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Correspondence

Streptococcus pyogenes cutaneous infection following sandfly bites

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Streptococcus pyogenes;
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Leishmaniasis

Dear Editor,

Leishmaniasis and bartonellosis after sandfly bites have been reported previously.[1–3] However, cutaneous infection caused by *Streptococcus pyogenes* after sandfly bites has never been described.

A healthy 22-year-old female visited the outpatient clinic with multiple bite wounds on her right arm, right leg, right foot, and left thigh. She had been bitten multiple times by sandflies (common at the beaches in the Philippines, especially at beaches in Palawan) during her stay at Nacpan Beach, El Nido, Palawan, the Philippines. The bite lesions started as erythematous papules (Fig. 1A and B) and progressed into a state of ulcerative necrosis with pus discharge; in addition, surrounding nodular formation was observed in one bite lesion on the lower part of the right leg 7 days after being bitten (Fig. 1C). The patient remained in an afebrile state (37.1 °C); she experienced tenderness in the right inguinal area and had enlarged lymph nodes. Initial laboratory tests showed a white blood cell count of 8420/mm^3 (reference range, 3.540–9060/mm^3) and a C-reactive protein level of 4.12 mg/L (reference range, <1 mg/L).

Microbiological examination of the aspirated pus from the lower part of the right leg revealed gram-positive cocci; microbial culture showed subsequent growth of *S. pyogenes*. The patient was started on a 10-day course of amoxicillin-clavulanate (1000 mg every 12 h). Ten days after therapy initiation, her lesions healed completely. Parasitological examinations of her blood sample and

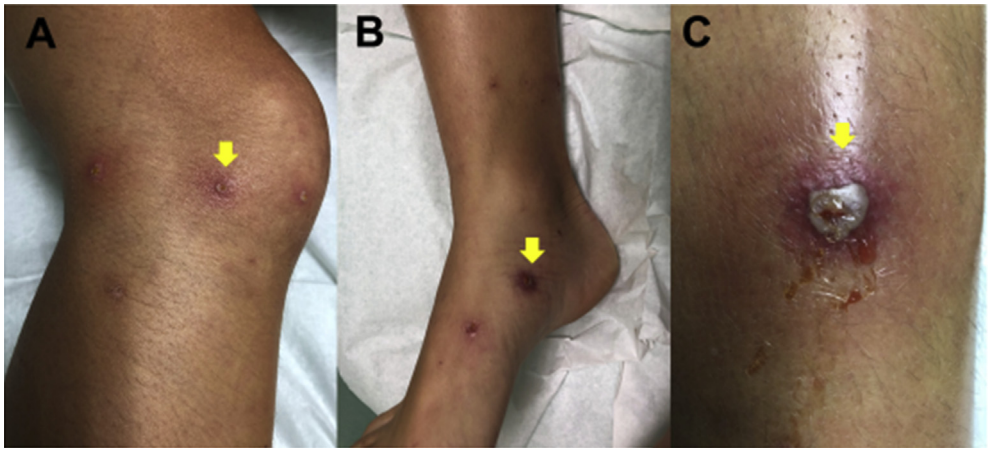

Figure 1. Skin lesions over the right knee (A), right foot (B) and right pretibial area (C) after sand fly bites.

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ulcerative lesion did not indicate presence of *Leishmania* species.

Sandflies are blood-feeding insects of medical and veterinary importance that transmit *Leishmania* parasites (*Leishmania donovani*). These parasites cause leishmaniasis, a neglected infection, that affects people in 98 countries.[1] Development of bartonellosis after sandfly bites has also been reported.[1–3] Cellulitis, fatal necrotizing fasciitis, and toxic shock syndrome caused by *S. pyogenes* following insect (tick) bites and bee stings have been described previously; however, cutaneous infection due to *S. pyogenes* after sandfly bites has never been reported.[4] The microbiota of sandfly saliva remains unclear but a wide variety of Gram-negative and Gram-positive bacteria have been found within the gut of sandflies.[5] No field studies have been conducted to determine whether or not or the degree to which sandflies are contaminated with pathogenic microorganisms including *S. pyogenes;* the exact sequence of events that leads to infection following sandfly bites remains unknown and needs further investigation.

Declaration of Competing Interest

There is no conflict of interest.

References

1. Courtenay O, Peters NC, Rogers ME, Bern C. Combining epidemiology with basic biology of sand flies, parasites, and hosts to inform leishmaniasis transmission dynamics and control. *PLoS Pathog* 2017;**13**:e1006571.
2. El-Badry AA, El-Dwibe H, Basyoni MMA, Al-Antably ASA, Al-Bashier WA. Molecular prevalence and estimated risk of cutaneous leishmaniasis in Libya. *J Microbiol Immunol Infect* 2017;**50**:805—10.
3. Mera Y Sierra R, Neira G, Cargnelutti DE. Dissemination of visceral leishmaniasis to Western Argentina: when will imported canine vector-borne zoonotic diseases start being local? *J Microbiol Immunol Infect* 2017;**50**:727—9.
4. Fernando DM, Kaluarachchi CI, Ratnatunga CN. Necrotizing fasciitis and death following an insect bite. *Am J Forensic Med Pathol* 2013;**34**:234—6.
5. Heerman M, Weng JL, Hurwitz I, Durvasula R, Ramalho-Ortigao M. Bacterial infection and immune responses in *Lutzomyia longipalpis* sand fly larvae midgut. *PLoS Neglected Trop Dis* 2015;**9**:e0003923.

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