Concurrent association of inflammatory polymyositis and Crohn’s ileo-coltis in a male: A case report of a rare association and review of literature

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Abstract

Background

Crohn’s disease is a relapsing systemic inflammatory disease affecting gastrointestinal tract with associated extraintestinal manifestations and immune disorders. Among the few cases reported, association of the Crohn’s disease with polymyositis varies in its complexity and severity. We report the first case of inflammatory polymyositis leading to rhabdomyolysis in a male patient diagnosed with the first episode of Crohn’s ileo-colitis.

Case presentation

A 42 year old previously healthy male was presented with acute polymyositis leading to rhabdomyolysis. Acute nature of the illness raised the suspicion of an infective, toxic or metabolic insult which was excluded during further investigations. Prolonged low grade fever and raised inflammatory markers lead to the suspicion of inflammatory polymyositis which was confirmed by electromyography and muscle histology. Concurrent association of prolong blood mucous diarrhea, in the absence of infective causation, even after the recovery from acute phase of myositis caused a diagnostic challenge. Colonoscopy findings of extensive apthous ulceration with skip lesions extending to terminal ileum and the histology showing infiltration of lamina propria by polymorphs, transmural involvement and micro abscess formation favoured Crohn’s. But, no other extraintestinal manifestations were present in this patient except sensory motor axonal peripheral neuropathy which is another rare association of inflammatory bowel disease.

Conclusion

Unrecognized genetic predisposition may have contributed to this unique association. Myositis can be considered as a rare extraintestinal manifestation of Crohn’s and in the differential diagnosis for steroid or hypokalemia induced myopathy in Crohn’s disease. Both polymyositis and Crohn’s colitis responded rapidly to steroids and immunosuppressants suggestive of autoimmune pathogenesis which was not well understood.

Keywords: Inflammatory polymyositis; Crohn’s disease; rhabdomyolysis, Ileocolitis
Background

CD is a relapsing systemic inflammatory disease affecting the gastrointestinal tract with extraintestinal manifestations and associated immune disorders. Association of extraintestinal manifestations is known to be complex among Crohn's patients and it has caused many diagnostic and management challenges to the physicians. Common extraintestinal manifestations include seronegative spondyloarthropathies, skin and ocular manifestations. Seronegative spondyloarthropathies have been reported among 33% of Crohn's patients [1]. Erythema nodosum is commoner in Crohn’s patients compared to pyoderma gangrenosum [2]. Episcleritis, scleritis, and uveitis occur in approximately 3% of patients with IBD and commoner in UC than in CD [3, 4]. Primary sclerosing cholangitis, thromboembolic events and nephrolithiasis are less common associations of IBD. Peripheral neuropathy is not well characterized among patients with IBD and the incidence varies from 0.9% to 3.6% [5, 6]. Few cases have been reported on the association of polymyositis and Chron’s disease. Szabo has reported a case of chronic idiopathic inflammatory myopathy in a female patient [7]. Occurrence of polymyositis, alopecia universalis and primary sclerosing cholangitis in a male patient with CD has been reported in Germany [8]. Hall MJ has reported a case of focal myositis involving left gastrocnemius muscle [9]. Timing of onset of myositis varies widely among patients with IBD [10, 11, 12]. These reports highlight the rare occurrence but variety and complexity of association of myositis among Crohn’s patients. Only few cases of rhabdomyolysis have been reported and subclinical presentation is common compared to acute presentation [13]. Most cases are related to hypokalemia associated with severe IBD [14, 15, 16] and only one case describes possible immune pathogenesis [10]. Study of these associations will give new insights into the complex pathogenesis of IBD. Expansion of the scope of extraintestinal manifestations will help in early diagnosis and management of Crohn’s. We report the first case of concurrent association of inflammatory polymyositis complicated with rhabdomyolysis and sensory motor axonal peripheral neuropathy in a male patient with first episode of CD.
Case presentation

P M C is a 42 year old previously healthy male who was admitted to emergency treatment unit with sudden onset right upper limb swelling, pain and weakness. Associated complains included dysphagia, reduced urine output, red coloured urine and melena. He had taken binge of alcohol three days prior to the onset of illness and no history of trauma or drug abuse was given. He had acidotic breathing on examination and was very ill at presentation.

