

Reported bites and stings by venomous arthropods in Hong Kong

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Introduction

Arthropods are a large and diverse group of organisms that include insects, centipedes, spiders and scorpions. They are ubiquitous and one may encounter some of them in our homes, workplace and outdoors. Most do not cause harm and will not attack unless disturbed or provoked. Their bites and stings are often painful and may cause local and systemic effects. From literature, allergic reaction to the sting in some individuals can lead to serious consequences including death. In this bulletin, arthropod bites and stings reported by the Accident and Emergency Departments (AED) of hospitals in Hong Kong, will be discussed. Some characteristics of these arthropods as well as some general principles in the prevention and management of these bites and stings will be described.

Facts and statistics

From 1 January 2006 to 31 December 2008, 126 cases of arthropod bites and stings were identified at the AED of six major regional hospitals in Hong Kong. The number of cases remained steady with clear seasonal patterns over the past 3 years (Figure 1). The frequency of cases was the highest in summer and the lowest in winter.

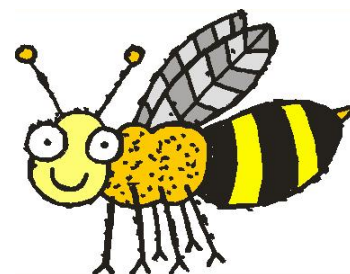
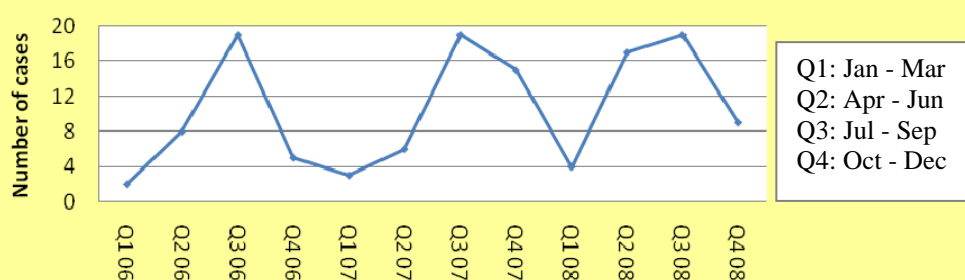
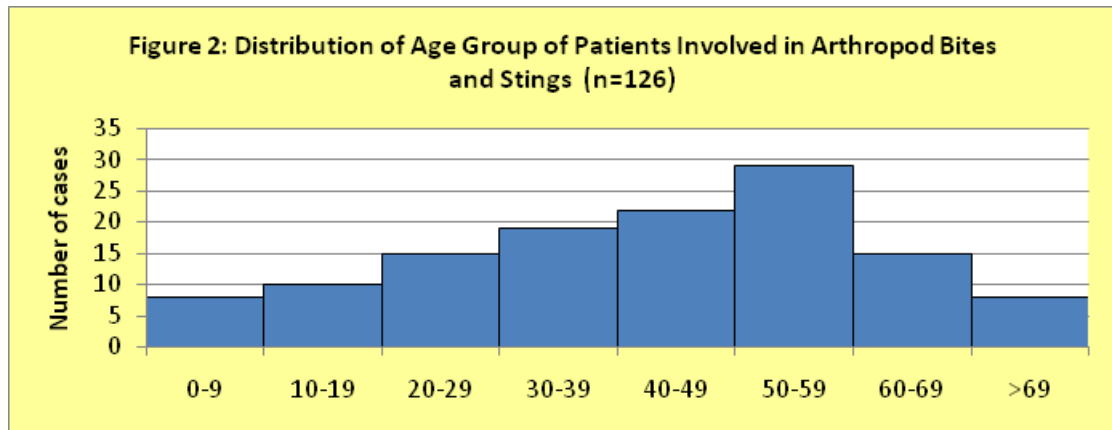


Figure 1: Number of Arthropod Bite and Sting Cases by Year and Quarter (n=126)



