

Local gangrene due to scorpion sting

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Abstract

Background: Scorpion sting is common problem in rural India. Majority of cases are unreported and are managed locally.

Aim: The aim of this study is to know the immediate signs and symptoms and late complication due to scorpion sting.

Methods: This is a retrospective study done in a hospital attached to medical college of North Karnataka. All the patients with history of scorpion sting during the period from April 2015 to December 2016 were included in the study.

Results: The study consisted 48 cases of scorpion sting at various sites. 21 were male patients and the rest were female. Maximum patients were in the age group of 6-20 years. Almost equal number of patients had sting bite in upper and lower limbs. Severe pain and swelling at the site of sting were seen in 78%. The immediate symptoms and signs are severe excruciating pain, swelling and redness at the site of bite. Late complications were local gangrene of fingers due to scorpion sting on dorsum of fingers. 6 patients developed cardiac dysfunction and 2 patients developed local gangrene at the site as late complication and had to undergo amputation of fingers. No mortality is reported in our study.

Conclusion: Morbid complication of local gangrene in a case of scorpion sting should be considered and at the earliest action need to be taken to prevent, control and treat the same. Periodic training for peripheral doctors regarding management of scorpion sting should be arranged.

Key words: Scorpion sting; gangrene; symptomatology

Introduction

Scorpion (Figure 1) sting is common problem in rural India. Majority of cases are unreported and are managed locally. Clinical presentation depends on species, type and dose of venom. Severe life threatening complications like shock, myocarditis and pulmonary edema have been described in various studies. Majority of the patients present with severe excruciating pain and swelling at site of sting and are managed locally. Local gangrene of fingers due to scorpion sting is reported in literature as rare cases. Amputation of fingers of hand is a morbid complication causing suffering throughout the life.



Figure 1. One variant of scorpion

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Materials and methods

This is a retrospective study done in a hospital attached to medical college of North Karnataka. All the patients with history of scorpion sting during the period from April 2015 to December 2016 were included in the study. 48 cases of scorpion sting at various sites were studied and the results were analyzed statistically.

Results

In the present study, total number of 48 patients with history of scorpion sting were included. Among them, 21 (44.7%) were males and the rest were females. Maximum of patients (27.6%) were in the age group of 6-20 years, followed by 21.2% in the age group of 36-50

years (Figure 2, 3, 4). Almost equal number of patients had sting in the upper and lower limbs i.e., 44.7% and 46.8% respectively, whereas 4% of patients had sting in the other parts of the body i.e., on head, back, and other parts (Figure 3, 5). 93% of patients stayed in the hospital for less than 7 days, whereas only one patient had to stay in the hospital for >29 days (Figure 5). Severe pain and swelling at site of sting was seen in 78% of patients, 6 patients developed cardiac dysfunction and 2 patients had developed local gangrene at site sting as a late complication, and had to undergo amputation of the affected gangrenous fingers (Figure 6).

