



Case Report

Pruritis and palpable purpura from leeches in the Australian Rainforest

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ABSTRACT

Leeches are prevalent in the Australian Rainforest. We report two cases of leech bites resulting in pruritis and palpable purpura. The dermatologic sequelae of leech bites, differential diagnosis of pruritic palpable purpura, leech bite treatment, prevention, and complications are reviewed.

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Case report

A 32-year-old woman was hiking with her 31-year-old husband in Lamington National Park, Queensland, Australia (Fig. 1). Thirty minutes into the hike, the woman felt an itchy sensation on her chest. Two leeches were found attached to the central portion of her chest. On further examination, multiple leeches were identified on both hikers' shoes, ankles and legs. Some leeches had penetrated the man's socks and were engorged with blood over the bilateral malleoli of both ankles (Fig. 2). The couple immediately removed the leeches, using only their fingers, and then applied pressure to the sites. Following removal, the most severely affected areas (the man's ankles) bled steadily for 4 h. The following day, the sites were pruritic and urticarial. No treatment was needed, as the pruritis was tolerable. The affected areas on the woman's legs later became raised 2–6 mm non-blanching violaceous purpuric papules (Fig. 3). Some lesions had hemorrhagic superficial crusting. No lower extremity edema was present on either hiker. At 48 h, the papules were no longer pruritic, but were more raised. Post-bite day three, golden fluid drained from the papules resulting in crust. Post-bite day five, the lesions began to fade and flatten and by day nine, the crust was

gone and the purpuric papules were less violaceous. The skin had completely normalized by day 21. No associated systemic symptoms occurred at any point.

Discussion

Leeches are annelids, similar to earthworms, and although most live in freshwater, many terrestrial and marine species exist. The most common type of leech in the Australian rain forest is the land-dwelling, jawed leech (*Gnatbobdellida libbata*) [1]. Leeches secrete hirudin and histamine in their saliva [2,3]. Hirudin, a thrombin inhibitor, is responsible for prolonged bleeding at sites of leech bites. Bleeding at the bite sites results in purpura, visible hemorrhage into the skin [4]. Average bleeding time for a leech bite depends on the location of the bite and the species of the leech. Kaya et al. described bites by *Hirudo medicinalis* bleeding as long as seven days [5]. Leech saliva also contains histamine, causing bite sites to be pruritic.

Leech bites are one of the relatively few causes of pruritic palpable purpura. Leukocytoclastic vasculitis (LCV) and urticarial vasculitis are both on the differential diagnosis of pruritic palpable purpura. However, the purpuric papules seen in LCV are usually only mildly itchy. In addition, LCV patients often have a history of a recent infection or are experiencing systemic symptoms (fever, ankle edema, malaise and arthralgias). Urticarial vasculitis causes pruritic papules and plaques. In these patients, burning, not

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Fig. 1. Lamington National Park, Queensland, Australia

itching, is the predominate symptom [2,4]. The urticarial papules, these patients have last longer than 24 h and are typically only minimally purpuric during resolution. Thus, in contrast to leukocytoclastic and urticarial vasculitis patients, those with leech bites typically are quite itchy initially (but itching lasts less than 24 h), lack systemic findings, have rapid resolution of the urticarial appearance of the papules, and do not report burning at the site of the bites.

Treatment of leech bites focuses on prompt leech removal and achieving hemostasis. Leeches can be removed manually. Application of saturated salt solution, alcohol, or vinegar, may ease removal [6,7]. Following removal, a pressure bandage should be applied. Treatment for pruritis is typically not necessary as the itching quickly resolves, but topical steroids may be applied if itching is intense. The purpuric papules usually take two to three weeks to flatten and disappear. In some cases, reactions may be more severe. Those on anticoagulants are at greater risk of prolonged bleeding; and those with a history of severe allergic reactions may experience anaphylaxis due to a widespread histaminergic response. These patients should take extra precaution when hiking in high-risk areas. Leech bites can also be

complicated by trypanosome infection. In Australia, the terrestrial leech, Haemadipsidae, was the only blood-sucking invertebrate found to be a trypanosomal carrier [8]. Leech prevention options include 'leech socks' (with natural repellants such as tobacco leaves), salt spray, N,N-diethyl phenylacetamide (DEPA) and N,N-diethyl m-toluamide (DEET), timur oil, and lemon-eucalyptus extract (citronyl) [6,9].

Leech bites are on the differential diagnosis of palpable purpura, but should be readily deciphered from other causes based on the presence of itching, history of exposure to a leech-laden environment, and the lack of systemic symptoms. In most cases, the patient will also have visualized the leech on his or her skin. Itching should alert those hiking in the Australian rainforest to the possible presence of leeches and preventative measures should be taken to decrease additional bites.

Patient consent

Written informed consent was obtained from the patients for publication of this case report and accompanying images. A copy of



Fig. 2. Engorged leeches



Fig. 3. Palpable purpura

the written consent is available for review by the Editor-in-Chief of this journal on request.

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