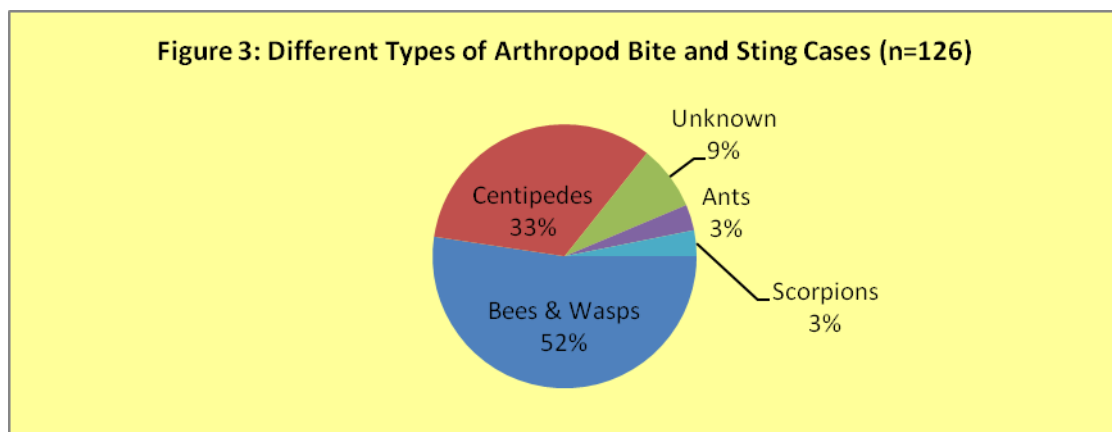
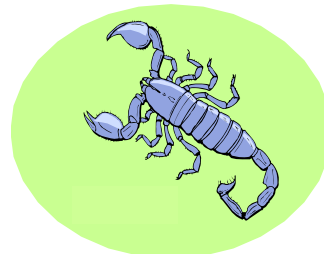
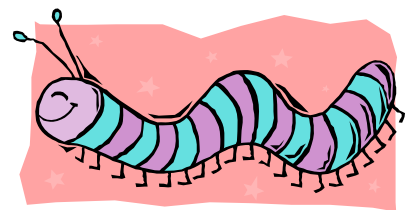
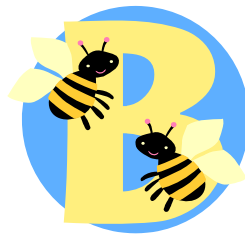
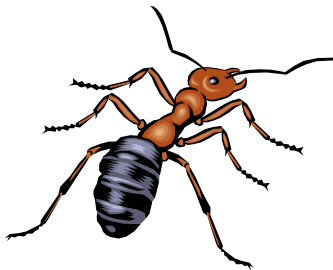


The majority of patients were aged between 30 and 59 years (Figure 2), accounting for more than 50 % of the total. More males (58%) than females (42%) were affected.



Bites and stings by venomous arthropods in Hong Kong were mainly due to the following arthropods (Figure 3):

- Bees or wasps
- Centipedes
- Ants
- Scorpions



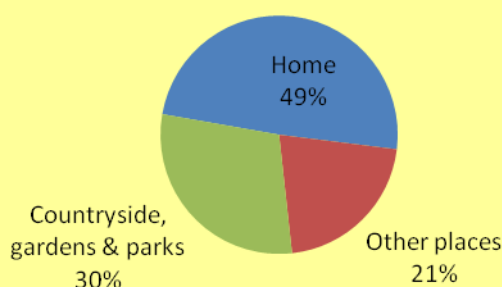
Bee and wasp stings accounted for half (52%) of the cases whilst one third (33%) were due to centipede bites. There was no reported case of spider bites identified from AEDs records.



Among the cases with a known place of exposure, almost half (49%) of the bites and stings occurred at home, in which 30% were village homes. Another 30% of the bites and stings occurred in countryside, gardens and parks (Figure 4).



Figure 4: Distribution of Known Places of Exposure to Arthropod Bites and Stings (n=61)



Two-thirds of centipede bites occurred at home (Figure 5a), while about half of bee and wasp stings occurred at home (Figure 5b). Among all arthropod bites and stings which occurred outdoors, the majority of them occurred in countryside, gardens and parks (Figure 6). Other outdoor places involved included construction site and market.

Figure 5a: Distribution of Known Places of Exposure to Centipede Bites (n=24)

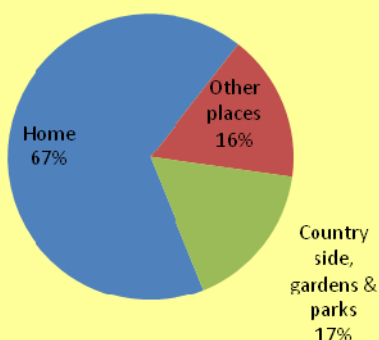


Figure 5b: Distribution of Known Places of Exposure to Bee and Wasp Stings (n=27)

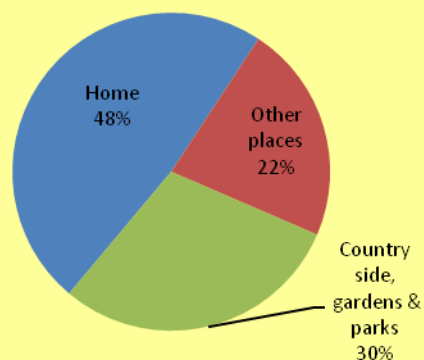




Figure 6: Different Outdoor Places where Anthropod Bite and Sting Cases Occured (n=22)

