“Doc, I’ve got this red spot on my leg...”

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Abstract
Introduction
This case report describes a cutaneous infection of a human botfly larva diagnosed via bedside ultrasound in the emergency department. Human Botfly myiasis and the use of ultrasound for soft tissue foreign bodies is briefly reviewed.

Case report
A 50-year-old healthy male presents to the emergency department with a two-week history of a small, red nodule overlying his right Achilles tendon. He had returned to Canada one month earlier from an eco-tourism trip in Bolivia. He mentioned having been bitten by multiple insects over the course of the trip but none specifically in that location. Examination in the emergency department revealed normal vital signs including: heart rate 84 beats per minute, respiratory rate 15 breaths per minute, blood pressure 125/84 mmHg and temperature 37.0 degrees Celsius orally. The only abnormality on physical examination could be seen on the patient’s lower right leg.

Conclusion
As this case illustrates, patients returning from travel in tropical countries may harbour exotic infections which carry a wide differential diagnosis. For those with soft tissue complaints, emergency physicians should consider an initial evaluation with bedside ultrasound.

Introduction
The human botfly, although endemic in Central and South America, is not frequently encountered in North America. While rare, many tropical soft tissue infestations have characteristic findings that physicians should be aware of. Early recognition and identification can lead to decreased morbidity. The use of bedside ultrasound is an important tool in the examination of suspected soft tissue infestation, infection and foreign body. This case report describes a cutaneous infection of a human botfly larva.

Case report
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Examination in the ED revealed normal vital signs including: heart rate 84 beats per minute, respiratory rate 15 breaths per minute, blood pressure 125/84 mmHg and temperature 37.0 degrees Celsius orally. The only abnormality on physical examination could be seen on the patient’s lower right leg (Figure 1). Prior to performing an incision and drainage of the presumed abscess, a bedside ultrasound was performed (Figure 2).

Figure 1 shows the characteristic furuncular lesion and central punctum through which the larva breathes. The ultrasound image in Figure 2 identifies the botfly larva as...
Case report

Discussion

The human botfly or *Dermatobia hominis* is most commonly found in the tropical climates of Mexico, Central and South America. With growing eco-tourism, however, an increasing number of parasitic infections may be seen in the ED with travellers returning from these endemic countries. Botflies use the human host as a part of its life cycle, providing warmth and nourishment for growth. The adult botfly transfers its eggs to a vector such as a mosquito, which then deposits the eggs on human skin. The eggs, stimulated by warmer skin temperatures, release the tiny larva, which bury into the host skin. As the larva grows in the subcutaneous tissues, a characteristic skin furuncle will develop, often draining fluid from a central punctum which allows for air circulation to the larva. If able to mature completely, the larva emerges from the skin and completes the full transformation to botfly. This process takes approximately one month. Diagnosis is a clinical one based on the history and characteristic furuncular lesion; however, ultrasound has been shown to be useful in the diagnosis of human botfly infection in endemic countries.

The use of ED ultrasound in soft tissue diagnoses is constantly expanding. In this case, ED ultrasound revealed a soft tissue foreign body instead of the presumed abscess. Ultrasound has the potential to differentiate a simple subcutaneous abscess from a larger or complicated abscess and improves ED physician diagnostic accuracy. Similarly, ultrasound can help with localising occult abscesses in tissues previously thought to be uncomplicated cellulitis and can change management in nearly half of the cases. The soft tissue appearance of abscesses on ultrasound can vary based on location and maturity. Generally, abscess shapes are round but may have tubular or geographical variants. Debris and fluid may be seen inside the cavity giving it a different echogenicity (level of brightness) from the surrounding tissues.

Along with abscess detection, ultrasound can also assist with detection of subcutaneous foreign bodies.

Figure 2: Bedside ultrasound image of the subcutaneous tissues beneath the lesion in question. A hypoechoic vertical stripe can be seen extending from a bright hyperechoic structure.

Figure 3: Botfly larva removed from the lower limb incision and drainage site. For scale, the larva is shown at the bottom of a 100 mL standard urine specimen cup, the curved wall of which is shown.
Soft tissue foreign bodies can provide a specific diagnostic challenge for emergency physicians as not all foreign bodies are radio-opaque on conventional radiography. Wood, glass and ceramics are particularly difficult soft tissue foreign bodies to identify. Ultrasound is an accurate method for foreign body detection in the hands of emergency physicians, and has been shown to be superior to plain radiography. The visual characteristics of foreign bodies on ultrasound depend somewhat on their composition, however, all soft tissue foreign bodies (glass, metal, stone, plastic, wood) appear hyperechoic (bright) on ultrasound. A surrounding hypoechoic (dark) area may also be seen, which may correspond to granulation tissue, oedema or haemorrhage. Most foreign bodies will also show some degree of artifact deep to the structure itself. Commonly, this is posterior acoustic shadowing as was seen in Figure 1 in this case.

**Conclusion**

As this case illustrates, patients returning from travel in tropical countries may harbour exotic infections which carry a wide differential diagnosis. For those with soft tissue complaints, emergency physicians should consider an initial evaluation with bedside ultrasound. The image may be a surprising one.

**Consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**References**