	Day 13
Serum creatine kinase (U/L)	5430	1470	85.4
Serum myoglobin (ng/ml)	>500	251	50
Serum creatinine (mg%)	9.1	7.8	3.4
Urine output (ml)	<30	550	1500

reported from Asia among the 46 species worldwide.[2] Bengal Monitor lizard (*Varanus bengalensis*), Desert Monitor Lizard (*V. griseus*), Yellow Monitor Lizard (*Varanus flavescens*) and Water Monitor Lizard (*Varanus salvator*) are four species of monitor lizard reported in India. Bengal monitor lizard is the most common in India mainly in the region of Himachal Pradesh, parts of Jammu and Kashmir and Uttar Pradesh.[3] The monitors are carnivorous and are considered to be non-poisonous. Various pathogenic and lethal bacteria have been demonstrated in the saliva of this lizard and the wounds inflicted by this animal may result in bacteraemia with sepsis.[1] The possibility of venom in the *Varanus* genus is although widely debated, recent studies have shown that there may be venom glands in the mouth of several, if not all the species like that of venomous lizard (Heloderma).[3]

There are no evidence-based recommendations for the management of lizard envenomation.[2] Management should be supportive and treat the associated infection and complications.

Infections following animal bite are polymicrobial and involve anaerobic and aerobic Gram-positive and Gram-negative pathogens. Some of these pathogens may produce rapidly progressive infection and fatal sepsis. Assuming that relevant pathogens are covered appropriately, both single-agent and/or combination regimens are equally effective.[4]

Skin and soft tissue infection (SSTI) guidelines recommend tigecycline, a glycylcycline antibiotic with higher penetration into the skin and soft tissues for polymicrobial infection in complicated SSTI. No dosage adjustments are needed with renal impairment or patients undergoing dialysis.[5] Hence injection tigecycline was started to cover polymicrobial infection, along with injection metronidazole.

Rhabdomyolysis is a common posttraumatic sequel, and it can also be seen in various non-traumatic entities such as drugs, metabolic, toxins and venoms.[6] Tea-coloured urine, muscle weakness, myalgia and swelling is the hallmark of rhabdomyolysis. It can be asymptomatic or manifest as a severe syndrome with ARF and high mortality.

Raised serum muscle enzymes – CK or myoglobin level is diagnostic of rhabdomyolysis. Urinalysis will reveal the presence of protein, brown casts and uric acid crystals. A urine dipstick is a quick way to screen for myoglobinuria.

In less severe cases, vigorous hydration under central venous pressure guidance, alkalisation of the urine and mannitol is recommended to maintain renal perfusion and reduction in myoglobin casts in renal tubules to prevent AKI.[7] Haemodialysis is opted if above measures fails.

In our case, rhabdomyolysis was confirmed with raised value (5 times) of serum muscle enzymes. After volume expansion and diuretics fail to maintain renal perfusion, patient responded to haemodialysis.

Development of severe leucocytosis and rhabdomyolysis induced AKI haemolysis (as indicated by falling and persistent low haemoglobin) and thrombocytopaenia (low platelet count) following dessert monitor bite could be due to toxin (venom) or oral bacteria in their mouth. The patient was successfully managed with appropriate antibiotic and haemodialysis after prompt investigation and diagnosis.

Two case reports of monitor lizard bite with AKI, rhabdomyolysis, sepsis and coagulation disorder have been reported but with fatal outcome.[8,9]

CONCLUSION

This case highlights the need for awareness of complications in patients who are attacked by monitor lizard (GOH). It also illustrates the approach following a serious and unusual presentation of sepsis, rhabdomyolysis, AKI after non-poisonous Indian desert monitor (GOH) bites. Hence, early diagnosis and appropriate antibiotic therapy are of paramount importance, as time to therapy alters morbidity and mortality rates.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Bennett D. Desert monitor, grey monitor. A Little Book of Monitor Lizards. UK: Viper Press; 1995. Availaible from: https://wwwen.wikipedia.org/wiki/Desert_monitor. [Last accessed on 2016 May 02].
2. Ghimre HR, Shah KB. Status and habitat ecology of the yellow monitor, *Varanus flavescens*, in the Southeastern part of Kanchanpur district, Nepal. Herpetol Conserv Biol 2014;9:387-93.
3. Rao RJ. Survey of the Conservation Status of Monitor Lizards (*Varanus* sp) in India. Available from: http//www.envfor.nic.in/divisions/re/ta5p5.html. [Last accessed on 2016 May 02].
4. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, *et al.* Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. Clin Infect Dis 2014;59:e10-52.
5. Montravers P, Bassetti M, Dupont H, Eckmann C, Heizmann WR, Guirao X, *et al.* Efficacy of tigecycline for the treatment of complicated skin and soft-tissue infections in real-life clinical practice from five European observational studies. J Antimicrob Chemother 2013;68 Suppl 2:ii15-24.
6. Vanholder R, Sever MS, Erek E, Lameire N. Rhabdomyolysis. J Am Soc Nephrol 2000;11:1553-61.
7. Lane R, Phillips M. Rhabdomyolysis. BMJ 2003;327:115-6.
8. Vikrant S, Verma BS. Monitor lizard bite-induced acute kidney injury – A case report. Ren Fail 2014;36:444-6.
9. Kushwaha AS, Pathak A, Kushwaha N. Fatal monitor lizard bite: A case report. Int J Nurs Health Sci 2015;2:70-2.