

Arthritis to Meningitis: A Rare Case of Rheumatoid Meningitis

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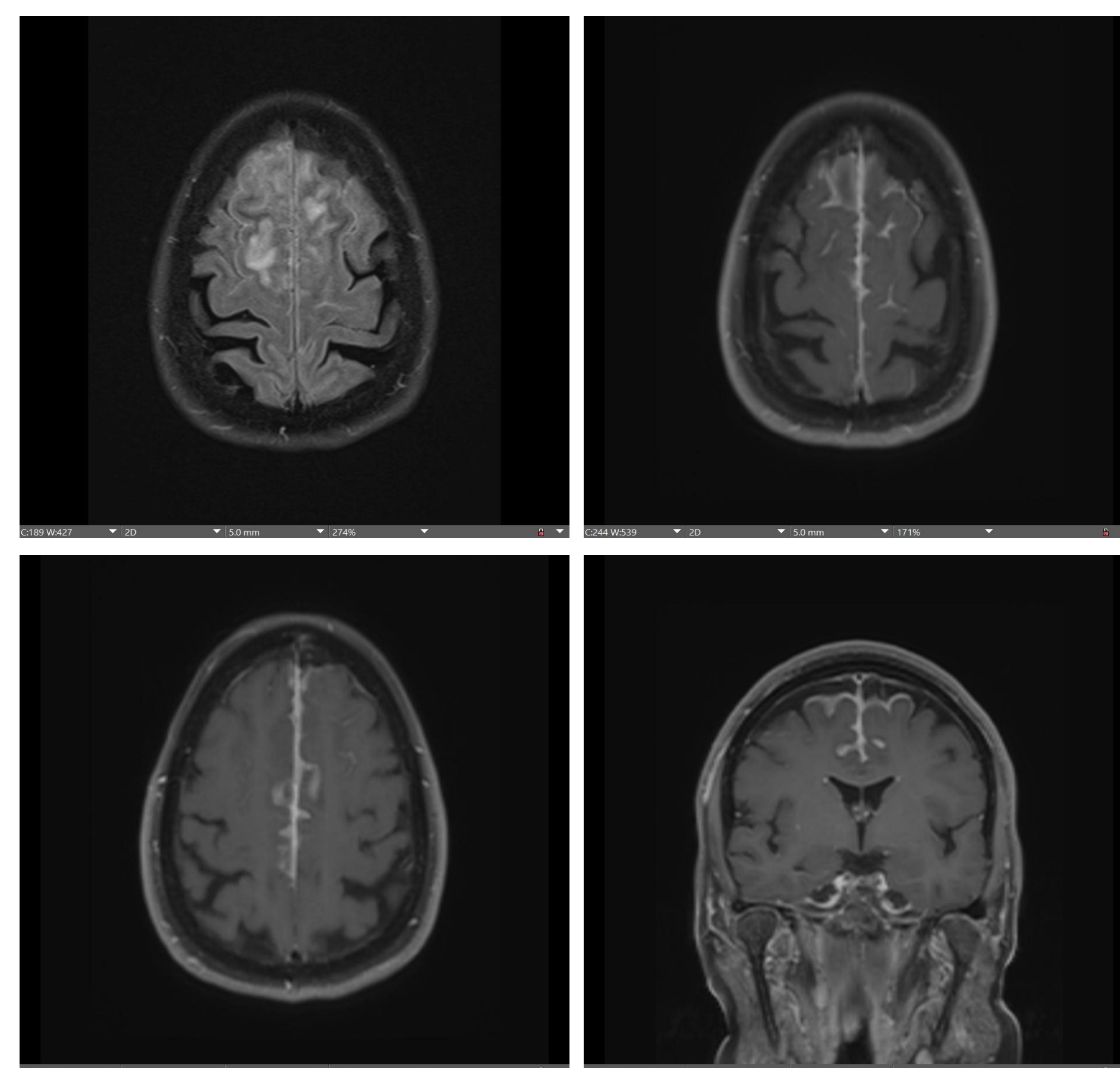
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INTRODUCTION

Rheumatoid meningitis (RM) is often an uncommon sequelae of rheumatoid arthritis (RA) that may present with various central nervous system (CNS) manifestations, such as mimicking stroke-like episodes and transient ischemic attacks (TIA). There is no gold standard for diagnosis of RM, and it has often been described as a diagnosis of exclusion. We report a case of a patient with a history of RA who presented with focal neurological deficits and was tested for various causes of CNS deficits.

