Exploring a Rare Association: Rheumatoid Arthritis with Pachymeningitis and Optic Neuritis.

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Introduction:
Rheumatoid arthritis (RA) is a systemic disease but can rarely cause neurological involvement. Rheumatoid pachymeningitis and optic neuritis are rare complications of RA and are a diagnosis of exclusion.

Case:
A 75-year-old male with a history of seronegative RA and hypertension presented to the emergency department with left eye pain and blurry vision lasting two days. He had been diagnosed with seronegative RA around nine months ago, starting with the abrupt symptoms of hand and knee swelling and pain. He had positive ANA titers with negative rheumatoid factor and cyclic citrullinated peptide. He had been on a steroid taper and had methotrexate added three months ago. For the last two days, eye movements exacerbated the pain and were unrelieved by painkillers. He had no symptoms of photophobia, neck stiffness, vomiting, weakness, balance issues, or speech disturbances. His blood pressure was elevated at 204/75 mm Hg upon arrival.
Physical examination revealed left conjunctival injection, mild ptosis, painful extraocular movements, and tenderness over the orbit and sinuses but no temporal artery tenderness.

Muscle strength and reflexes were normal. Initial treatments included a migraine cocktail and intravenous labetalol, which alleviated his symptoms and decreased his blood pressure. Laboratory tests showed a CRP of 2.5 mg/dL and an ESR of 32 mm/h, with other blood work unremarkable. A CT angiogram of the head and neck showed no high-grade stenosis. Given his RA history, initial concerns included scleritis. MRI of the brain and orbit revealed inflammation around the left optic nerve and pachymeningitis at the left cerebral convexity and interhemispheric fissure, suggesting hypertrophic pachymeningitis.

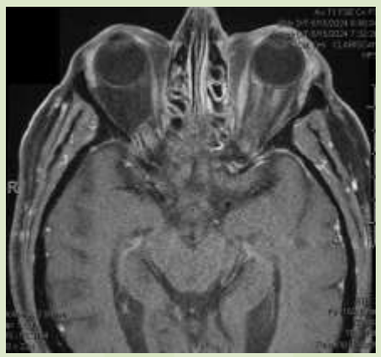

Fig.1: T1 weighted MRI sequence showing mild enhancement of the left optic nerve and intraconal fat surrounding the optic nerve.

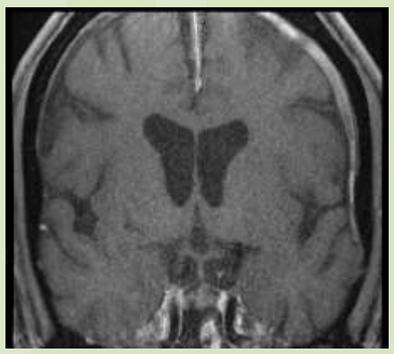

Fig. 2: T1-weighted MRI demonstrates thickening and enhancement of the pachymeninges along the interhemispheric fissure and the left cerebral convexity.

An ophthalmologic exam was unremarkable. Treatment was adjusted to include pulse doses of intravenous methylprednisolone for optic neuritis, resulting in significant pain relief. Neurology consultation considered various differentials for pachymeningitis, including infectious, autoimmune (RA, sarcoidosis, Sjogren's, NMO, MOG antibody disease, IgG4-related disease), and less likely causes such as paraneoplastic, vaccine-related, or multiple sclerosis (given advanced age).
Though inadequate for complete testing, a lumbar puncture (LP) indicated an inflammatory disorder with elevated glucose (199 mg/dl), protein (109 mg/dl), unremarkable WBC/RBC counts, and gram stain. Cytology, CSF mycobacterial, spirochetal, and other bacterial, fungal, and viral studies were negative. At this point, the most likely diagnosis was rheumatological meningitis and rheumatological optic neuritis. The patient improved markedly with high-dose intravenous steroids over four days and was discharged on a tapering oral prednisone regimen. Follow-up with rheumatology led to a change from methotrexate to azathioprine.

Discussion:
Neurological or ophthalmic symptoms in a patient with RA require a thorough evaluation to determine whether they are related to RA itself or another etiology. MRI and LP are essential for accurate diagnoses.