



## CHRONIC NON-BACTERIAL OSTEOMYELITIS OF THE CLAVICLE

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21 year old gentleman, with no comorbidities presented initially on 16/6/2017, with complaints of right shoulder pain and restricted movement of around 2-3 months. He developed pain over his right shoulder which was dull in nature and gradually progressive. He occasionally complained of shooting pain radiating from the right shoulder to the entire right arm. There were no specific aggravating and relieving factors. No history of weakness or numbness, trauma, local discharge or ulceration. No fever, weight loss, or loss of appetite was present. On examination he was conscious, oriented and afebrile. No pallor, icterus, cyanosis, clubbing, pedal edema or generalized lymphadenopathy was present. Vitals were stable. Local examination of the right shoulder revealed a hard tender swelling in the right clavicle. No gross wasting of muscles was noted. Shoulder movements both active and passive of the right shoulder were normal. Extremes of shoulder abduction produced pain in the clavicle. Power, tone and reflexes were normal. No sensory deficit was present.

Past history was significant for Pott's spine D8 vertebra for which he was treated with ATT a few years ago and he had completed the course. On June 16, 2017 an MRI of the right clavicle was done. It revealed ill-defined lytic lesion involving the medial half of right clavicle; associated sclerosis involving the medial two third of the clavicle; erosions are noted in the medial end of the clavicle; associated benign type of periosteal reaction noted; associated ill defined soft tissue edema and swelling noted abutting the right brachial plexus and the subclavian vessels (however a definite plane is seen between the inflammation and these structures) – findings are suggestive of sub-acute vs chronic osteomyelitis of the right. On 22/6/2017 he was admitted for debridement of the right clavicle, and tissue was sent for histopathological examination and cultures. Tissue Cultures, gram staining XPERT MTB were negative. Histopathological examination was negative for granulomas. Hence he was managed with analgesics 2018-2022. Anti-tuberculosis treatment (ATT) was considered but unsure if patient was compliant.

In 22nd Feb 2022, he presented with a similar episode with complaints of right shoulder pain and restricted movements in the right shoulder. Right shoulder examination revealed tenderness and swelling of the right clavicle and severe restriction of movements and no sensory disturbances. Power, tone and reflexes were normal. PET CT was done, it revealed minimal erosion of the medial end of the clavicle with low grade metabolic activity, and he was diagnosed with acute on chronic recurrent osteomyelitis of the medial end of the clavicle. The patient underwent a repeat debridement with sequestrectomy with saucerization on 24/2/22. Histopathology revealed acute on chronic osteomyelitis. Tissue culture, AFB, gram staining and Xpert Mtb were negative. He was diagnosed with chronic non-bacterial osteomyelitis of right clavicle. He saw me in the rheumatology clinic, transitioned from Etoricoxib to Naproxen 250 mg three times a day.

Chronic nonbacterial osteomyelitis (CNO)/chronic recurrent multifocal osteomyelitis (CRMO) is a chronic inflammatory bone disorder affecting primarily children. CNO has been reported worldwide with female predominance. The exact pathogenesis is unknown. Both genetic and environmental factors contribute to the underlying inflammation. Monocytes/macrophages seem to have a central role in the inflammatory response by skewing towards pro-inflammatory cytokines. The cardinal feature of CNO is bone pain of insidious onset. CNO is also associated with other conditions such as psoriasis, palmoplantar pustulosis (PPP), inflammatory bowel disease (IBD), and spondyloarthropathy. The initial evaluation of suspected CNO/CRMO includes obtaining laboratory studies (complete blood count [CBC], C-reactive protein [CRP], and/or erythrocyte sedimentation rate [ESR]); imaging; and, in many patients, bone biopsy. Whole-body magnetic resonance imaging (WBMRI) is the gold-standard imaging modality for diagnostic and staging purposes.

CNO/CRMO should be suspected in any child with insidious-onset bone pain. Biopsy of the lesion is generally needed to make the diagnosis. The lack of features specific to CNO usually results in a delay in the diagnosis. The differential diagnosis includes infectious osteomyelitis, Langerhans cell histiocytosis (LCH), and malignancies that involve the bone. Nonsteroidal anti-inflammatory drugs (NSAIDs) are the first line of treatment for most patients. Additional treatment options for patients with active spinal lesions or in those who have persistently active symptoms and abnormal magnetic resonance imaging (MRI) findings despite NSAID therapy include tumor necrosis factor (TNF) inhibitors, bisphosphonates, and disease-modifying anti-rheumatic drugs (DMARDs). Patients are monitored with focal MRI studies and by physical assessment. The disease course can be variable, from mild, intermittent episodes to an unrelenting course with uncontrolled inflammation causing significant morbidity. Early diagnosis and treatment may prevent or decrease complications of the disease.

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