CASE PRESENTATION

A 63-year-old female with a past medical history of rheumatoid arthritis, hypothyroidism, hyperlipidemia, diverticulitis, and history of herpes simplex virus-1 (HSV-1) infection presented with complaints of episodes of right-sided weakness and paresthesias of her lower and upper limbs. She also described her headache worsening since her visit. She was suspected to have a TIA versus a stroke. A magnetic resonance image (MRI) was ordered to further evaluate, showing inflammation of the cerebral cortex or meninges, most notable around the cerebral convexity.



The fluid attenuated inversion recovery (FLAIR) MRI (top left image) showed diffuse hyperintensities in the cerebral convexity superiorly and bilaterally, mainly involving the white matter but also has focal areas of involvement in the gray matter. Three T1-weighted MRI images after administration of intravenous gadolinium contrast (top right, bottom left, and bottom right images) showed minimal cortical enhancement but marked enhancement of the meninges primarily at the cerebral convexity superiorly and bilaterally with involvement of the interhemispheric fissure.

Rheumatoid meningitis (RM) is an uncommon sequelae of rheumatoid arthritis (RA). There is **not an established steroid regimen** for treatment of RM, in which most cases opt for usage of high dose methylprednisolone. This is the **first reported case** in literature which showed an **excellent clinical outcome** with the **usage of dexamethasone**.

HOSPITAL COURSE

The patient was started on empiric ceftriaxone, ampicillin, acyclovir, and dexamethasone. During the hospital course, her rheumatoid factor and anti-CCP antibodies were elevated, consistent with rheumatoid arthritis, and other autoantibody panels were negative. Her cerebrospinal fluid (CSF) analysis showed an increased number of white blood cells, no red blood cells, normal glucose, normal protein, negative CSF VDRL test, and no bacterial growth. A meningitis/encephalitis panel was negative for common meningitis pathogens. A bacterial cause was ruled out, so antibiotics were discontinued, but acyclovir and dexamethasone were continued. Although the patient has a history of HSV-1 infection, MRI was not consistent with HSV encephalitis and HSV was not detected in the meningitis/encephalitis panel, so acyclovir was eventually removed from the treatment regimen. CSF viral panels also came back negative. Patient continued to improve on dexamethasone and was eventually discharged. CSF fungal culture was received after discharge and showed no growth. A CSF IgG-albumin index was elevated, also showing an elevated IgG synthesis rate in the CSF, and anti-CCP antibodies were elevated in the CSF. Combined with negative bacterial, viral, and fungal CSF panels, she was diagnosed with aseptic meningitis, most likely RM.

CONCLUSIONS

The recognition of RM as a sequela of RA has been complicated by a limited understanding of pathophysiology, non-specific symptoms, and derivation of evidence from minimal case reports and series on the condition. Given its nature as a diagnosis of exclusion with a range of presentations and symptomatology, the importance of obtaining appropriate history and workup needs to be highlighted.

Additionally, alignment of the multidisciplinary care team, which in this case encompassed neurology, hospital team, infectious disease, rheumatology, and neurosurgery, in a plan of action for multiple differentials based on likelihood and test results is also crucial.

With our limited understanding of RM, there is often no clear choice of which steroid to use in the treatment of RM. In many case reports, the use of high dose methylprednisolone has been used with tapering to oral prednisone. This is the first reported case of RM in literature that showed an excellent response to dexamethasone.