

A 7-year-old boy is brought to the clinic due to malaise and headache for the past 2 weeks. Three weeks ago, he went on a hiking trip with his family during which his mother found a tick attached to his thigh. The mother removed the tick with tweezers, and a red "bump" remained at the site where the tick was attached. One week later, a red ring developed around the "bump" and has since grown larger. The rash is slightly itchy but not painful. The patient has a history of eczema treated intermittently with topical hydrocortisone. Last year, he had tinea pedis that resolved with terbinafine. Examination shows a nontender **rash**, approximately 8 cm in diameter, on his right thigh. The remainder of his examination is normal. What is the most appropriate next step in management of this patient?

- ☐ A. Intravenous ceftriaxone
- ☐ B. Oral amoxicillin
- ☐ C. Oral doxycycline
- ☐ D. Oral itraconazole
- ☐ E. Topical hydrocortisone

Media Exhibit

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- ☐ A. Intravenous ceftriaxone [7%]
- ☒ B. Oral amoxicillin [42%]
- ☐ C. Oral doxycycline [50%]
- ☐ D. Oral itraconazole [0%]
- ☐ E. Topical hydrocortisone [0%]

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Explanation:

User Id: 

This patient has **erythema chronicum migrans**, the classic rash that is present in most patients with early localized Lyme disease. The rash is not particularly painful but may occasionally burn or itch. Many patients also experience nonspecific constitutional symptoms such as headache, malaise, fatigue, and fever. The causative agent is the spirochete *Borrelia burgdorferi*, which is spread to humans by the bite of an infected *Ixodes* tick. Diagnosis of early localized Lyme disease is based solely on the presence of the trademark rash in the context of recent travel to Lyme-endemic areas.

Clinical trials have shown that oral doxycycline, amoxicillin, and cefuroxime have equivalent efficacy for treating early localized Lyme disease. Doxycycline is often used because it is effective in treating potential coexisting *Anaplasma phagocytophilum* infection, which is also transmitted by the *Ixodes* tick. However, doxycycline is contraindicated in children age <8 years and pregnant women. It can slow bone growth in exposed fetuses and cause enamel hypoplasia and permanent teeth stains during tooth development in young children. Therefore, **oral amoxicillin** or cefuroxime is the treatment of choice for children age <8 years and pregnant women.

E. Topical hydrocortisone [0%]

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(Choice A) Intravenous ceftriaxone is reserved for Lyme meningitis and heart block, manifestations of early disseminated Lyme disease. This patient has an otherwise normal examination and does not warrant hospitalization for intravenous antibiotics.

(Choices D and E) Topical corticosteroids are used for **nummular dermatitis** while topical antifungals are the first-line treatment for **tinea corporis**. Although these are also annular rashes, they are typically scaly and pruritic and are not associated with tick bites.

Educational objective:

Erythema chronicum migrans is pathognomonic for early localized Lyme disease. Amoxicillin is the treatment of choice in children age <8 years.

References:

1. **The clinical assessment, treatment, and prevention of Lyme disease, human granulocytic anaplasmosis, and babesiosis: clinical practice guidelines by the Infectious Diseases Society of America.**

Media Exhibit

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