

tweezers. Success rate for removing the ticks intact was 71%. All ticks were still alive on removal. In an effort to assess for any complications, we called the families of all patients at 1, 2, and 4 weeks after tick removal. Parents were asked about fever, rash, headache, myalgia, respiratory tract symptoms, and any sign where the tick had been attached. These calls revealed no patients with concerns for local infection or zoonoses.

In conclusion, tick removal by tightening a fishing line knot between the patient's skin and the tick's head is a simple technique that appears to have a high success rate. It may be particularly helpful for removal of tiny species. Body areas covered with hair may make this method more difficult to apply.

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References

1. Ticks. In: *Vector Control—Methods for Use by Individuals and Communities*. Geneva, Switzerland: World Health Organization; 1997. Available at: http://www.who.int/docstore/water_sanitation_health/vectcontrol/ch26.htm. Accessed October 8, 2009.
2. Centers for Disease Control and Prevention—Division of Viral and Rickettsial Diseases. *Tickborne Rickettsial Diseases: Removing Ticks*. Available at: http://www.cdc.gov/ticks/tick_removal.html. Accessed October 8, 2009.
3. Celenza A, Rogers IR. The “knot method” of tick removal. *Wilderness Environ Med*. 2002;13:181.

Presumptive *Latrodectus* Bite With Ileus and Myocardial Involvement

To the Editor:

Envenomation by widow spiders, *Latrodectus* sp, may affect various organs and systems, especially the muscles and the nervous system, and may result in a variety of clinical presentations.¹⁻³ Bites by theriid spiders other than *Latrodectus* sp may cause a clinical syndrome that resembles latrodectism.^{4,5} To date, only a few cases of gastrointestinal (abdominal pain simulating an ileus) and myocardial involvement associated with *Latrodectus* envenomation have been reported.¹⁻³ Herein we present a case of presumed *Latrodectus* envenoming that featured ileus and myocardial involvement.

A previously healthy, 22-year-old man was referred to our hospital from another facility approximately 12 to 16 hours after a suspected *Latrodectus* bite. He reported that he was sleeping in a tent at night when he felt a sensation of a needle stick on the outer third of the medial aspect

of his right thigh, and, on checking his bed, saw a black spider. After 1 to 2 hours he developed severe thigh, abdominal, and back pain. The spider was not captured for identification. On admission to our center, the patient appeared toxic, with diaphoresis, tachypnea, tachycardia, anxiety, pallor, nausea, and vomiting, as well as severe thigh, abdominal, and back pain.

His vital signs were blood pressure 155/88 mm Hg, pulse 110 beats per minute, temperature 36.5°C, and respiratory rate 35 per minute with some fluctuation. Examination revealed an erythematous area of 0.5 × 0.5 cm on the outer third of the medial aspect of his right thigh. His abdomen was tender and distended with hypoactive bowel sounds. The rest of his examination was normal. An electrocardiogram (ECG) revealed sinus tachycardia associated with minimal nonspecific ST-T wave changes. Initial laboratory findings revealed white blood cell count 21 860/ μ L (reference range [r.r.] 4300–10 000/ μ L), glucose 236 mg/dL (r.r. 70–110 mg/dL), creatine kinase 548 U/L (r.r. 30–390 U/L), creatine kinase-MB 122 U/L (r.r. 0–24 U/L), lactate dehydrogenase 943 U/L (r.r. 220–450 U/L), myoglobin 74 ng/mL (r.r. 5–107 ng/mL), and troponin I 0.235 ng/mL (r.r. 0–1 ng/mL). Other biochemical values were within normal limits. There were air-fluid levels consistent with ileus on the direct upright abdominal radiograph. Abdominal ultrasound and transthoracic echocardiography revealed no pathology. Urine toxicology analysis was negative.

Due to the elevation of cardiac markers and ECG changes, a cardiology consultation was requested. General surgery was also consulted for the abdominal pain and the air-fluid levels on the radiograph. No other conditions that could have explained these findings were found. The working diagnosis was myocarditis and ileus occurring as a result of a *Latrodectus* spider bite, and the patient was admitted to the intensive care unit. The cardiology and surgery consultants suggested supportive treatment and follow-up. Crystalloids and antiemetics were administered for nausea and vomiting. *Latrodectus* antivenom was unavailable in our center and could not be provided. Therefore, fentanyl (100 μ g intravenous boluses on 4 occasions) and diazepam (3 mg/h intravenous infusion) were administered for 48 hours. After this time, the cardiac markers normalized and the pain and ileus resolved, and the patient was discharged from the hospital without any complications.

