



## Background

❖ **Lyme arthritis is a hallmark of late Lyme disease, present in 7% of children at time of Lyme diagnosis. It must be considered in the differential diagnosis for acute monoarticular arthritis in pediatric patients. Its non-specific presentation often impedes recognition, especially in non-endemic areas. Herein, we present the case of a boy with Lyme arthritis who proved a diagnostic challenge.**

## Case Description

❖ **An 8 year-old male with no significant PMH presented to our ED in North Carolina as a transfer from an outside ED for acute right knee pain that woke him from sleep. He otherwise had been asymptomatic and notably denied injury, fever, rash, or other musculoskeletal complaints. Parents endorsed several episodes of transient acute right leg pain over the past several years, though never sought medical attention. Family history was non-contributory. Exam revealed normal vitals and mild right knee effusion/tenderness without joint erythema or warmth. He was able to ambulate with antalgic gait. Remainder of exam was unremarkable.**

## Diagnostic Evaluation

- ❖ **Labs showed elevated inflammatory markers, WBC 12.6, and ANC 7500. MRI demonstrated synovial enhancement and focal subchondral signal abnormality of the femoral condyle, concerning for septic arthritis versus osteomyelitis. Arthrocentesis yielded small volume of purulent aspirate. Joint fluid studies revealed 77,000 WBC with 93% neutrophils. Gram stain showed pleocytosis without organisms. The patient was started on IV cefazolin and clindamycin for presumed septic arthritis and underwent joint irrigation. Joint fluid and blood cultures were negative after 24 hours, prompting an infectious disease consult. During their interview, family revealed that the patient had made frequent trips to Massachusetts over the last several years to visit his father. Lyme and Bartonella serologies were collected but pending at discharge. He went home on cefalexin.**
- ❖ **A few days later, his Lyme serologies returned positive (definitively confirmed on Western blot), and Lyme arthritis was diagnosed. He was switched to a course of oral doxycycline with symptomatic resolution.**

## Discussion

❖ **There is necessary vigilance around pediatric intraarticular infections in order to avoid permanent joint damage. Many Lyme arthritis patients are initially managed for septic joint. A 2013 study at a center in a Lyme-endemic region showed 75% of pediatric Lyme arthritis patients underwent arthrocentesis for investigation of septic arthritis, despite its low prevalence in such areas. This represents a prime target for improvements in management. Recent work has aimed to elucidate predictive factors that can optimize timely Lyme diagnosis while avoiding unnecessary intervention for patients at low risk of septic arthritis.**

## Conclusions

❖ **Untreated Lyme disease can present as acute monoarthritis in pediatric patients. It can be difficult to discern from other arthritides, including septic arthritis. Careful provider discretion remains paramount until the emergence of reliable predictive models that can be safely applied in all geographic distributions.**

## Acknowledgements

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