A Rare Neurological Presentation of Kikuchi-Fujimoto Disease

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Fulminant MRI brain abnormalities in a rare neurological presentation of Kikuchi-Fujimoto disease.

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A previously well 17-year-old male presented with reduced consciousness and dystonic storm requiring emergency intubation and ventilation. He had had a six-week prodrome of high fevers, anorexia, and cervical lymphadenopathy, initially diagnosed as infectious mononucleosis.

Examination revealed fluctuating alertness, bruxism, intermittent opisthotonos, extensor posturing of his limbs and upgoing plantar responses. He had an enlarged parotid gland and tender cervical lymphadenopathy.

Treatment for suspected central nervous system infection with broad-spectrum antimicrobials was initiated empirically without clinical improvement.

Blood tests revealed mild anaemia, hyperferritinaemia, transaminitis, raised erythrocyte sedimentation rate and a positive speckled antinuclear antibody (titre 1:160 with negative dsDNA and ENA antibodies). Epstein Barr virus (EBV) IgM was initially weakly positive, however EBV PCR was negative and viral load was not detected. Antibody to EBV nuclear antigen was initially weakly reactive and subsequently negative. Initial anti-viral capsid antigen (VCA) IgM was equivocal and anti-VCA IgG was negative. Evidence for acute EBV infection was therefore thought not to be substantive. Other serum metabolic, infectious, vasculitis and autoimmune screens were negative. CSF analysis, including viral PCR and bacterial/fungal cultures, was unremarkable.

MRI brain revealed extensive T2-weighted hyperintensity, focal diffusion restriction, and microhaemorrhages within the deep grey nuclei and surrounding white matter (Fig 1). An

FDG-PET/CT scan showed increased uptake within enlarged cervical lymph nodes and the spleen.

A wide differential was considered, including lymphoma, hemophagocytic lymphohistiocytosis (with no response to anakinra and ultimately no haemophagocystosis on biopsy), biotin-thiamine-responsive basal ganglia disease (with no response to biotin and thiamine replacement), post-infectious acute necrotising encephalopathy and genetic acute necrotising encephalopathy (*RANBP2* gene analysis was normal).

Tissue samples were obtained given the diagnostic uncertainty. Bone marrow trephine and skin biopsy did not suggest a haematological malignancy. Cervical lymph node biopsy (Fig. 2) showed vast areas of necrosis with karyorrhectic debris, histiocytes with crescentic nuclei and very few neutrophils, with a predominance of CD8+ T-cells. This confirmed the diagnosis of histiocytic necrotizing lymphadenitis or Kikuchi-Fujimoto disease (KFD).

The patient was treated with high dose intravenous methylprednisolone followed by a slow steroid taper. This led to significant improvement; shortly after introduction of steroids, he began to vocalise and obey commands. On discharge, after five months of neurorehabilitation, he was independently mobile with improving bulbar function.

KFD is a rare idiopathic disease that is usually self-limiting. Viral triggers and an association with systemic lupus erythematosus have been suggested [1]. Encephalopathy in KFD is uncommon - one study found nine cases reported in children between 2010 and 2020 [2]. Another large case series reported an incidence of neurological complications of 4.5% in

KFD, most commonly aseptic meningitis. Headaches, meningism, seizures, confusion and ataxia were reported 10-53 days after onset of classical fever and cervical lymphadenopathy [3]. Reports of brain lesions on MRI are sparse; two other cases with bilateral basal ganglia changes have been documented in children. Others report leptomeningeal, brainstem, cerebellar, occipital or temporal lobe changes. CSF analysis may be normal or may show pleocytosis and elevated protein [4]. Lack of familiarity with this rare condition can result in diagnostic delays and inappropriate treatment.

Figure legends:

Figure 1. A. Axial T2-weighted imaging of the brain showing extensive hyperintensity and swelling of the basal ganglia and surrounding white matter. B. Susceptibility-weighted imaging showing microhaemorrhages.

Figure 2. Photomicrograph of haematoxylin and eosin-stained lymph node biopsy sample, demonstrating large areas of necrosis, karyorrhectic debris (blue arrows) and histiocytes with crescentic nuclei (yellow arrows).