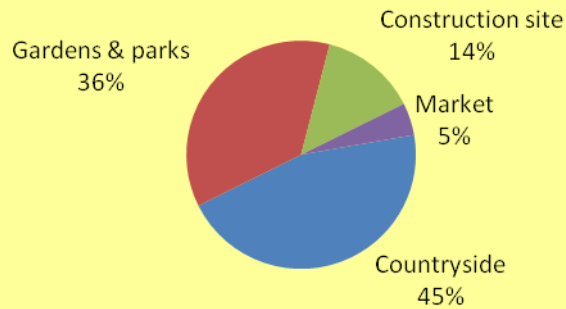
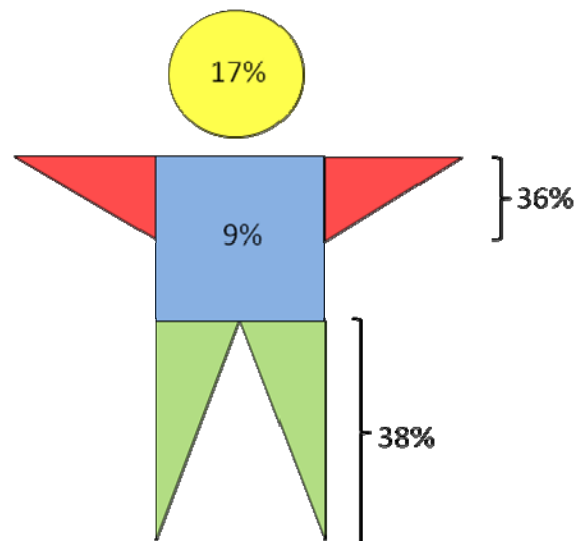


Figure 7: Locations of Bites and Stings

Among all cases, bites and stings occurred mainly in the exposed parts of the body especially the upper and lower limbs (Figure 7). The upper limbs were more likely to be stung by bees and wasps (60%), while legs tended to be bitten by centipedes (55%).



Presenting symptoms of victims included mainly redness (48%), pain (46%) swelling (41%) and numbness (21%). The majority (94%) of cases did not require hospital admission. Among those hospitalized (6%), 70% involved bee and wasp stings, and 30% were bitten by centipedes. Among them, one presented with shortness of breath and three had symptoms or signs of abnormal blood pressure. All victims recovered and were discharged home.



Features of Venomous Arthropods with reported bites and stings in Hong Kong

Like other arthropods, venomous arthropods are usually encountered around the countryside. They are more abundant during summer. Although symptoms caused by envenomation of these arthropods are usually mild, the venom can cause allergic reaction to some of the patients that can be very severe causing generalized swelling, respiratory distress, low blood pressure and even death.

Bees



Source: Food and Environmental
Hygiene Department (FEHD)

Bees are most abundant during the summer when flowers are in bloom. They sting humans when they are provoked or their hives/combs are being disturbed. Bees have stingers located at the end of the abdomen. When a bee stings, the stinger, poison sac, and some of their body tissue are torn from its body. They can only sting once and will die soon after the sting. When stung, the wound becomes swollen, red, painful and itchy.

Wasps



Source: Food and Environmental
Hygiene Department

Some wasps live solitarily in ground holes, clay pots, or bamboo stem cavities; others live in groups in nest hanging from trees. Unlike bees, the stings of wasps will not tear off from their body and they can sting multiple times. The risk to humans can be significant with a swarm of wasps which can sting many times. After being stung most people will have swelling, pain and itchiness at the affected areas. However the severity varies for different people.

Centipedes



Source: Food and Environmental
Hygiene Department

Centipedes have many different types of habitat. They can be found in countryside, parks, gardens, or even urban area. Centipedes have a pair of mouthparts which are equipped with poisonous glands. Pain is the chief presenting symptom in centipede bites although local swelling and redness may be associated. From literature, most cases happened when the victims accidentally stepped on the centipedes.



Red Imported Fire Ant (RIFA)



Source: Agriculture, Fisheries and Conservation Department (AFCD)

RIFA, as the name suggests, are not indigenous. They were first found in the New Territories in 2005. RIFA build their nests in the form of mounds, in almost any type of soil, but prefer open, sunny areas or partially shaded ones.

RIFA can both bite and sting humans. They use their stinger at the end of their abdomen to inject venom into the skin. They are more aggressive than most native ant species and have a painful sting. Fire ants respond rapidly to nest intrusion. Typically, a person encounters them by stepping on their mounds, which causes the ants to swarm up the intruder's legs and bite and sting the person.

