

TOXOALLERGIC REACTIONS AFTER A BITE FROM MYRIAPODA, GENUS SCOLOPENDRA IN VARNA REGION DURING THE PERIOD 2003 – 2007

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SUMMARY:

The bite by the centipede scolopendra results in a significant local syndrome with pain and swelling of the bitten limb and also in minor to moderate expressed general toxoallergic symptoms. In some cases differential diagnostic problems are possible. The authors describe 39 patients with scolopendra envenomation. All of them were bitten in Varna region during the period 2003 - 2007. 22 patients were hospitalized with a severe local syndrome and/or general toxic syndrome with medium severity. The rest were treated as out-patients. In 3 cases a great edema of the bitten extremity lasting 3 to 9 days was observed. All of the patients restored completely to health without complications. 4 of the patients had been bitten by scolopendra before. The real frequency of Scolopendra bites is difficult to be estimated as we lack information about some of the minor cases.

Key words: myriapoda, centipedes, scolopendra, envenomation, intoxication, pain, edema, anaphylactoid.

Centipedes are widely distributed mainly in tropical and subtropical regions all over the world. There are more than 550 species from the genus scolopendra. Typical for Europe is *Scolopendra cingulata* Latr. but other species / *Sc.gigantea*, *Sc.heros*, *Sc. Subspinipes* / could be transported accidentally from other continents. All scolopendras produce venom for defense and attack. They are active at night and prefer the dark, moist places under stones, logs, leaves. In some extremely wet or dry years or when their habitat is destroyed these centipedes can enter human homes and seek there a dark place again. In certain conditions they also can become aggressive towards people. Their body has 21-23 segments, each with a pair of legs with sharp claws. The first pair of legs next to the mouth is called maxillipedes. They are modified into hollow claws connected with poison gland in the base. The bite leaves double puncture often with a small hemorrhage. The composition of the venom has been not fully examined, but it is clear that it consists of strong biologically active components like serotonin,

histamine, acetylcholine, hyaluronidase etc. Unlike bee venom no phospholipase was found. Some components like lipoprotein factor influencing the release of neurotransmitters, toxin-S-cardio depressant factor etc. are still under investigation. The scolopendra venom has antibacterial components. Most authors consider that there is no risk of additional bacterial infection with the exception of tetanus. It was accepted that a bite by scolopendra is not fatal for man. The only reliable lethal case of scolopendra envenomation is a case of Philippine child bitten on the head by *Sc.subspinipes*. DL for mice is 0.01 venom secretion per gram body weight. A clearly marked local syndrome is typical - immediate sharp and burning pain, irradiating along the bitten limb, edema, erythema, paresthesias. In singular cases lymphangitis, lymphadenitis, high local temperature or small central necrosis round the punctures were found. A mild to medium severe general syndrome appears too - a transitory weakness, dizziness, sickness, headache, fever, febrility. In some cases anaphylactoid reactions like urticaria, angioedema of the whole body and arterial hypotonia were observed. Usually the general symptoms disappear quickly- 3-4 hours to 24 hours. The local changes disappear in 1-3 days. In case of necrosis the healing lasts about 1 month. Rare allergic reactions types III have been described. There is no data about long lasting complications.

Centipede envenomations are not frequent in Bulgaria. Some cases were reported in South Bulgaria before. However during the last 5-7 years such cases multiplied in North Bulgaria, Varna region, probably because of climatic changes.



MATERIAL:

The authors describe 39 patients with toxoallergic reactions after a scolopendra bite, in a 5 - year period - 2003 – 2007. The bitten by Scolopendra were admitted from April

to October. All of them had been consulted by a toxicologist at the department of Toxicology, Naval Hospital-Varna. In 17 cases the treatment was ambulatory and 22 patients were hospitalized for 1-5 days. Data from hospital case files, ambulatory files and journals for control examinations were used. Laboratory tests including routine blood tests, coagulation status and biochemical tests were made in all cases.

RESULTS:

The described patients were at the age from 19 to 77 years old. 21 / 53.84%/ were men and 18 / 46.15% /- women. None of the patients declared insect-allergy or other allergy. Co morbidity: 15 patients with arterial hypertension.7 of them treated with beta-blockers.

