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Ankylosing Spondylitis & Multiple Sclerosis, A Challenging Association: Case Report

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Background

The occurrence of Multiple sclerosis (MS) and Ankylosing spondylitis (AS) is a rarely reported entity. Although this may be true, the development of a central nervous system demyelinating disease has been reported following anti-TNF therapies in the treatment of AS [1,2]. As a result, treatment options for patients with both AS and MS are limited. Secukinumab, a human monoclonal antibody targeting interleukin-17A, approved for AS treatment in 2016 [3], could be considered as a potential treatment option for patients diagnosed with both MS and AS. Here we discuss a case of a patient successfully treated with Secukinumab for both AS and MS with complete resolution of clinical symptoms and improvement of radiological findings.

Case

Our case is of a 32 years old male, diagnosed in 2012 with Multiple Sclerosis (Relapsing-Remitting MS type) based on clinical and MRI findings. He was treated for his MS with interferon beta for a duration of eight months then switched to Fingolimod due to disease activity. The patient's MS was stable on Fingolimod.

In 2018, he presented complaining of a two-year history of lower back pain with early morning stiffness (inflammatory in nature) associated with severe neck pain that was radiating to both arms with limitation of neck range of motion. He had no previous history of ocular inflammation, joint pain or swelling, and no history of skin rash or psoriasis. Systematic physical examination, including neurological examination, were unremarkable. He sought medical advice previously and was diagnosed as a case of mechanical back pain secondary to disc disease, nonetheless his pain was increasing over the past two years without relieving factors.

In November 2018, he was admitted electively through the neurology clinic for further workup of his MS and chronic back pain.

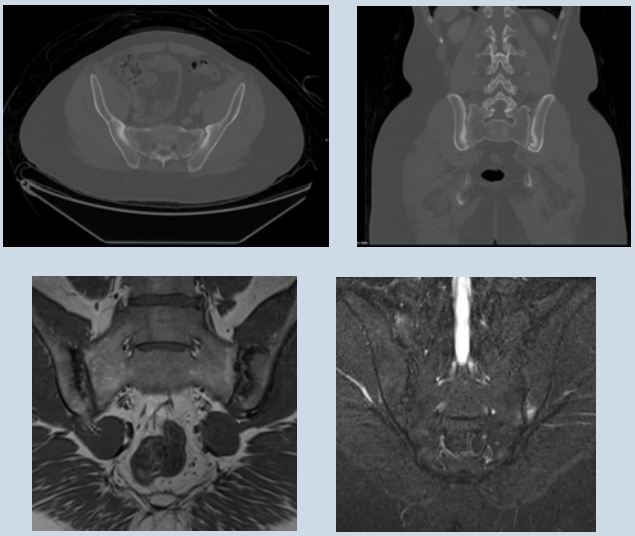
Labs

His routine hematological, biochemical, and thyroid tests were normal. Viral serology, Brucella Serology, and Quantiferon TB gold were all negative. Autoimmune workup showed a positive HLA B27 (on December 2, 2018), with negative ANA, Anti-CCP, RF, compliments, and Antiphospholipid workup.

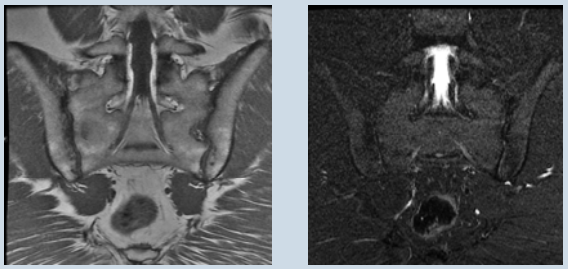
Imaging

A CT neck, chest, abdomen, and pelvis were done. The studies showed several osseous findings including, cervical spine erosive changes with anterior bridging osteophytes/syndesmophytes; the lower thoracic spine showed widening of the left costovertebral joint space with sclerosis of the pedicles. These findings, in addition to bilateral symmetric sacroiliitis, were highly suggestive of Seronegative Spondyloarthropathy. Rheumatology service was consulted for the patient's clinical and radiological findings. An MRI lumbar spine and sacroiliac joint was done, which showed lumbosacral enthesitis and bilateral active sacroiliitis presenting with bone marrow edema, erosions and sclerosis. The patient was diagnosed with AS and was started on Secukinumab on January 8th, 2019. One-year post diagnosis and starting of Secukinumab, the patient showed an 80 percent improvement in his AS clinical symptoms with stable RRMS. Follow up imaging was done, where an MRI brain showed stable multiple supra and infratentorial demyelinating lesions with no new or active lesions, while an MRI sacroiliac joint showed marked improvement of bilateral sacroiliitis with minimal residual subchondral bone marrow edema at the left inferior sacroiliac joint

Pre-treatment



Post-treatment



Discussion

Ankylosing spondylitis (AS), an autoimmune rheumatological disease affecting mostly the axial spine [5], and Multiple Sclerosis (MS), an autoimmune central nervous system demyelinating disease [6], are diseases that rarely coexist in the literature. It was first reported in 1974, in a study by Thomas DJ et al [7], reviewing the neurological symptoms in 45 AS patients. It reported a case of one patient who was found to have MS with associated AS, and two other cases reported to have an MS like syndrome. Another study by Libbrech et al [8], reported the possibility of developing a monophasic myelopathy resembling MS in patients with AS . Over the years, some reports raised the question of the possible association between AS and MS, nonetheless there has not been a definite correlation between the two diseases.

Human leukocyte antigen B27 (HLA B27), a protein found in around 90% of AS patients, has been seen in around 10% of MS patients. However, a few publications reported the correlation between HLA B27 positive patients and the development of both MS and AS [4,9,10].

Additionally, due to the risk of central nervous system demyelinating disease in patients following Tumor necrosis factor inhibitors (Anti-TNF alfa medication) usage [11], limited treatment modalities are available for the treatment of both diseases. Secukinumab, a human monoclonal antibody targeting interleukin-17A, a cytokine that plays a major role in MS pathogenesis [12], was shown to be a beneficial treatment in reducing MRI lesions in RRMS patients in a recent study [13]. It was approved for AS treatment in 2016 [3], with limited literature of its potential as a treatment option for combined MS and AS [14]

Our case reports the high likelihood of developing both MS and AS in an HLA B27 positive patient who is naive to Anti-TNF treatment, and who was treated upon diagnoses with Secukinumab for two years with complete resolution of MS and AS clinical symptoms and improvement of follow up radiological findings.

Conclusions

Secukinumab is considered as a potential safe treatment option in patients with combined Ankylosing spondylitis and Multiple sclerosis

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