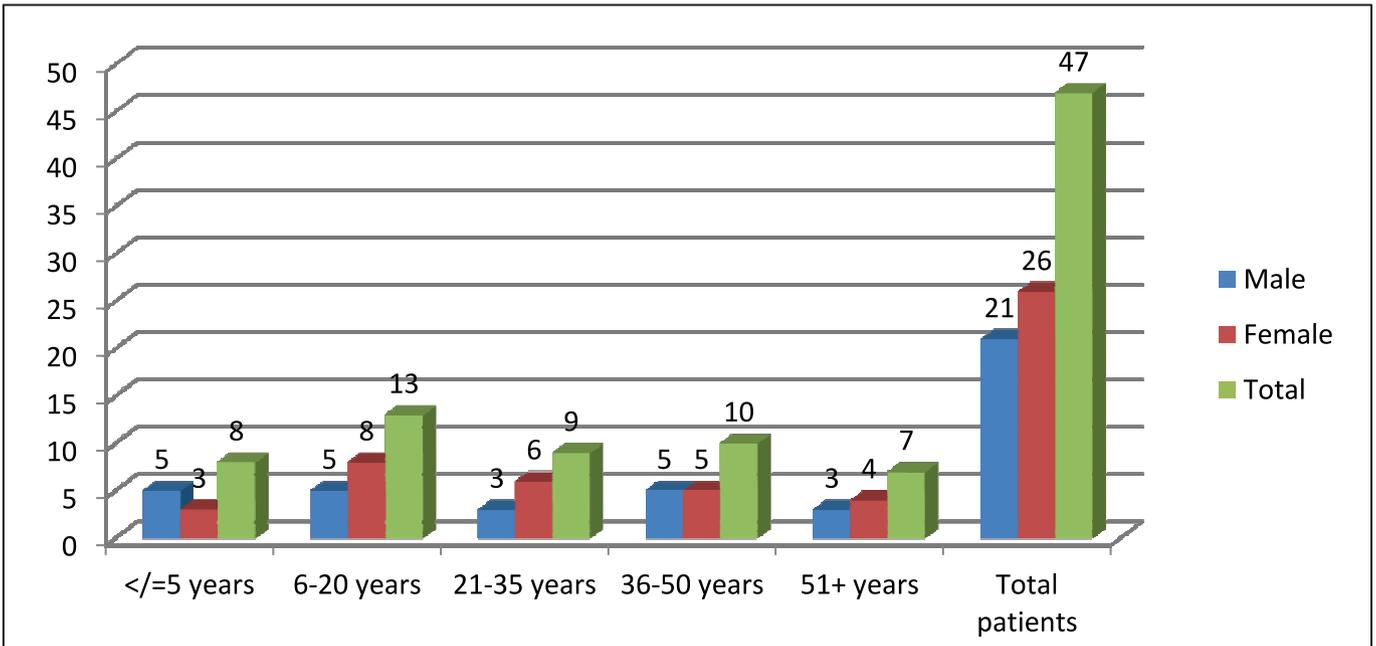


Figure 2. Distribution of study subjects according to age and gender

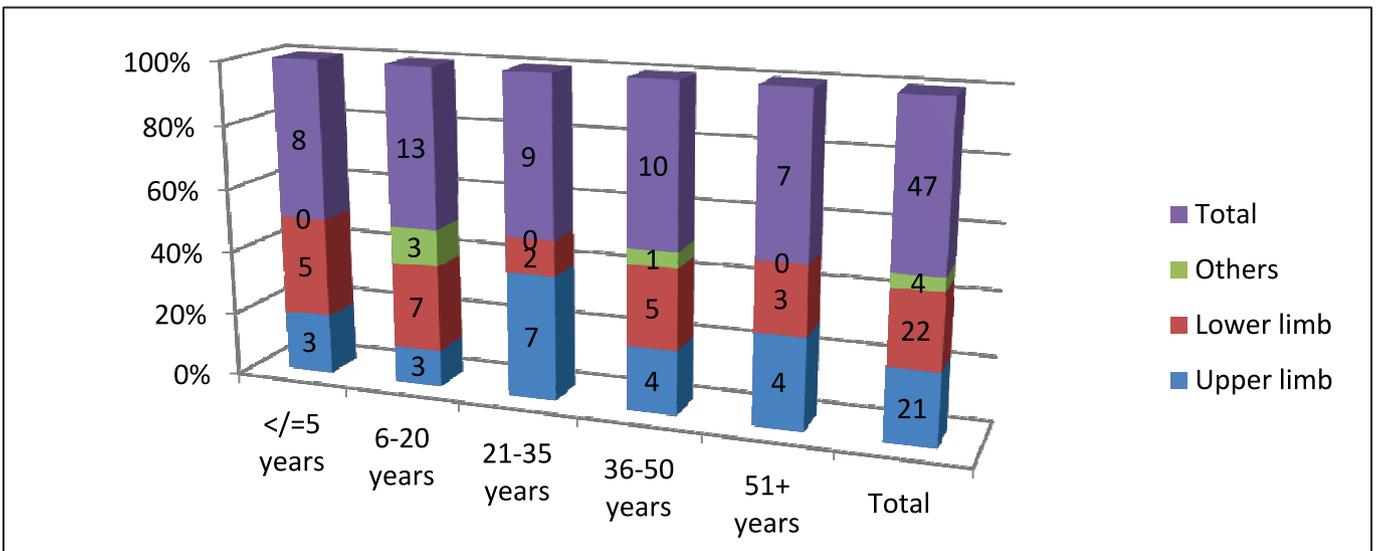


Figure 3. Distribution of study subjects according to age and site of scorpion sting.

