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When Crouching gait reveals Crohn's disease.

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Presentation

A 28-year-old previously healthy man presented to the emergency department due to lower limb pain and gait difficulties. He was unable to walk and was transported in a wheelchair. Two days previously he had developed bilateral calf pain, leading to gait difficulties. Due to an intense pain, he was unable to extend his knees and could only tiptoe. He had also noticed progressive weight loss, with anorexia and intermittent pyrexia for the last 5 days. On clinical examination, he presented with frank pain of both calves, leading to a crouching walk. There was extreme sensitivity to palpation, with bilateral, isolated, palpable nodules in both calves, without skin changes. There was no arthritis and no abnormal neurological signs. Assessment of muscle strength was normal although painful. The abdomen was slightly tender, with an absence of hepatosplenomegaly.

Assessment

Routine hematological investigations showed a white blood cell count of 13.5 G/L with neutrophilia, hemoglobin 128 T/L, platelets 691 and an erythrocyte sedimentation rate (ESR) of 31 mm/h. C reactive Protein (CRP) level was raised to 115 mg/L. A Serum biochemical profile showed no hyper-alpha-2 globulinemia nor hyper-gamma-globulinemia. Creatine kinase (CK), lactate-dehydrogenase and aminotransferases were within the normal range. Thyroid and renal function were normal. Serological viral screening for HIV, EBV, HAV, HBV, HCV was negative as was the urinalysis. Immunological screening showed atypical Anti Neutrophil cytoplasmic antibodies (ANCA) at a dilution of 1:2560 by indirect immunofluorescence. Antiproteinase3 (anti-PR3) was 27.4UI/L (N<5) with an atypical aspect. Fecal calprotectin was increased up to 751 mcg/g (n<50).

Muscular MRI showed bilateral one-centimeter lesions in both mesial portions of gastrocnemius muscles (Figure 1). An abdominal CT-scan showed a slight thickening of the transverse colon. Standard stains of gastrocnemius muscle biopsy showed preserved fascicular architecture, with a dense endo- and perimysial, mixed inflammatory infiltrate dominated by neutrophil granulocytes and CD68 positive macrophages (Figure 2). No signs of myophagia, single fiber necrosis or vasculitis were seen. Gram,

Grocott and Ziehl-Neelsen special stains showed no evidence of pathogens. Overall, the histological image suggested a severe subacute aseptic myositis with focal signs of abscedation (Figure 2).

Diagnosis

Given the constellation of findings with calf intramuscular abscedation associated with significantly elevated PR3-ANCA and calprotectin, the diagnosis of gastrocnemius myalgia syndrome known as an extra-digestive complication of Crohn's Disease was suspected. Colonoscopy confirmed Cronh's disease, classified as A2, L4, B1, P0 according to the Montreal classification.

Extra-digestive manifestations in Crohn's Disease are diverse, with a prevalence ranging from 21 to 40%. This can lead to a delay in diagnosis.[1] Among these, muscular involvement often manifests itself in the orbital muscles and rare cases of polymyositis and dermatomyositis have been reporteded.[1,2,3] Since the first description by Menard et al in 1976,[4] about only twenty cases of gastrocnemius myalgia syndrome have been reported in the literature. Gastrocnemius Myalgia Syndrome typically affects the lower extremities bilaterally. Interestingly, in previous reports, muscle biopsies showed several patterns, ranging from non-necrotizing and necrotizing vasculitis to granulomatous myositis.[5] In our case gastrocnemius involvement was clinically nodular and focal. The pathological characteristics of the lesion evoked the periphery of an intramuscular abscess, without evidence of pathogens, granulomas, or any sign of vasculitis. This relatively atypical pattern of an acute, focal, fulminant myositis has not until now, been described in the context of the Gastrocnemius Myalgia Syndrome; however, it echoes the occurrence of aseptic abscesses in Crohn's disease.[6] Curiously, patients with Gastrocnemius Myalgia Syndrome lack elevated serum CK, which seems a typical feature. In addition, this is in keeping with the absence of necrosis of the muscle fibers in our case, despite the florid inflammation.

Elevated Anti Proteinase 3 Anti Neutrophil cytoplasmic antibodies (anti PR 3-ANCA) in the context of Crohn's disease, appear to be of interest for disease diagnosis, with 44.5% sensitivity and 95.6%

specificity.[7] A recent study showed that serum PR3-ANCA measurement is also useful for evaluating the disease severity and extension.[8]

Management

Pulse methylprednisolone 1mg/kg/d followed by prednisone 1mg/kg/d with slow tapering was initiated and Infliximab 5 mg/kg was introduced. When last seen 3 months later, the patient gained 10 kilograms and was asymptomatic.

Often preceding digestive features or, as in our patient, being the predominant symptom, attending internists should be familiar with Gastrocnemius Myalgia Syndrome enabling them to rapidly consider Crohn's Disease when faced with symmetrical nodular involvement of calves and a crouching gait, leading to a prompt undelayed diagnosis.

