

# Denouement and Discussion

## *Mycoplasma pneumoniae* Pneumonia With Associated Urticaria Multiforme Rash

**F**igure 1 and Figure 2 depict the classic lesions of urticaria multiforme. Urticaria multiforme, a form of acute annular urticaria, is an allergic hypersensitivity reaction mediated by histamine that may be IgE dependent or independent.<sup>1</sup> The lesions are annular and polycyclic. They blanch with pressure and may display a central purplish or dusky hue. Because of similarities in the appearance of the rash, urticaria multiforme is often misdiagnosed as erythema multiforme and, less commonly, as serum sickness.

The term *urticaria multiforme* was proposed<sup>1</sup> to describe this form of annular urticaria<sup>2,3</sup> to emphasize the clinical manifestations that differentiate it from erythema multiforme. The lesions of urticaria multiforme may have dusky skin changes in central areas of polycyclic lesions, but these changes disappear without leaving the “bruising” that is commonly seen with erythema multiforme. True necrosis or blistering of the skin is never seen with urticaria multiforme and there is no associated mucous membrane involvement. Also, the lesions of urticaria multiforme are evanescent, with individual lesions lasting less than 24 hours, which further distinguishes it from the fixed lesions of erythema multiforme. The presence of dermatographism can also help to support the diagnosis of urticaria multiforme. Because urticaria multiforme is commonly associated with facial or acral edema it may also be confused with serum sickness–like reactions.<sup>1,3,4</sup> Although swelling of the feet may make walking painful and difficult, true arthralgias or arthritis are not associated with urticaria multiforme. Importantly, the angioedema present in urticaria multiforme has not been associated with laryngoedema and has not been reported to be associated with food allergy.<sup>1,5</sup> Suggested treatment for urticaria multiforme involves complete histamine receptor blockage. Long-duration H<sub>1</sub> blockers (such as cetirizine hydrochloride) should be given in association with H<sub>2</sub> blockers (such as ranitidine) with breakthrough relief as needed by diphenhydramine or hydroxyzine hydrochloride. Most patients have symptom relief with this combination within a few days to 2 weeks.<sup>1</sup> Steroids should be reserved for patients who remain severely symptomatic despite antihistamine therapy. Treatment is largely symptomatic, as episodes of urticaria multiforme are self-resolving within 8 to 10 days.

Urticaria among children is more commonly associated with infectious rather than allergic etiologies.<sup>3,4</sup> As a subset of urticarial eruptions, urticaria multiforme is also commonly associated with infection. In 1 retrospective study, 17% of patients with urticaria multiforme had laboratory-confirmed infection, including 1 patient with *Mycoplasma pneumoniae* pneumonia.<sup>1</sup>

The patient presented herein had clinical and radiographic findings consistent with pneumonia. His chest radiograph revealed a patchy opacity at the left lung base (Figure 3). Nasopharyngeal aspirate testing by polymerase chain reaction (PCR) confirmed the diagnosis of *M pneumoniae*. *M pneumoniae* has also been associated with extrapulmonary complications, including myocarditis, pericarditis, en-

cephalitis, aseptic meningitis, transverse myelitis, Guillain-Barre syndrome, hemolytic anemia, myalgias, and rash.<sup>6</sup> *M pneumoniae* is the main cause of erythematous rash in the setting of pneumonia and is associated with both erythema multiforme and Stevens-Johnson syndrome.<sup>6-8</sup> However, *M pneumoniae* is also associated with urticaria, as seen in the patient presented herein.<sup>1,6</sup>

Testing for *M pneumoniae* has recently shifted to PCR techniques; however, some authors suggest that serologic studies should be performed in conjunction with PCR testing to increase the overall sensitivity of disease detection.<sup>9,10</sup> Treatment for *M pneumoniae* includes tetracyclines, macrolides, or fluoroquinolones.<sup>8</sup>

The patient presented herein was treated with cetirizine and ranitidine with additional diphenhydramine as needed for his urticaria as well as azithromycin for *M pneumoniae* pneumonia. The symptoms began to resolve at the time of discharge 2 days later.

**Accepted for Publication:** July 31, 2009.

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**Author Contributions:** *Study concept and design:* Myers and Lavelle. *Acquisition of data:* Myers. *Analysis and interpretation of data:* Myers. *Drafting of the manuscript:* Myers. *Critical revision of the manuscript for important intellectual content:* Myers and Lavelle. *Administrative, technical, and material support:* Myers. *Study supervision:* Lavelle.

**Financial Disclosure:** None reported.

## REFERENCES

1. Shah KN, Honig PJ, Yan AC. Urticaria multiforme: a case series and review of acute annular urticarial hypersensitivity syndromes in children. *Pediatrics*. 2007; 119(5):e1177-e1183.
2. Weston JA, Weston WL. The overdiagnosis of erythema multiforme. *Pediatrics*. 1992;89(4, pt 2):802.
3. Mortureux P, Léauté-Labrèze C, Legrain-Lifermann V, Lamireau T, Sarlangue J, Taieb A. Acute urticaria in infancy and early childhood. *Arch Dermatol*. 1998; 134(3):319-323.
4. Sackesen C, Sekerel BE, Orhan F, Kocabas N, Tuncer A, Adalioglu G. The etiology of different forms of urticaria in childhood. *Pediatr Dermatol*. 2004;21(2):102-108.
5. Burks W. Skin manifestations of food allergy. *Pediatrics*. 2003;111(6, pt 3): 1617-1624.
6. Vervloet LA, Marguet C, Camargos PA. Infection by *Mycoplasma pneumoniae* and its importance as an etiological agent in childhood community-acquired pneumonias. *Braz J Infect Dis*. 2007;11(5):507-514.
7. Lam NS, Yang YH, Wang LC, Lin YT, Chiang BL. Clinical characteristics of childhood erythema multiforme, Stevens-Johnson syndrome and toxic epidermal necrolysis in Taiwanese children. *J Microbiol Immunol Infect*. 2004;37(6): 366-370.
8. Schalock PC, Dinulos JG, Pace N, Schwarzenberger K, Wenger JK. Erythema multiforme due to *Mycoplasma pneumoniae* infection in two children. *Pediatr Dermatol*. 2006;23(6):546-555.
9. Martínez MA, Ruiz M, Zunino E, Luchsinger V, Avendano L. Detection of mycoplasma pneumoniae in adult community-acquired pneumonia by PCR and serology. *J Med Microbiol*. 2008;57(pt 12):1491-1495.
10. Kashyap B, Kumar S, Sethi GR, Das BC, Saigal S. Comparison of PCR, culture and serologic tests for the diagnosis of *Mycoplasma pneumoniae* in community-acquired lower respiratory tract infections in children. *Indian J Med Res*. 2008; 128(2):134-139.