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%, PaO₂ 64.1 mmHg at FiO₂ 0.4, PCO₂ 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...
Gupta and Verma: Life threatening complications after bite of non-poisonous monitor lizard (Chandan Goh)

had developed neutrophil leucytosis, 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 reported from Asia among the 46 species worldwide. 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. 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. 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*).

There are no evidence-based recommendations for the management of lizard envenomation. 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.

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**Table 1: Biochemical parameters**

| Parameters                  | On day of admission (day 1) | In ICU (day 2) |
|-----------------------------|-----------------------------|----------------|
| Hb (g%)                     | 11                          | 5              |
| TLC (cell/mm³)              | 7400                        | 17,600         |
| Platelet count (lakhs/mm³)  | 120×10³                     | <11×10³        |
| 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)                    | 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

| Parameters                  | 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   |

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**Table 2: Trend of muscle enzyme, serum creatinine**

Figure 1: Haemorrhagic bullae after monitor lizard bite
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, alkalinisation 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 desert 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.

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**Conflicts of interest**

There are no conflicts of interest.

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