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Figure Legends

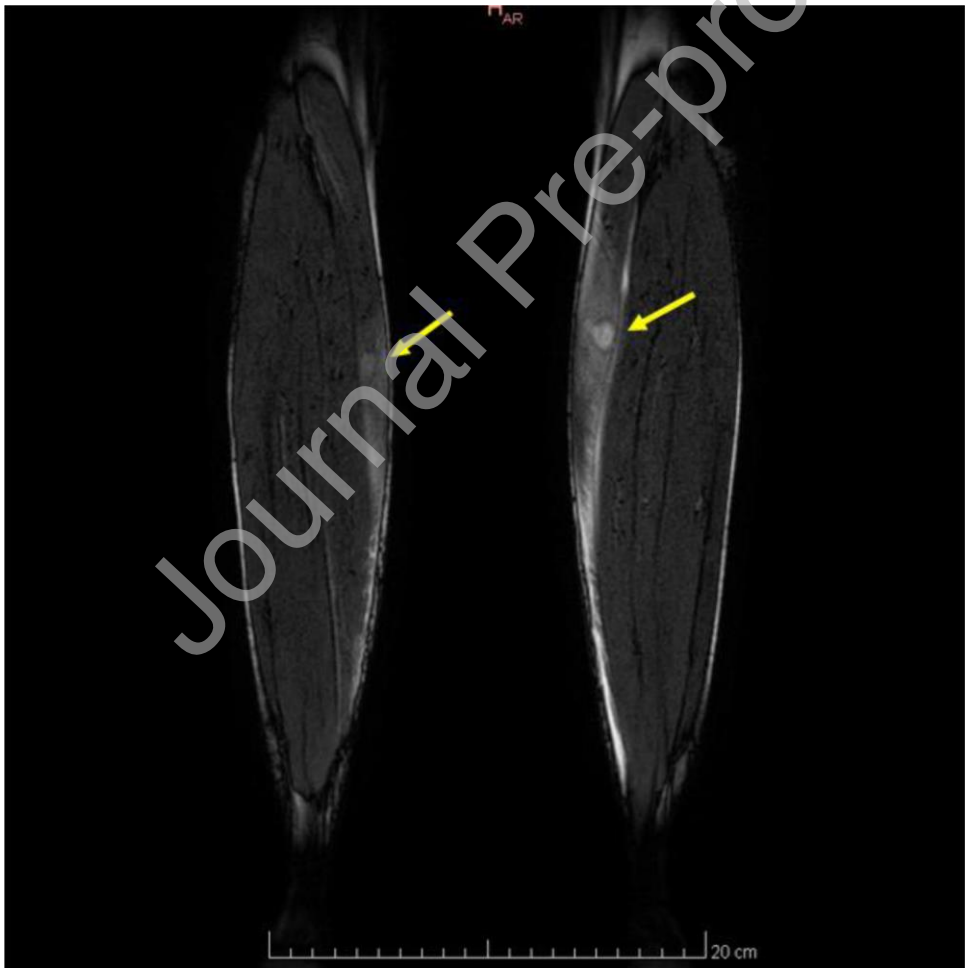

Figure 1: Muscular MRI T2 weighted showing (yellow arrows) bilateral nodular hyper-intense lesions of the medial part of both gastrocnemius muscles, with slight edema.

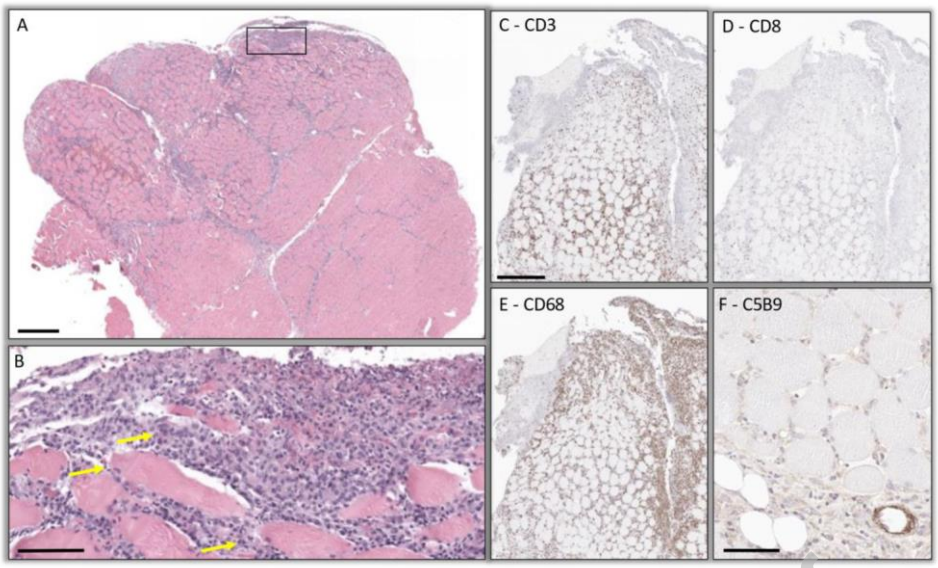

Figure 2. Muscle biopsy. A) and B) Hematoxyline-eosine stained slides show preserved fascicular architecture, a dense, endo- and perimysial, mixed inflammatory infiltrate and focal abscess formation (B), arrows highlight neutrophil granulocytes. C), D) and E) In the infiltrate, immunostains highlight CD3 positive T cells (C), with around 20% CD8 positive cells (D), without invasion of individual muscle fibers, and numerous CD68 positive macrophages (E). F) No evidence of intracapillary complement deposition. Scale bars : 500 um (A, C, D and E), 100 um (B and F).