

COVID-19-Related Bilateral Avascular Necrosis of the Femoral Head

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Abstract: Osteonecrosis is a pathologic process that involves focal bone infarction and death of bone tissue caused by trauma, infections, autoimmune conditions, and chronic steroid use; however, most cases go undiagnosed. The link between bilateral osteonecrosis and coronavirus disease 2019 (COVID-19) infections has not been fully investigated. This is the case of a 42-year-old Caucasian woman who presented to the emergency department for bilateral hip pain, which started three months prior. Initially, the pain was mild; however, her symptoms worsened, causing her to have difficulty ambulating. Co-incidentally she tested positive for COVID-19 10 days after the onset of pain. She denied any lower-extremity numbness, weakness, and loss of bowel or bladder function. X-ray of the hips showed significant sclerosis of bilateral femoral heads and acetabula, indicating avascular necrosis. She was given ketorolac injection intramuscularly for analgesia and remained in stable condition. Upon discharge, she was given a referral to orthopedic surgery for bilateral total hip arthroplasty. Atraumatic osteonecrosis of the femoral head can be caused by multiple etiologies, including exposure to medications, post-transplantation procedures, trauma, and hypercoagulable states. This condition is likely due to poor angiogenesis after an infarct, causing a domino effect of bone demineralization, trabecular thinning, and cortical collapse. A literature search demonstrated prior cases of unilateral femoral head necrosis associated with COVID-19 infection and steroid use. There have been no cases of bilateral osteonecrosis of the femoral head reported without long-term steroid use. Considering the disease severity in both hips and limited steroid use (only five days of prednisone), other common etiologies were sought and were ruled out. In our patient, the only event that was related to her initial onset of hip pain was a COVID-19 infection. We suggest a relationship between COVID-19 infection and avascular necrosis given the rapid progression of the disease. We acknowledge that this presentation of bilateral osteonecrosis is rare and warrants further investigation. More research should be performed to establish a tenable relationship between COVID-19 infection and osteonecrosis, with and without the use of steroids.