

# Improving the diagnosis of chronic nonbacterial osteomyelitis

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Researchers have identified several factors that should help improve the diagnosis of chronic nonbacterial osteomyelitis (CNO), also known as chronic recurrent multifocal osteomyelitis (CRMO). This chronic

autoinflammatory syndrome, which can be debilitating, is underdiagnosed and is characterized by multiple foci of painful swelling of bones, mainly in the metaphyses of the long bones, in addition to the pelvis, the shoulder girdle and the spine. Because CNO often mimics a bone infection or cancer, children with the condition often see various specialists before getting an accurate diagnosis. The new study was presented at the virtual annual meeting of the American College of Rheumatology.

"The reason we conducted this study is that for patients with CRMO or CNO, there is often an enormous delay between first symptoms to diagnosis, because it is confused with many other things," said study coauthor Karen Brandt Onel, MD, Chief of Pediatric Rheumatology and Professor of Clinical Pediatrics at Hospital for Special Surgery (HSS) in New York City. "It is not uncommon to have children who have a two, or three-year span, or even as much as a 15-year span between the first symptoms and when they are ultimately diagnosed and treated."

In the new study, the researchers identified 264 cases of CNO and 145 mimicking conditions from 20 centers in 7 countries on 4 continents, using the REDCap online database. Cases were included if they had at least 12 months of followup. The researchers compared clinical and investigational features of CNO patients with those of patients who had conditions that mimicked CNO.

When compared to mimicker diagnoses, CNO patients were predominantly female, more frequently exhibited intermittent versus continued pain, but less commonly had a fever. Clavicular swelling was more common in CNO than in mimickers. Symmetric patterns of bone [lesions](#) were also more common in CNO. CNO frequently involved the thoracic spine, clavicle, sternum/manubrium, pelvic bones, bilateral femur, bilateral tibia, unilateral fibula, and foot bones. Imaging features including cortical bone disruption, disorganized [bone](#) formation, mass

structure, marrow infiltrate, abscess or geographic appearance were less common in CNO.

The researchers say that clinicians can use the new information to help improve the diagnosis of CNO patients. "We are working slowly and steadily towards classification criteria, so we can make the diagnosis quickly and get treatment instituted quickly. We are trying to work through this disease to identify clear as a bell [diagnostic criteria](#), outcomes measures, and treatment," said Dr. Onel. "This is a diagnosis that is not in everyone's brains. Especially if there are typical upper extremity lesions, with the clavicle remaining number one, if there is no fever, and there are symmetric lesions, both tibias, both fibulas, both femurs etc., those are things that should push us in the direction of a [diagnosis](#) of CNO or CRMO. If you have symmetric lesions and especially if you have upper extremity lesions, you have to think CRMO or CNO."

**More information:** Yongdong Zhao et al. Comparison of Clinicopathologic and Imaging Features Between Chronic Nonbacterial Osteomyelitis and Its Mimickers: A Multi-national 450 Case-Control Study. [acrabstracts.org/abstract/com...-case-control-study/](https://acrabstracts.org/abstract/comparison-of-clinicopathologic-and-imaging-features-between-chronic-nonbacterial-osteomyelitis-and-its-mimickers-a-multi-national-450-case-control-study/)

Provided by Hospital for Special Surgery

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