



Evaluation of Pediatric Knee Monoarthritis in Areas Where Lyme Disease Occurs

Patients aged 1 to 21 years presenting with new onset (within the past month) knee monoarthritis.

1

Does the patient have significant knee trauma or penetrating injury, knee surgery within the past 30 days, knee cellulitis or other overlying infection, critical illness (hypotension requiring vasoactive medications or respiratory distress requiring assisted ventilation), immunocompromise, previous arthritis of any joint, prior Lyme disease, or history of rheumatologic disease?

Yes

Exit algorithm.
Tailored management.

No

2

Does the patient live in (or has recently visited) an area where Lyme disease occurs?*



Areas with HIGH INCIDENCE of Lyme disease
Some local transmission of Lyme disease

Yes

No

Evaluate for septic arthritis or other possible etiologies, as indicated.

3

Obtain testing: two-tier Lyme disease serology, absolute neutrophil count (ANC) & erythrocyte sedimentation rate (ESR).
ANC $\geq 10,000$ cells/mm³ or ESR ≥ 40 mm/hour?

Yes

Septic arthritis possible. Consider additional workup (e.g., arthrocentesis).**

No

4

Lower risk for septic arthritis.

- Await results of Lyme disease testing
- Consider empiric antibiotics for Lyme disease if first-tier serology test positive
- Consider discharging patient if stable, with close follow-up and appropriate pain relief
- Promptly reevaluate patients with acutely worsening arthritis

Are BOTH tests in the two-step testing process positive or equivocal?

Yes

Treat for Lyme disease. Oral doxycycline x 28 days. (Consider amoxicillin for children <8 yrs.) Visit [cdc.gov/lyme/treatment](https://www.cdc.gov/lyme/treatment). Also consider scheduled NSAIDs. Refer to specialist if worsening despite treatment, not resolved after first treatment course, or additional questions.

No

Evaluate for other possible etiologies.
If empiric antibiotics for Lyme disease were prescribed, discontinue.

*Ask about additional relevant history, including whether the patient has had potential exposure to ticks – i.e. spent time in wooded or grassy areas. Pets can also bring ticks indoors.

**Procalcitonin ≥ 0.5 ng/mL and CRP ≥ 0.6 mg/dL are also suggestive of septic arthritis and other pyogenic musculoskeletal infections.