25 of the patients had the incident during work in garden or yard; 5- home or cellar, 4- while resting in the evening or late afternoon. One of them got the bite when tried to take end see better a centipede. / table 1/

Table 1. Circumstances of the bite and envenomation

Place	Number of patients	Percentage
Working in the yard, garden or orchard	25	64.10 %
Cleaning the cellar	3	7.69%
Cleaning the home	2	5.13%
Rest or sleep	4	10.25 %
Carrying wood logs	2	5.13 %
Opening a pack of manure	1	2.56%
Not clear	2	5.13 %

4 of the patients declared previous bites by Scolopendra. 30 patients / 76.9 %/ had seen the centipede. The diagnosis of the rest 9 patients was done considering the circumstances, exclusion the possibility of snake bite and the typical local syndrome. With the exception of 1 man bitten on the head the rest of them were bitten on the limbs 13-on the foot and 25-on the hand. All of them got an immediate local reaction with strong burning or piercing

pain and swelling from 3cm/d to 20 cm /d and a burning sensation along the limb. The pain lasted from 30 minutes to several days. With the exception of 2 patients bitten on the finger all the others had a significant local swelling. In 13 cases it included more than 2 joints and in 7 cases- the whole limb. In 3 cases the edema lasted more than 70 hours- from 3 to 9 days.

Table 2. Local symptoms.

Pain	Edema	Local hyperesthesia	Double puncture wound	Necrosis around the bite
39	37	29	30	7
100 %	94.87 %	74.35 %	76.92 %	17.94 %

21 patients / 53.84 %/ described general toxic syndromes lasting from 15 minutes to 7-8 hours. The most frequent complaints were: general discomfort, sickness, nausea, general weakness. 6 patients had more severe toxic

allergic reactions: generalized itching, urticaria, edema of distant parts of the body, dyspnea, strong nausea and vomiting, headache, minor hemodynamic instability.

Table 3. General toxic allergic symptoms.

No general reaction	Minor general reaction	Medium severe and severe anaphylactoid reaction	Total number of the patients
18	15	6	39
46.15 %	38.47 %	15.38 %	100%

The hospitalized patients were treated in the Department of Toxicology - Varna from 1 to 3 days. In 8 cases during the control examination the patients described periodical transitory medium strong pains in the bitten extremity that disappeared after the first month. All the ambulatory patients were observed for 2-3 hours and treated.



DISCUSSION:

The described cases of scolopendra bites confirm the opinion of many authors that the main clinical presentation is the transitory local syndrome with a severe pain, edema and paraesthesia. In 29 cases the patients had a strong hyperesthesia for some hours, including not also the edematous region but the unchanged parts of the limb too. Unlike the Hymenoptera stings nobody has made a standard for a “normal” local reaction. We think that a local edema over 10 cm/d, with or without central necrosis and a tendency to enlarge should be accepted as an abnormal extended reaction. We saw such reaction in 20 cases. Additional bacterial infection was not found. This confirms the opinion about the antibacterial qualities of scolopendra venom.

The composition of the centipede venom is similar to the Hymenoptera venom; therefore some general toxoallergic reactions are expected. There were 6 cases of anaphylactoid reaction-arterial hypotonia, urticaria,

angioedema of distant from the bite regions, bronchospasm. Another group of 15 persons described a transitory general discomfort, headache and nausea, which disappeared spontaneously. As 35 of the patients had a scolopendra bite for the first time in their lives we can not discuss a true anaphylaxis. It is possible that in some milder cases we have observed not a toxoallergic but a stress reaction.

In all cases the treatment included H1-blockers, local compresses, non-opioid analgesics, TAT, uplift position of the limb, advices for anti allergic diet for 3-4 days. The early treatment with H1-blockers diminishes the local syndrome and usually helps to avoid the necessity of opioid analgesics. In cases of abnormal local reaction corticosteroids IV were added. The routine antibiotic treatment is not necessary. In 2 cases with a prolonged edema and a secondary infection we included antibiotic IV. All the cases with a general anaphylactoid reaction and the cases of combined abnormal local reaction and a general reaction were treated with intravenous infusions, corticosteroids, adrenaline, regimen in bed etc. As a whole the toxoallergic reactions after a scolopendra bite in the described 39 cases had a benign clinical course. The general symptoms disappeared spontaneously or were treated successfully from 1 hour to 7-8 hours. The local reaction was successfully treated and disappeared in 3-4 hours to 1-9 days.

Although not very frequent in Bulgaria scolopendra envenomations have created some serious difficulties in the differential diagnosis. These night active and very fast centipedes often are difficult to be noticed by the victim. The basic differential diagnoses are: 1. A snake bite with viperine envenomation. 2. A Hymenoptera sting /bee, wasp, hornet/. 3. A mechanical puncture wound.

We consider that all the cases of scolopendra bites should be consulted by a doctor. The patients without general complain and with a “normal” local reaction should be treated ambulatory. The cases of abnormal extended local reaction, those with a severe pain syndrome and those without clear etiology should be kept at least 4 hours for clinical observation. The hospitalization of the patients with general anaphylactoid reactions and/or severe local reactions is mandatory.

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