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Bee sting reaction

ACCOMPANIED BY TWO FRIENDS, Lilly Davis, 20, arrives at the ED with audible wheezing, dyspnea, and urticaria (hives) on her face, neck, and arms. Her friends tell you that she was stung by a bee about 10 minutes ago, while walking on campus. She's alert and oriented and says her face, neck, and arms are itchy.

What's the situation?

Ms. Davis was stung on her left lateral neck and initially had pain and some localized swelling at the site. She tells you that this is the first time she's been stung by a bee, and she used the edge of a credit card to remove the stinger; by then the site was red, raised, and itchy.

You quickly escort Ms. Davis to a bed, administer supplemental oxygen, establish venous access, and attach her to a cardiac monitor, which shows sinus tachycardia. You take her vital signs: BP, 100/50; pulse, 136 beats/minute; respirations, 26; temperature 99.3° F (37.4° C); and SpO₂, 93% on 2 L/minute of supplemental oxygen via nasal cannula.

The ED physician orders 0.9% sodium chloride solution at 100 mL/hour, and you obtain blood specimens for a complete blood cell count and chemistry profile.

Ms. Davis has a 6-cm diameter wheal-and-flare reaction on her neck. She has wheezes on auscultation. Other physical examination findings are within normal limits and she has no significant medical history. Elevate the head of the bed to 45 degrees to decrease edema and ease breathing, and closely monitor her BP.

What's your assessment?

Ms. Davis's physical exam and her signs and symptoms point to a severe bee sting allergy. In response to the bee venom, Ms. Davis's body produced multiple antibodies, creating a cascade of immune system reactions causing urticaria, pruritus, wheezing, and dyspnea.

A person's first bee sting normally doesn't cause anaphylaxis. However, the first sting creates sensitization, and subsequent stings can lead to an anaphylactic reaction, characterized by

hypotension, chest discomfort, airway edema, bronchospasm, and respiratory distress. Without prompt treatment, this reaction can lead to circulatory collapse, loss of consciousness, shock, and death.

What must you do immediately?

Assess and support Ms. Davis's airway, breathing, and circulation as needed.

The ED physician orders stat I.V. administration of the corticosteroid methylprednisolone and the antihistamine diphenhydramine to reduce the inflammatory response. Clean the

wound and apply an ice pack to decrease inflammation and tenderness. Administer oral ibuprofen (a nonsteroidal anti-inflammatory drug) to ease inflammation and site pain.

Within 10 minutes, Ms. Davis's vital signs are: BP, 120/80; pulse, 96 beats/minute; respirations, 18; temperature, 98.9° F (37.2° C); and SpO₂, 96% on supplemental oxygen. She no longer feels winded, isn't wheezing, and feels more relaxed. Her lab results return and are all within normal limits.

What should be done later?

Ms. Davis is admitted to the medical unit for 24-hour observation, continued treatment, and monitoring for rare but potentially serious complications, including infection and cardiac, renal, and neurologic complications. Rebound signs and symptoms can occur up to 12 hours after the sting. The next day, she's feeling much better and complains only of some tenderness at the sting site. Her vital signs are all within normal limits and her physical exam is unremarkable.

Give Ms. Davis information for avoiding future bee stings, such as not wearing scented body-care products that can attract bees. Because of her severe reaction to her first sting, she should obtain an epinephrine pen and carry it with her at all times, and wear a medical-alert identification bracelet or tag. She'll be referred for allergy testing and possible desensitization as an outpatient.

Upon discharge, Ms. Davis filled her epinephrine pen prescription immediately and ordered a medical alert identification bracelet. ♦

