An unusual case of gastrocnemius muscle syndrome in a patient with Crohn's disease

A 33-year-old Caucasian female patient with a 10-year history of Crohn’s disease, presented with a flare up of disease and a 3-month history of increasing calf myalgia and progressive walking difficulty. Examination revealed swelling of both calves, with localised tenderness. Biochemical blood tests, including creatine kinase were within normal limits.

Imaging Findings:

MR imaging of both legs was performed. Axial short tau inversion recovery (STIR) sequences identified high signal in keeping with diffuse oedema within the muscles of the superficial-posterior compartment, more profound at the right gastrocnemius muscle. The underlying bones were not affected (Fig. 1).

A subsequent MR scan of the small bowel including fat-suppressed post-contrast T1-weighted showed a short segment of abnormally enhancing thickened small bowel in keeping with an acute flare up of Crohn's disease. A diagnosis of Crohn’s induced acute gastrocnemius muscle syndrome was therefore made [9].

The patient was commenced on prednisolone but showed no improvement. She was then commenced on an infliximab regime.

Upon review few weeks after, symptoms had improved. Subsequently, the patient had a follow up MRI scan which revealed complete resolution of the signal change within the muscles of both legs (Fig. 2).

Discussion:

Crohn’s Disease (CD) is a chronic granulomatous inflammatory disease of the gastrointestinal tract with a tendency towards relapse and remission [1]. The prevalence of extra-intestinal manifestations in patients with inflammatory bowel disease ranges from 25-40% [2]. Involvement of the musculoskeletal system is common and manifests in the form of pauci-, polyarthritis, myositis and myalgia, generally classified under the broad spectrum of spondyloarthropathies. Myositis can affect most muscle groups, including the extra-ocular muscles. Focal gastrocnemius myositis is rare manifestation that has been reported 9 times in the literature (3-11). This entity has been referred to a gastrocnemius myalgia syndrome in published literature thus far [9]. To our knowledge this is the second such case from the United Kingdom and the first from Wales. Like the previously reported cases, creatine kinase was normal. Diagnosis was made with MR and treatment with prednisolone and infliximab. Although ultrasound would demonstrate muscle enlargement and oedema, we felt contrast enhanced MR was ideal in demonstrating the affected region of muscle. In this case, the diagnosis was made easier with the presence of a...
Crohn’s flare up demonstrated on small bowel MR. If gastrocnemius myositis was seen in isolation, the differential
diagnosis would include infectious myositis, infiltrating neoplasm, e.g. muscle lymphoma, myositis associated with
connective tissue diseases such as, SLE, scleroderma and Sjögren's syndrome, although clinical correlation is
recommended. In a patient with known IBD, especially Crohn’s, even in the absence of a flare up, gastrocnemius
myalgia syndrome should be considered as the myositis can precede the bowel flare up. We did not proceed to
biopsy in this case but biopsies have been performed in many of the published studies so far (Table 1). As previous
cases have shown, symptoms can be refractory and high dose steroid along with cytotoxic agents may be needed
for a sustained response (Table 1). To our knowledge this was the first instance in the published literature so far of
infliximab being used for treatment.

**Differential Diagnosis List:** Gastrocnemius muscle syndrome, Connective tissue disorders including scleroderma;
sjögren's syndrome; polymyositis and SLE., Infective myositis including pyomyositis and viral myositis.

**Final Diagnosis:** Gastrocnemius muscle syndrome

**References:**

gastroenterology 21(40): 11246–11259 (PMID: 26523100)

bowel disease. A population-based study 96:1116-1122 (PMID: 11316157)

Ménard DB, Haddad H, Blain JG, Beaudry R, Devroede G, Masse S (1976) Granulomatous myositis and

with Crohn’s colitis. Gastroenterology 81: 787-790 (PMID: 7262523)

Hall MJ, Thomas WE, Cooper BT (1985) Gastrocnemius Myositis in a Patient with Inflammatory Bowel Disease.
Karger 32(4):296-300 (PMID: 2866130)

Gastroenterol Hepatol (N Y) 6(7):453-5 (PMID: 20827369)

(PMID: 20827370)

Drabble EM, Gani JS. (1992) Acute gastrocnemius myositis. Another extraintestinal manifestation of Crohn’s


Dis 15: 1915-1924 (PMID: 19408334)
**Description:** Axial short tau inversion recovery (STIR) sequences of both legs shows high signal of both gastrocnemius muscles in keeping with active inflammation. **Origin:** Patel H, Department of radiology, Wrexham Maelor Hospital.
**Description:** Table 1 - Summary of literature on Crohn's induced gastrocnemius myositis (modified from Mogul Z et al. 2010) **Origin:** Department of Radiology, Wrexham Maelor Hospital

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Gender</th>
<th>Age</th>
<th>Biodemical findings</th>
<th>Biopsy findings</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diederix P, et al</td>
<td>France</td>
<td>Female</td>
<td>21</td>
<td>Normal CK</td>
<td>Vasculitis</td>
<td>Prednisone 1mg/kg/d &amp; Azathioprine 0.5mg/kg/d</td>
</tr>
<tr>
<td>Gilham JH et al</td>
<td>Israel</td>
<td>Male</td>
<td>19</td>
<td>Normal CK</td>
<td>Vasculitis</td>
<td>Prednisone 60mg/d</td>
</tr>
<tr>
<td>Menard D et al</td>
<td>Australia</td>
<td>Male</td>
<td>44</td>
<td>Normal CK</td>
<td>Granulomatous myositis</td>
<td>Prednisone 60mg/d</td>
</tr>
<tr>
<td>Dozonyi P, et al</td>
<td>Hungary</td>
<td>Male</td>
<td>41</td>
<td>Normal CK</td>
<td>Granulomatous myositis</td>
<td>No response to steroids</td>
</tr>
<tr>
<td>Drabble EM, et al</td>
<td>Australia</td>
<td>Male</td>
<td>50</td>
<td>Normal CK</td>
<td>Not performed</td>
<td>Prednisone 30mg/d</td>
</tr>
<tr>
<td>Hall MJ, et al</td>
<td>United Kingdom</td>
<td>Female</td>
<td>32</td>
<td>Normal CK</td>
<td>Myositis</td>
<td>Prednisone 60mg/d</td>
</tr>
<tr>
<td>Christopoulos C, et al</td>
<td>Greece</td>
<td>Female</td>
<td>19</td>
<td>Normal CK</td>
<td>Myositis</td>
<td>Prednisone 0.5mg/kg/d</td>
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<tr>
<td>Zainah M, et al</td>
<td>United States</td>
<td>Male</td>
<td>15</td>
<td>Normal CK</td>
<td>Myositis</td>
<td>Methotrexate 4mg &amp; Mycophenolate mofetil 2g/day</td>
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<tr>
<td>Kim HW, et al</td>
<td>Korea</td>
<td>Male</td>
<td>21</td>
<td>Normal CK</td>
<td>Myositis</td>
<td>Prednisone 30mg/d &amp; Azathioprine 50mg/d</td>
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<tr>
<td>This study</td>
<td>United Kingdom</td>
<td>Female</td>
<td>33</td>
<td>Normal CK</td>
<td>Not performed</td>
<td>Prednisone 30mg/d &amp; Infliximab</td>
</tr>
</tbody>
</table>
Description: Axial short tau inversion recovery (STIR) sequences of both legs shows complete resolution of the previously noted signal change in both gastrocnemius muscles. **Origin:** Dr Patel H, Department of radiology, Wexham maelor hospital