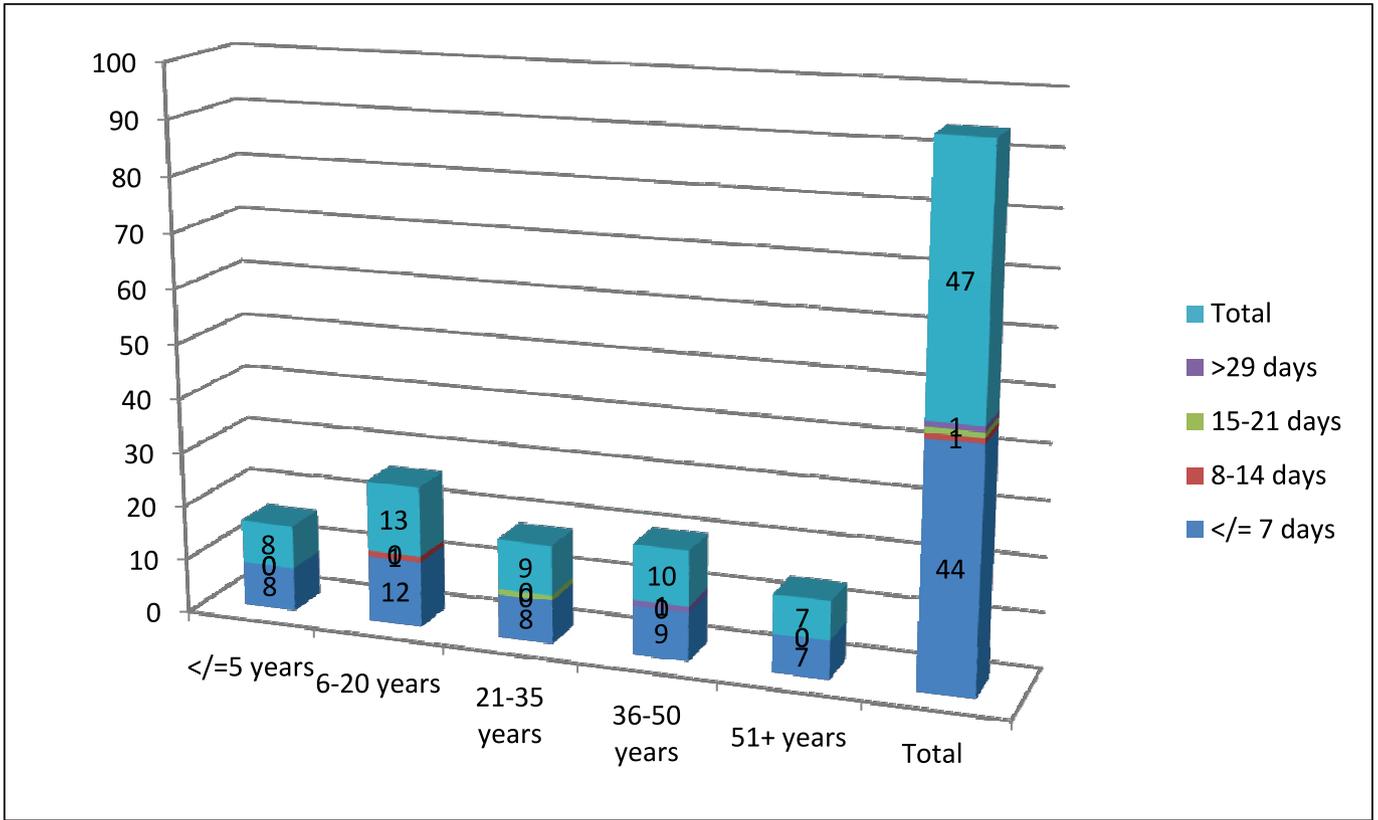


Figure 4. Distribution of study subjects according to age and duration of hospital stay.

