Journal of Research in
Orthopedic Science

November 2023. Volume 10. Number 4

Case Report

Coexistence of Ankylosing Spondylitis and Multiple Sclerosis in a 42-year-old Patient: A Case Report

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Citation Delkash P, Heidari Almasi M, Chehrassan M, Ebadi SA. Coexistence of Ankylosing Spondylitis and Multiple Sclerosis in a 42-year-old Patient: A Case Report. Journal of Research in Orthopedic Science. 2023; 10(4):251-254. http://dx.doi.org/10.32598/JROSJ.10.4.1597.2

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Article info:
Received: 14 Dec 2022
Revised: 28 Dec 2023
Accepted: 07 Jan 2023
Available Online: 01 Nov 2023

Keywords:
Ankylosing spondylitis (AS), Multiple sclerosis (MS)

ABSTRACT

Background: Ankylosing spondylitis (AS) and multiple sclerosis (MS) rarely coexist. Diagnosing and managing these conditions simultaneously can be challenging.

Case Presentation: The current study reported the case of a 42-year-old man diagnosed with AS who later developed MS during follow-up.

Conclusion: While both AS and MS are autoimmune diseases, experiencing both conditions simultaneously is uncommon. Selecting an effective treatment plan tailored to individuals with both diseases is crucial.

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Introduction

Ankylosing spondylitis (AS) and multiple sclerosis (MS) rarely coexist in the same patient. The pathogenesis of both diseases is well understood. However, both are believed to originate from an initial immune and inflammatory response [1]. When they manifest concurrently, the predominant mechanism is likely T-cell-mediated autoimmunity. Limited case reports exist regarding this subject [1-4]. MS has been reported in a few patients diagnosed with AS who have undergone anti-tumor necrosis factor (anti-TNF) therapy [1]. Additionally, some patients with AS develop MS without a history of anti-TNF treatment. The potential for anti-TNF therapies to worsen latent MS or hasten demyelination necessitates careful discontinuation of these medications in relevant cases.

Case Presentation

A 42-year-old male experienced back pain, morning stiffness, and diminished range of motion in his spine since 2018. To alleviate his discomfort, the patient regularly utilized non-steroidal anti-inflammatory drugs. His medical history revealed a diagnosis of interfollicular mixed cellularity Hodgkin lymphoma, diagnosed and treated from 2001 to 2003.

In 2019, he was hospitalized due to progressive left lower extremity weakness, vertigo, ataxia, and diplopia, which had developed over six months. Over the years, the patient experienced Wernicke aphasia and impaired handwriting. Approximately four years later, he presented to the Emergency Department with worsening imbalance and challenges in ambulation. The patient's symptoms intensified during the week leading up to the emergency visit. In the previous five months, the patient experienced increased lower back pain, double vision, and progressive weakness in his left lower limb, leading to admission to the Neurology Department.

Upon examination, partial paralysis of the left sixth cranial nerve, increased reflexes, absence of Hoffmann's sign, upward plantar responses, muscle strength of 3/5 in the lower limbs, and reduced spinal range of motion were observed.

The laboratory results were as follows:

- White blood cell (WBC): 13.3 (103/L):
- Lymphocytes: 19%
- Neutrophils: 68%
- Hemoglobin: 13.3 (mg/dL):
- Platelets: 486 (/mm^3)
- Alanine transaminase (ALT): 58 (U/L)
- Aspartate aminotransferase (AST): 32 (U/L)
- Alkaline phosphatase (ALKP): 312 (U/L)
- Erythrocyte sedimentation rate (ESR): 74 (mm/hr)
- C-reactive protein (CRP): 30 (mg/L)
- Creatinine: 1 (mg/dL)
- Urinalysis: Normal

Brain magnetic resonance imaging (MRI) revealed multiple supra- and infratentorial lesions, suggestive of demyelinating disease. Due to the patient's condition, he was not a candidate for lumbar puncture, and MS was strongly considered. A spinal surgeon visited the patient due to severe back pain and reduced range of motion. A biopsy was obtained from the bone lesions, and malignancy was excluded. The patient was referred to a rheumatologist because of an inflammatory pattern of pain, enthesitis, and syndesmophytes.

The patient's symptoms and signs, including inflammatory back pain, enthesitis (costochondritis), MRI findings, and positive human leukocyte antigen (HLA) B27, were compatible with AS diagnosis.

Hematology consultation revealed no signs of disease relapse. Infectious disease specialists ruled out brucellosis, tuberculosis, human T-cell lymphotropic virus type 1 (HTLV-1), and other infections. Following the diagnosis of AS, treatment was initiated using a pulse of methylprednisolone and anti-CD20 medication. During the five-day hospitalization, the patient received pulse methylprednisolone and rituximab (RTX). At the time of discharge, he could walk independently and was prescribed sulfasalazine, celecoxib, and prednisone.

Subsequent follow-up at the rheumatology clinic showed improvement in axial pain, with ESR and CRP levels returning to normal. A few months later, the patient experienced an exacerbation of axial symptoms, responding to monthly pamidronate therapy.

During the 5-day hospitalization, the patient received pulse methylprednisolone and RTX. At the time of discharge, the patient could walk and was discharged with prescriptions for sulfasalazine, celecoxib, and prednisone.

During a recent visit to the rheumatology clinic, axial pain showed noticeable improvement, and ESR and CRP levels returned to normal.

Discussion

The occurrence of MS in patients with AS, specifically when undergoing anti-TNF-α therapy, creates complicated and contradictory treatment dilemmas. Lourbopoulos et al. reported two MS cases with comorbidities involving AS. They emphasize the importance of ensuring that patients are fully informed and provide their consent because the treatment for these conditions may involve increased risks [1]. A thorough assessment of positive and possible drawbacks is vital for effective patient management. In contrast to our case, both patients received anti-TNF-α therapy.

Consistent with our case, Fominykh et al. reported four Russian patients with concurrent MS and AS [2]. None of the patients had received anti-TNFα treatment before being diagnosed with MS. They selected various treatment strategies in these four cases, utilizing MS-sparing therapy. In three cases, using glatiramer acetate resulted in favorable outcomes without progression or relapse over one year in two cases. However, one patient experienced side effects and persistent MS activity. Accordingly, a personalized combination of immunosuppressants was attempted, leading to the stabilization of MS with leflunomide therapy. Nevertheless, the patient experienced a significant progression of AS.

Pamidronate was prescribed to our patient, and we observed a beneficial response. It is of utmost importance to engage in candid discussions with patients regarding treatment effectiveness, associated risks, and potential outcomes.

Conclusion

Even though both AS and MS are autoimmune disorders, their simultaneous occurrence is rare. Selecting an effective treatment strategy for patients affected by both conditions is crucial.

Ethical Considerations

Compliance with ethical guidelines

All the procedures performed in the study were approved by the Research Ethics Committee of the Shahid Beheshti University of Medical Sciences, Tehran, Iran, and were in accordance with the ethical standards of the institutional Human Research Review Committee and the 1964 Helsinki declaration and its later amendments. Informed written consent was obtained from all participants.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Authors' contributions

Study design: Minoo Heidari Almasi; Patients' coordination, issues, literature review: Minoo Heidari Almasi; Data collection, and investigation: Mohammadreza Chehrassan; Data interpretation: Seyed Alireza Ebadi; Writing and final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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