

# CLINICAL PRACTICE

## The Dermatomal Flea Bite Sign

Ibraheem M. Afzal<sup>1</sup>, Thomas J. Marrie MD<sup>2</sup>

<sup>1</sup>Class of 2013, Faculty of Medicine, Dalhousie University

<sup>2</sup>Department of Medicine, Infectious Diseases Division, Dalhousie University

A 33-year-old female presented with a complaint of itchy lesions on her neck. She felt fleas had bitten her. At the time, there were several patient referrals to infectious disease with physician diagnosis of flea bites. The figure shows multiple papular erythematous lesions involving the right side of her neck (Figure 1). These lesions were in a dermatomal distribution, C2 and C3, suggesting the correct diagnosis of early lesions of varicella zoster.

Varicella zoster virus, a herpes virus, causes varicella (chickenpox) during its initial infection and, later in life when reactivated, manifests as herpes zoster or shingles.<sup>1,2</sup> It is able to do this because one of the features of this virus is its ability to maintain dormancy in the dorsal root ganglia in the central nervous system.<sup>2</sup> Herpes zoster manifests as a prodromal phase and as an acute phase. The prodromal phase is characterized by itchiness, pain, malaise, allodynia, dysesthesias, and paresthesias. In the acute phase, forty-eight to seventy-two hours later, a characteristic unilateral vesicular rash appears with dermatomal distribution.<sup>3,4</sup>



Figure 1. Multiple papular erythematous lesions in a unilateral C2 and C3 dermatomal distribution

The rash starts as erythematous, maculopapular lesions that rapidly evolve into a vesicular rash. Vesicles often coalesce to form bullous lesions. In the immunocompetent host, these lesions continue to form over a period of 3 – 5 days. Generally, the rash will persist for an average of 9 days, followed by resolution of the rash within 2 – 4 weeks.<sup>4</sup>

Here, we emphasize the early erythematous papular lesions that are frequently mistaken for “bites” by patients and practitioners alike. Papular urticarial lesions frequently occur after bites of insects such as mosquitoes, sandflies, bedbugs and fleas.<sup>5</sup> During the feeding process, fleas inject saliva which contains an anticoagulant – this saliva is highly antigenic producing pruritic papules which are often seen in clusters, as in Figure 1.<sup>6</sup>

Since most patients with shingles present in the vesicular stage, many physicians have not seen the early maculopapular lesions that may be confused with insect bites. It is important to diagnose early, as indication for antiviral therapy is shown to be clinically significant in decreasing pain and healing time if initiated within 72 hours of rash onset.<sup>3,4</sup> Our characterization of this as the flea bite sign should alert physicians that apparent flea bites in dermatomal distribution are in fact herpes zoster lesions.

### References

1. Norberg P. Divergence and genotyping of human alpha-herpesviruses: an overview. *Infect Genet Evol.* 2010;10:14-25.
2. Wood MJ. History of Varicella Zoster Virus. *Herpes.* 2000; 7: 60 - 65.
3. Whitley RJ. A 70-year-old woman with shingles: review of herpes zoster. *JAMA.* 2009;302:73-80.
4. Whitley RJ. Varicella-zoster Virus Chapter 41 and 137. In: Mandell GL, Bennett JE, Dolin R, eds. *Principles and Practice of Infectious Diseases*, seventh edition. Philadelphia, PA: Churchill Livingstone Elsevier; 2010.
5. Naimer SA, Cohen AD, Mumcuoglu KY, Vardy DA. Household papular urticaria. *IMAJ.* 2002;4(supplement):911–913.
6. Stibich AS, Carbonaro PA, Schwartz RA. Insect bites: An update. *Dermatology.* 2001;202:193-197.