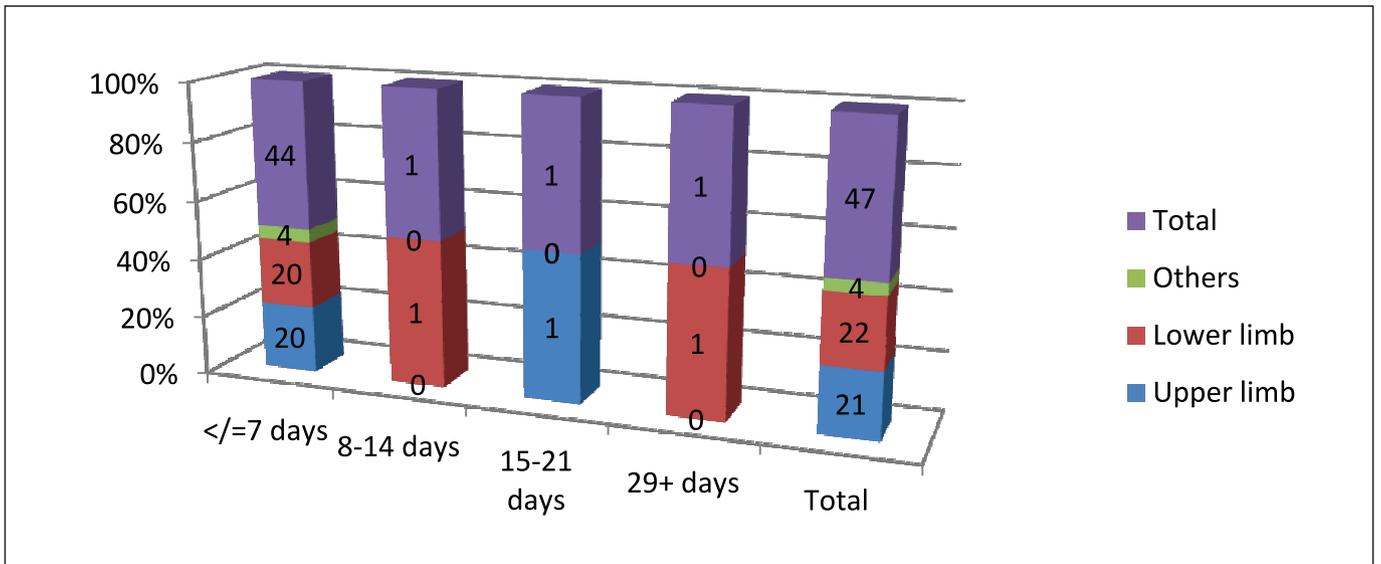


Figure 5. Distribution of study subjects according to site of scorpion sting and duration of hospital stay

Complications of scorpion sting

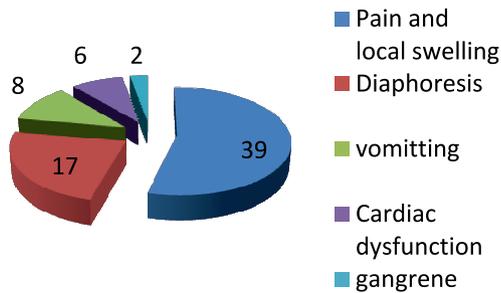


Figure 6. Complications of scorpion sting among study subjects.

In the study both the patients who developed gangrene were females. One patient, 30 year old had sting on dorsum of right middle finger reported to the hospital 4 days after sting (Figure 7). The patient had severe pain and swelling of right hand, there was no evidence of any past medical or surgical condition causing gangrene. Despite aggressive medical management patient developed gangrene on day 14th of sting (Figure 8), and the Doppler study suggested thrombosis of right distal ulnar and radial artery. She underwent amputation of affected fingers of right hand. Second patient 23 year old female with scorpion sting over right dorsal aspect of ring finger presented with frank gangrene of ring finger on 22nd day of the sting. This patient underwent amputation of right ring finger distal phalynx (Figure 9).