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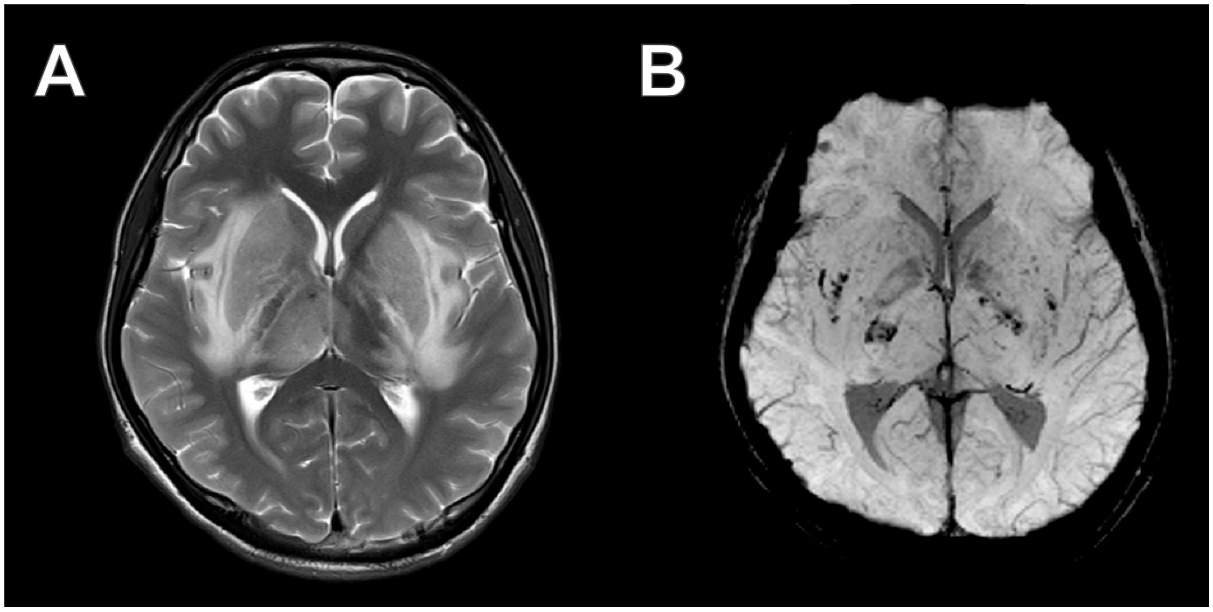

Figure 1

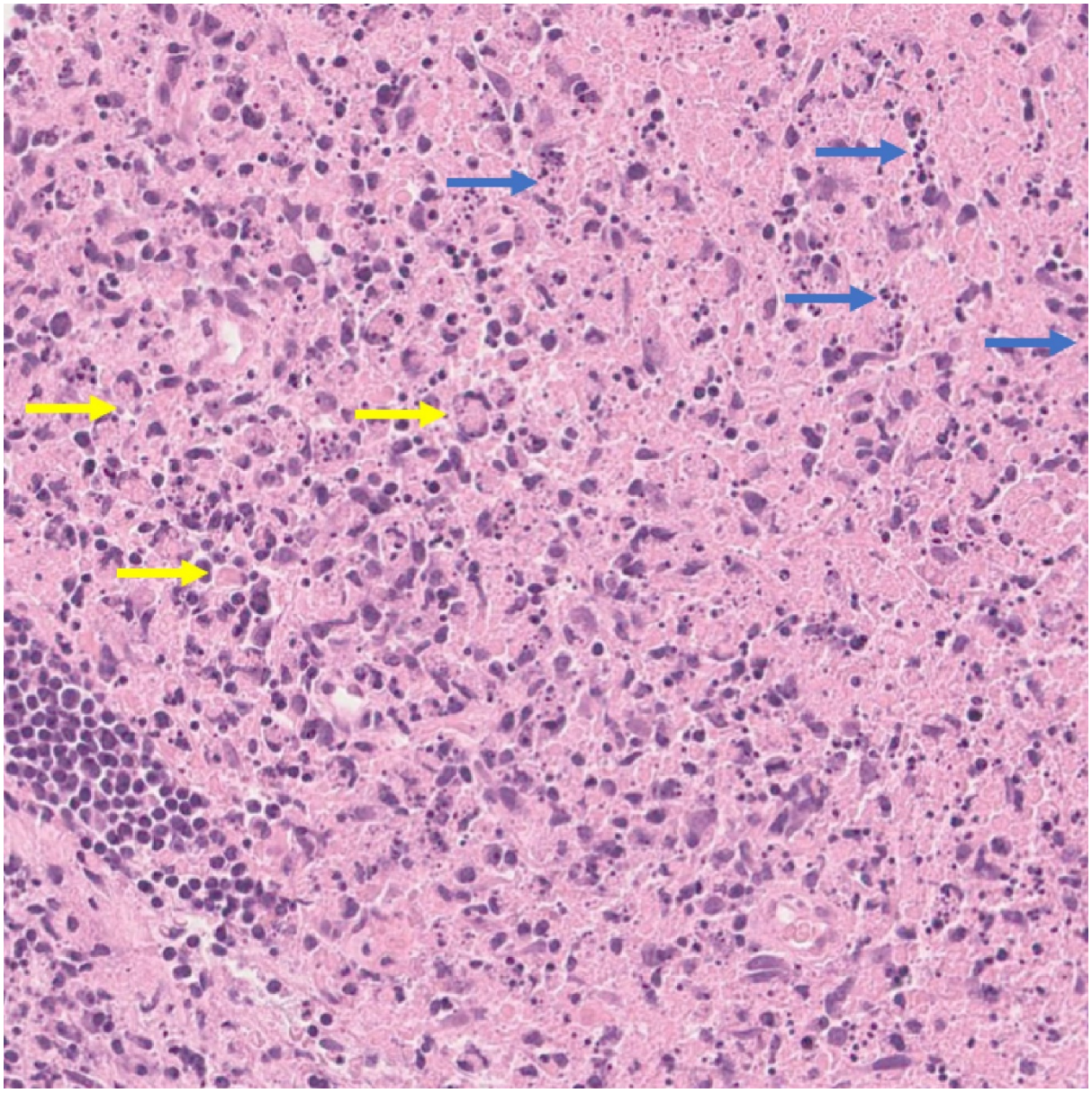

Figure 2