Blastomyces dermatitidis from a Needlestick Injury

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In the literature

Ghatage P, Pierce KK, Wojewoda C, et al. A veterinarian from Vermont presenting with a painful right index finger following a needlestick injury that occurred while caring for a dog. *Clin Infect Dis*. 2020;71(6):1577-1599.

FROM THE PAGE ...

Many occupational hazards (including animal bites, scratches, crushing and kicking injuries, and needlestick and other sharps injuries) can affect clinicians and veterinary staff. Needlestick injuries (NSIs) appear to be underdocumented but are common in the clinic, with most clinicians reporting at least 1 NSI, if not more, in their career.[1] Consequences of an NSI can include infection, local inflammation, localized necrosis, skin slough, nerve damage, allergic reaction, miscarriage, systemic effects, and/or even death.[1,2] Zoonoses transmission via needlestick and sharps injuries has been associated with *Bartonella* spp, *Brucella abortus* RB51 vaccine, and *Blastomyces* spp, among others.[1-7] *Blastomyces dermatitidis* has also been transmitted via dog bites.[8]

In this case, a clinician suffered an NSI to the right index finger from a 21-gauge needle after aspirating fluid from a subcutaneous cystic mass in a dog with systemic blastomycosis. Swelling, tenderness, erythema, pain, and limited range of motion of the distal interphalangeal joint ensued. Purulent exudate was expressed from the finger during surgery, and biopsies were taken. Staining of tissues revealed broad-based budding between mother and daughter cells consistent with *B dermatitidis*, which was confirmed via isolation.

The usual method of infection in humans with *B dermatitidis* is via inhalation of the conidia, which transforms into the yeast phase and can spread hematogenously throughout the body.[9] Humans may have no clinical signs, show nonspecific signs (eg, cough, fever, malaise, fatigue, weight loss), or develop more severe disease.[9] Pneumonia is the most common manifestation of blastomycosis in humans, with skin lesions being next most common.[9] Abscesses frequently form in the skin and subcutaneous tissues, but they can also form in the brain, bones, prostate, or other organs.[9]

Dogs and, less commonly, cats can develop *B dermatitidis* infection.[10] Young, male dogs of sporting breeds are most commonly affected by blastomycosis. Signs may include dyspnea, tachypnea, fever, lethargy, weight loss, skin abscesses, uveitis, and pulmonary nodules.[10]

… TO YOUR PATIENTS

Key pearls to put into practice:

1. NSI can result in zoonotic transmission or injection of substances (eg, vaccines, antimicrobials, chemotherapeutics, euthanasia solution).
2. Performing fine-needle aspiration or necropsy on a dog with *Blastomyces* spp infection can result in human infection if there is a needlestick or sharps injury.
3. Staff should be educated on safe sharps handling and possible adverse health outcomes.[1,2] All NSIs should be recorded, and staff should be trained in human first aid and blood-borne pathogen awareness.

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