Abdominal pain due to widow spider envenomation may closely mimic an acute abdomen. On occasion, misdiagnosis of such bites has led to unnecessary laparotomies, inadequate therapy, and unnecessary prolongation of pain.⁶ Kleiner-Baumgarten reported 9 adults bitten by black widow spiders (*Latrodectus* sp) and requiring hospitalization from 1985 to 1988. Envenomation in these patients was

mainly characterized by restlessness, profuse perspiration, severe abdominal pain, and muscular rigidity. In addition, in 2 cases, there was gastrointestinal involvement, with ileus and gastric dilatation. All of the victims recovered with symptomatic treatment.³ In another reported case, the envenomation mimicked biliary colic and acute cholecystitis, and the patient underwent an emergency cholecystectomy.⁶ In our case, the history of an apparent bite by “a black spider,” the pain in several muscle groups, and absence of peritoneal findings (excluding a surgical abdomen) led us to suspect likely *Latrodectus* envenoming.

Cardiovascular complications following *Latrodectus* envenomation have been reported in the medical literature. ECG abnormalities, which can be observed after *Latrodectus* envenomation, are variable and may include slurring of the QRS with ST- and T-segment depression, prolonged QT interval, brady/tachycardia, and atrial fibrillation.^{1-2,7} Myocardial involvement related to *Latrodectus* envenomation has been previously reported in 4 cases in the literature, 2 of which were from Turkey. One of the cases seen in Turkey (in the Southeast Anatolia region) involved myocarditis in a 65-year-old subject who had increased cardiac marker levels and ST elevations on the ECG.¹ The other case from Turkey (in the Aegean region) was a 22-year-old patient who had widespread ECG changes with myocardial ischemia and increased cardiac markers.² Both cases were treated symptomatically.^{1,2} To the best of our knowledge, the present case featuring ST-T segment changes and elevated cardiac markers is the third such *Latrodectus* envenoming to be reported in Turkey.

The exact mechanism of ileus and myocarditis after *Latrodectus* envenomation is unknown. However, α -latrotoxin found in *Latrodectus* venom was thought to be the reason for most of these clinical findings.⁶⁻⁸ The most active component of the venom, α -latrotoxin acts through a calcium-mediated mechanism leading to the release of predominantly acetylcholine and norepinephrine from nerve terminals.⁹ Myocardial involvement could be due to catecholamine surge, direct toxic effect of α -latrotoxin, or a hypersensitivity reaction, as discussed previously.^{1,2} The release of acetylcholine at the neuromuscular junction induces frequent end-plate potentials causing muscle spasm and pain.^{6,8} The interaction of α -latrotoxin and the calcium channels may presumably cause ileus and abdominal pain through similar mechanisms.

The treatment of *Latrodectus* envenomation includes local wound care, opioids, and benzodiazepines for muscle spasm and pain, and antivenom. The most effective therapy for patients manifesting severe regional or systemic toxicity is *Latrodectus* antivenom.^{9,10} Antivenom was not available in our center, and is not manufactured in Turkey. Therefore, we had to rely on fentanyl, benzodiaz-

epine, tetanus prophylaxis, fluid resuscitation, and other supportive treatment for our patient.

In the setting of presumed spider bite, individuals should be encouraged to bring the offending spider in for identification. *Latrodectus* envenomation should be suspected in victims with possible spider bite who develop ileus or myocardial involvement, and, in severe cases, an ECG and cardiac markers should be obtained, and a direct upright abdominal radiograph taken to evaluate for ileus.

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References

1. Sari I, Zengin S, Davutoglu V, Yildirim C, Gunay N. Myocarditis after black widow spider envenomation. *Am J Emerg Med.* 2008;26:630.e1–e3.
2. Erdur B, Turkcuier I, Bukiran A, Kuru O, Varol I. Uncommon cardiovascular manifestations after a *Latrodectus* bite. *Am J Emerg Med.* 2007;25:232–235.
3. Kleiner-Baumgarten A. Black widow spider bite in the Negev. *Harefuah.* 1991;120:257–260.
4. Isbister GK, Gray MR. Effects of envenoming by comb-footed spiders of the genera *Steatoda* and *Achaearanea* (family *Theridiidae: Araneae*) in Australia. *J Toxicol Clin Toxicol.* 2003;41:809–819.
5. South M, Wirth P, Winkel KD. Redback spider antivenom used to treat envenomation by a juvenile *Steatoda* spider. *Med J Aust.* 1998;169:642.
6. Bush SP. Black widow spider envenomation mimicking cholecystitis. *Am J Emerg Med.* 1999;17:315.
7. Gueron M, Ilia R, Margulis G. Arthropod poisons and the cardiovascular system. *Am J Emerg Med.* 2000;18:708–714.
8. Timms PK, Gibbons RB. Latrodectism—effects of the black widow spider bite. *West J Med.* 1986;144:315–317.
9. Clark RF, Schneir AB. Arthropod bites and stings. In: Tintinalli JE, Kelen GD, Stapczynski JS, eds. *Emergency Medicine: A Comprehensive Study Guide.* 6th ed. New York, NY: McGraw&Hill; 2004:1193–1196.
10. Bush SP. Why no antivenom? *Ann Emerg Med.* 2003;42:431–432.