Figure 7: Scorpion sting over right middle finger dorsal aspect.



Figure 8: Gangrene of the fingers.



Figure 9: Ventral View of amputated ring finger

Discussion

Scorpion stings are a major public health problem in many underdeveloped tropical and subtropical countries, especially Saharan Africa, South India, the Middle East, Mexico, and South Latin America.^{1,2} The estimated annual number of scorpion stings is 1.2 million leading to 3250 deaths (0.27%)³. For every person killed by a poisonous snake, 10 are killed by a poisonous scorpion. In Mexico, 1000 deaths from scorpion stings occur per year. In the United States, only 4 deaths in 11 years have occurred as a result of scorpion stings. In Asia epidemiological data on scorpion stings is scarce. India is the most affected, with a reported incidence of 0.6%³. A retrospective

analysis of the calls received by the national poison information center (NPIC) between April 1999 and March 2002 showed that, out of 995 calls, 6 involved scorpion sting⁴. During hot months March to June and September to October daily cases of severe scorpion sting are received at endemic areas of western Maharashtra, Karnataka, Andhra Pradesh, Saurashtra and Tamil Nadu. 11-15 severe scorpion sting due to *Mesobuthus Tamulus* species of scorpion per month is reported from kokan region.^{5,6,7,8,9} Higher incidence of scorpion sting occurred during hot months attributed to increase in agriculture activities^{7,8,9,10}. This part of the country where study is conducted belongs to north Karnataka with hot climate. Scorpion deaths are not reported in this region in adult patients, and very rarely deaths are reported in paediatric age group. Majority of the patients have local symptoms in the form severe excruciating pain with redness and swelling at the site of sting and are treated locally. Hence they are not reported.

The search of the literature did not show any evidence which causes local gangrene of the fingers due to scorpion sting. For the gangrene to occur, there is a need of the venom to cause thrombosis of the arteries. Hence a research is needed to show the cause of gangrene and its prevention.

Conclusion: In the view of above study conducted we would like to conclude that the morbid complication of local gangrene in a case of scorpion sting over fingers should be considered and at the earliest, action need to be taken to prevent, control and treat the same. Periodic training for peripheral doctors regarding management of scorpion sting should be arranged. Scorpion sting should be included as a notifiable disease.

References

1. Khatony A, Abdi A, Fatahpour T, Towhidi F. The epidemiology of scorpion stings in tropical areas of Kermanshah province, Iran, during 2008 and 2009. *J Venom Anim Toxins Incl Trop Dis.* 2015; 21:45.
2. Queiroz AM, Sampaio VS, Mendonça I, Fé NF, Sachett J, Ferreira LC, et al. Severity of Scorpion Stings in the Western Brazilian Amazon: A Case-Control Study. *PLoS One.* 2015; 10 (6):e0128819.
3. Chippaux JP, Goyffon M. Epidemiology of scorpionism: a global appraisal. *Acta Trop.* 2008 Aug; 107 (2):71-9.
4. Gupta SK, Peshin SS, Srivastava A, Kaleekal T. A study of childhood poisoning at national poisons information centre. All India Institute of Medical Sciences, New Delhi. *J Occup Health* 2003;45(3):191-6.
5. Gaitonde BB, Jadhav SS and Bawaskar HS. Pulmonary edema after scorpion sting. *Lancet* 1978; 1(8061):445-6.
6. Bawaskar HS, Bawaskar PH. Prazosin in management of cardiovascular manifestations of scorpion sting. *Lancet* 1986;1(8479):510-1.
7. Bawaskar HS. Diagnostic cardiac Premonitory signs and symptoms of red scorpion sting. *Lancet* 1982; 1(8271):552-4.
8. Bawaskar HS and Bawaskar PH. `Sting by red scorpion (*Buthotus*

Tamulus) in Maharashtra state, India: a clinical study. *Trans Roy Soc Trop Med Hyg* 1989;83:858-60.

9. Bawaskar HS and Bawaskar PH. Indian scorpion envenoming. *Indian J Pediatr* 1998;65:383-91.
10. Mundle PM. Scorpion stings. *Br Med J.* 1961 Apr 8; 1(5231): 1042.

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