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Bumblebee Stings

General

In general, bumblebees are peaceful insects and will only sting when they feel cornered or when their hive is disturbed. When a bumblebee stings, it injects a venom into its victim. Only female bumblebees (queens and workers) have a sting; male bumblebees (drones) do not. Contrary to a honeybee sting, the bumblebee sting has no barbs, which means that a bumblebee can pull back its sting without the sting detaching from its abdomen, thus a bumblebee can sting several times.

For most people, a bumblebee sting will only cause local swelling, but can cause an allergic reaction in some cases.

Local reactions to a bumblebee sting

Bumblebee venom, like in wasp and honeybee venom, contains certain substances that have a direct effect on the blood vessels in the skin. Most people have a local reaction with painful swelling, redness and itching around the place of the sting. Sometimes, the swelling is really pronounced, especially on parts of the body with looser skin, such as the eyelids. Normally, the local reactions disappear quickly but can last for a couple of days in some cases. A sting in the mouth or throat can be dangerous because of the risk of suffocation.

Allergic reactions to a bumblebee sting

For some people, the body reacts to the bumblebee venom through the production of IgE antibodies against albumen structures in the venom. The presence of these antibodies can be determined by a blood analysis. People who are “positive” for the presence of IgE antibodies can show an allergic reaction to the next bumblebee sting. The chance on an allergic reaction to the first sting is usually very small because no antibodies are present before the first sting.

An allergic reaction can manifest through a big to very big local reaction. Sometimes, even an entire limb can be affected in the reaction. Local reactions which are getting bigger can sometimes precede a generalized allergic reaction. Generalized allergic reactions (“anaphylaxis”) do not occur frequently

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and are characterized by the appearance of symptoms on body parts other than the one where a person was stung. The symptoms are nettle rash with itching, and sometimes swelling of the face and neck. It is possible that these symptoms can be accompanied by unexpected intestinal complaints (e.g. vomiting and diarrhoea), and/or dizziness, abundant sweating, and cold shakes. The respiratory system can also react; the allergic person could feel a tickle in the throat with a cough reaction, or tightness in the chest and squeezed throat with difficulty in breathing as a consequence. In serious cases, the heart and vascular system can also react: drop in blood pressure, loss of consciousness and anaphylaxis shock may occur. A general reaction manifests within 30 minutes after the sting. Allergic reactions have the tendency to become more serious by repetition; i.e. that an allergic person will have more serious reaction with every new sting.

Cross-reaction with honeybee venom

Because bumblebee and honeybee venom contain similar albumen structures, some people are sensitive to bumblebees as well as to honeybees. This phenomenon is called a cross-reaction.

Interactions of medicines

Some medicines (e.g. medicine against high blood pressure (beta-blocker), ACE-inhibitors, and aspirin) can strengthen the allergic reaction. People with greater chance to get stung should avoid the use of such medicines. After a bumblebee sting, it is advised to avoid alcoholic drinks and heavy physical efforts.

Prevention of bumblebee stings

Do not provoke aggressive behaviour of bumblebees: do not disturb bumblebees, do not hit bumblebees which are flying in your direction, use bumblebee hives correctly, do not bump against hives, and avoid perfumed smells.

Treatment of a local reaction

Local reactions can be relieved with ice put on the place of the sting. Creams also exist, but these have little effect. Antihistaminic tablets (such as Claritin, Alerius, Zyrtec, Xyzall, Estivan, Mizollen or Telfast) are effective to some extent. These tablets will also favourably influence a possible allergic reaction. In case of a sting in the mouth or throat, an emergency admission in the hospital is necessary.

Treatment of allergic reactions

In case of an allergic reaction one should remain calm. Panic will only worsen the situation. Call a medical doctor or emergency as soon as possible and explain clearly what happened. If you feel dizzy lie flat with the legs up. General reactions are treated with injections of adrenaline, antihistamines and corticosteroids. In case of respiratory problems an adrenaline inhaler or an epinephrine injection can be used. Cardiovascular problems should be treated in a hospital as quickly as possible.

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Desensitization cure

If you had a generalized allergic reaction to a bumblebee sting, it is possible to follow a desensitization cure. During such a cure, the body is progressively made accustomed (insensitive or tolerant) to the bumblebee venom. This cure must be followed in a specialized centre. In Belgium and The Netherlands there are expertise centres for bumblebee venom allergy and immunotherapy.

For more information on centres in your area, you can contact your company or family doctor.

Conclusion

An allergic reaction to bumblebee venom is rather rare. Nevertheless, it requires necessary attention because of the possible seriousness of such reaction.

Following preventive measures are recommended:

- Do not allow people with a known bumblebee venom allergy in your greenhouse. If necessary, hang a notification at the entrance.
- Disturb bumblebees and hives as little as possible. Be especially careful in the neighbourhood of bumblebee hives.
- Put antihistaminica tablets at the employee's disposal and encourage them to take these tablets if they are stung. Pay attention not to create a false safety feeling.
- Discuss with your company or family doctor to which hospital you can go in case of an emergency.
- It is also advised to carry an adrenaline-injector (Epipen; ALK) or adrenaline injection ampoules (Adrenaline Denolin) with you or to keep it within reach so that you can inject yourself in case of emergencies.

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Disclaimer

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