After being stung by a fire ant, there will be burning pain in the affected areas, followed by the formation of a white pustule in 1 to 2 days which is very itchy. The pain and pustule might last for 10 days and may leave a permanent scar. Victims should never scratch the pustule but let it subside naturally, as bacterial infection can occur in any open wound.



A Red Imported Fire Ant mound

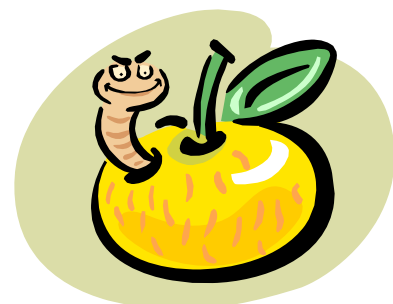
Scorpions



Source: Food and Environmental Hygiene Department

Scorpions are commonly found in deserts, grasslands, savannahs, and forests. Public will rarely come across local species of scorpion which is restricted in distribution to a few isolated locations in the New Territories. Most reported cases in Hong Kong concerned scorpions found amongst a type of imported fruit called langsat (蘆菇). Scorpions seldom sting people, unless they are provoked. Symptoms of scorpion sting include immediate pain or burning, swelling and numbness in reported cases. Certain species of scorpion found overseas may have stings

containing more potent toxins and cause more serious effects. Patients may present with impaired eye movement and difficulty in swallowing, arrhythmia, and respiratory distress or arrest that can be fatal.





Prevention and Management of Arthropod Stings or Bites

Ways to prevent bites and stings

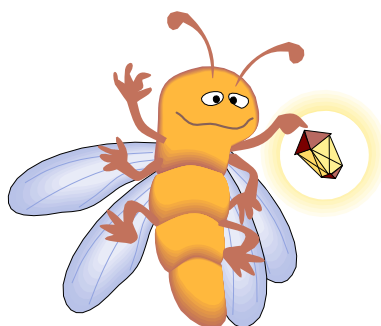
A. Prevention of attack

- Do not touch arthropods;
- Do not disturb hives, nests or mounds;
- Keep refuse in tightly sealed containers;
- Avoid walking barefoot or with open shoes;
- Do not put your hands in leaf litter, rotten tree trunks or holes where arthropods might live;
- Be alert when you cook or eat outdoors as food attracts insects, especially wasps;
- Do not leave food or drink uncovered, especially ripe fruit and soft drinks, as the scent of food, especially the sugary ones, will attract wasps;
- Articles/plants suspected to be infested with scorpion may be shaken over a basin of water so that any scorpion present would fall into the water.
- Avoid brightly coloured clothes and accessories, cosmetics, perfumes or hair sprays, which attract insects;
- Wear long sleeved clothing and long trousers in places where insects are common; cover your head and face as much as possible;

If there are mounds, hives or nests near your premises, you may visit websites of Food and Environmental Hygiene Department (FEHD) and Agriculture, Fisheries and Conservation Department (AFCD) for advice on management and you may call the government general hotline (1823) for assistance.

B. Action to take if being attacked

- When approached by flying insects, remain calm and move slowly away from them; and avoid sudden or rapid movements;
- If likely to be attacked by insects, avoid being stung on the head, mouth and throat by pulling a portion of clothes over the head (but not affecting the eyesight), and then move away;
- If attacked by RIFA, get away from the mound and rub off briskly any ants sticking on the skin by hand or using a cloth.





Ways to manage stings and bites:

A. First-aid

Carefully remove the sting by scraping it out. Do not pluck the sting out as this may squeeze more venom into the skin. Wash the wound with soap and water.

Relief of swelling, itchiness or local allergy can be accomplished by:

- Use of a cold compress or an ice pack to ease pain and to help reduce swelling.
- Use of hot immersion (non-scalding hot water 40°C to 43°C) for uncontrolled pain due to centipede bites.

Seek medical attention immediately.

B. Action to take if severe allergic reaction appear:

Urgent medical attention should be sought when any of the following symptoms occur:

- Itchy skin in many parts of the body
- Swelling of face which may extend to the lips, tongue, throat, and upper airway
- Generalized redness of skin
- A fast heart rate
- Dizziness or collapse
- Wheezing or difficulty in breathing

Further information can be found from the following links:

AFCD – Red imported fire ants

http://www.afcd.gov.hk/english/quarantine/qua_plants/qua_plants_pq/qua_plants_pest/qua_plants_rifa/qua_plants_rifa.html

FEHD – Pest Control

<http://www.fehd.gov.hk/safefood/Pcas.html>

For enquiries:

Government Hotline: 1823

Acknowledgment:

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