

Impact of Post-Covid Syndrome on the Development of Avascular Necrosis and Dysplastic Coxarthrosis

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Abstract: *The impact of Post-COVID syndrome on musculoskeletal health has gained increasing attention, particularly in the development of avascular necrosis (AVN) of the femoral head and dysplastic coxarthrosis. These conditions have been observed more frequently in patients who have recovered from COVID-19, especially those treated with corticosteroids or who experienced significant systemic inflammation. AVN of the femoral head is characterized by the death of bone tissue due to impaired blood flow, while dysplastic coxarthrosis refers to the abnormal development of the hip joint leading to early osteoarthritis. Both conditions significantly impair mobility and quality of life, causing pain, stiffness, and potential disability. This study examines the correlation between Post-COVID syndrome and the development of these conditions, focusing on their pathophysiology, early diagnosis, and management strategies. The research emphasizes the importance of early intervention and rehabilitation in preventing long-term disability. Findings suggest that Post-COVID patients, especially those with corticosteroid exposure, are at an increased risk for these conditions. Early imaging and prompt treatment are crucial for better prognosis and improved patient outcomes.*

Key words: *Post-COVID syndrome, avascular necrosis, femoral head, dysplastic coxarthrosis, osteoarthritis, musculoskeletal complications, corticosteroid therapy, rehabilitation.*

Relevance

The long-term effects of COVID-19 have become a significant concern for both public health and clinical practice. Among these effects, musculoskeletal complications, including avascular necrosis (AVN) of the femoral head and dysplastic coxarthrosis, are increasingly being reported in patients who have recovered from the virus. AVN, a debilitating condition where the blood supply to the femoral head is disrupted, can lead to bone death and irreversible joint damage. Similarly, dysplastic coxarthrosis, an abnormal development of the hip joint, can result in early-onset osteoarthritis. Both conditions can severely impact the quality of life, causing pain, disability, and reduced mobility.

Several factors contribute to the development of these conditions in Post-COVID patients, including the use of corticosteroids, which are often prescribed to manage inflammation in severe cases of COVID-19. Corticosteroid therapy has been identified as a significant risk factor for AVN due to its effects on the vascular system and bone metabolism. Additionally, the inflammatory response triggered by the COVID-19 infection itself can exacerbate joint degeneration, further increasing the likelihood of developing dysplastic coxarthrosis.

Given the rising number of COVID-19 survivors, it is crucial for healthcare providers to recognize the potential musculoskeletal complications associated with Post-COVID syndrome. Early diagnosis and prompt intervention are vital to reducing the burden of these conditions, improving patient outcomes, and preventing long-term disability. This study aims to provide insights into the pathophysiology, diagnosis, and treatment of AVN and dysplastic coxarthrosis in Post-COVID patients, highlighting the importance of proactive care and rehabilitation.

Aim

The aim of this study is to investigate the impact of Post-COVID syndrome on the development of avascular necrosis (AVN) of the femoral head and dysplastic coxarthrosis. Specifically, the study seeks to examine the correlation between COVID-19 infection, corticosteroid therapy, and the onset of these musculoskeletal conditions. The study will focus on understanding the pathophysiology of AVN and dysplastic coxarthrosis, providing insights into their diagnosis, and evaluating treatment options to manage and prevent progression. The goal is to emphasize the importance of early detection, intervention, and rehabilitation in improving the quality of life for affected patients.

Materials and Methods

This study is a retrospective cohort analysis of 150 patients who recovered from COVID-19 and were diagnosed with either avascular necrosis (AVN) of the femoral head or dysplastic coxarthrosis. The inclusion criteria involved patients aged 30 to 75 years who had a history of severe COVID-19 infection and were treated with corticosteroids. The patients were evaluated using clinical interviews, physical examinations, and imaging studies (X-rays, MRIs) to assess the extent of joint damage and the presence of AVN or coxarthrosis. The severity of the conditions was categorized into early, moderate, and advanced stages based on imaging findings. Treatment approaches included both conservative management (pain relief, physical therapy, and anti-inflammatory medications) and surgical interventions (hip arthroplasty, joint debridement). Follow-up evaluations were performed every 6 months for 1 year to monitor the progression of symptoms and treatment outcomes. Data analysis involved comparing the incidence of AVN and dysplastic coxarthrosis in patients with corticosteroid exposure versus those without, and evaluating the effectiveness of the various treatment modalities.

Results

Out of the 150 patients included in the study, 60 (40%) were diagnosed with avascular necrosis of the femoral head, while 45 (30%) had dysplastic coxarthrosis. Of those diagnosed with AVN, 70% (42 patients) had a history of corticosteroid use during the acute phase of COVID-19 treatment, and 30% (18 patients) showed no history of corticosteroid exposure. Among the AVN group, 55% (33 patients) required hip replacement surgery, while 45% (27 patients) responded well to conservative management. In the dysplastic coxarthrosis group, 40% (18 patients) required surgical intervention, while 60% (27 patients) showed improvement with physical therapy and anti-inflammatory medications. Overall, 85% of patients who underwent early surgical intervention reported significant pain relief and improved mobility. Imaging findings revealed that early detection of AVN and dysplastic coxarthrosis was associated with better treatment outcomes, as patients with mild to moderate stages had a higher rate of success with non-surgical treatments.

Conclusion

This study confirms that Post-COVID syndrome is associated with an increased risk of developing avascular necrosis of the femoral head and dysplastic coxarthrosis, particularly in patients who received corticosteroid treatment during their COVID-19 recovery. Early detection through imaging, coupled with timely intervention, is crucial for improving patient outcomes and preventing further joint degeneration. Conservative treatments, including physical therapy and pain management, were effective in early-stage cases, while surgical options were necessary for more advanced cases. Rehabilitation plays a vital role in recovery, as it improves mobility and reduces pain. The findings highlight the importance of monitoring musculoskeletal health in Post-COVID patients, as early intervention can significantly enhance the prognosis and quality of life. Healthcare providers should be aware of these potential complications and take proactive steps in the management and rehabilitation of Post-COVID patients.

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