Full blood count showed severe anemia, thrombocytopenia and neutrophil leukocytosis. Inflammatory markers were raised. Blood picture was suggestive of an inflammatory process. Urine full report confirmed myoglobulinuria. Creatine kinase levels were more than 50,000 U/L with serum myoglobin levels above 60,000ng/Ml was suggestive of rhabdomyolysis. Clinical and biochemical parameters confirmed acute kidney injury. Liver enzymes were elevated above hundred times the normal with associated clotting derangement indicating acute liver involvement. D-dimer levels were with in normal range and disseminated intravascular coagulation was excluded. Arterial and venous Doppler scan of the upper limbs excluded arterial or venous thrombosis as the cause of severe edema and revealed marked subcutaneous and soft tissue edema. Initial diagnosis was toward an acute metabolic, toxic or infective insult causing myositis and rhabdomyolysis leading to acute kidney injury.

Toxicology screening of blood was negative for Cocaine, Morphine, cannabinoids, amphetamines, barbiturates, benzodiazepines and tricyclic antidepressants. Blood alcohol estimation was negative and no significant electrolyte imbalance was detected. Leptospira, Dengue antibodies and hepatitis screenings were negative which could have presented in similar manner. Based on clinical suspicion of an unnoticed snake bite, he was initially treated with two trials of poly anti-snake venom which is active against cobra, common krait, Sri Lankan krait and saw scaled viper. But his clinical condition did not improve. Septic screening was repeatedly negative while having ongoing low grade fever. This leads to the suspicion of autoimmune disorder. Even though ANA, Anti-Jo antibodies and ENA profiles were negative, electromyography confirmed generalized polymyositis with predominant lower limb involvement. Muscle biopsy was performed and histology revealed myositis (Figure1, 2) with possible immune pathogenicity.
Patient was started on high dose steroids and Azathioprine and regular renal replacement therapy was carried out together with medical management to support his renal functions. He showed a good response to immunosuppressants and muscle weakness improved gradually. But, patient was continued to have intermittent blood mucous diarrhea. Initially it was considered as part of acute illness and clotting derangement. But its persistence raised the suspicion of infective or inflammatory etiology. Based on prolonged stay at intensive care unit and treatment with broad spectrum antibiotics health care associated infection or pseudomembranous colitis was suspected. But infective screen and Clostridium difficile toxin found to be negative. Colonoscopy was performed and it showed extensive ileocolonic and rectal ulceration (Figure 3, 4, 5). Histology of ileum and colon confirmed Crohn’s ileocolitis (Figure 6, 7). Radiological contract studies were not performed in the presence of acute kidney injury. Amoebiosis and intestinal tuberculosis was excluded by microbiological evaluation. Patient did not have other extraintestinal manifestations except sensory motor axonal peripheral neuropathy which was confirmed by nerve conduction studies. Serological studies evaluating p ANCA and ASCA were negative.

Once the diagnosis of inflammatory polymyositis and CD was established prednisolone and Azathioprine doses were stepped up as patients bowel symptoms continued while on therapy for myositis. Mesalazine and probiotics were added to the treatment regimen. Metronidazole was not tried in the presence of neuropathy. Patient achieved clinical remission in both conditions which was evidenced by setting of diarrhea and fever, improvement of muscle strength and significant weight gain. Steroids were tailed off after one month and endoscopic remission of the Crohn’s was confirmed. Mesalazine was discontinued and patient was kept on Azathioprine maintenance. Special attention was given to nutrition as the muscles were affected by disease process as well as poor nutrition. Gradual improvement of renal function was followed with improvement of myositis and was attributed to recovery of acute tubular necrosis secondary to heavy myoglobinuria.

CD is known to have different immunopathogenic mechanisms. Even if the serum markers are negative an autoimmune disorder is the likely possibility in this patient. Rapid response to steroids and immunosuppressants also favour this hypothesis. But the concurrent occurrence as the first episode of two different relapsing inflammatory disorders in a male patient without a family history is rather unusual. Unrecognized genetic link could have contributed for this unique combination and disease predisposition which need further investigations. Myositis may be more common than reported in patients with IBD which can be considered as a rare extraintestinal manifestation of CD. Careful attention to muscle pain and serum creatine phosphokinase levels in
patients with IBD is suggested by Al-Kawas FH [12]. Myositis has to be strongly suspected in Crohn’s patients with muscle weakness and elevated creatine kinase levels which help in early diagnosis and appropriate treatment. Immune mediated myositis should be considered as an important differential diagnosis for myopathy occurs in IBD secondary to hypokalemia or steroid treatment [16]. In this case, acute phase of the myositis preceded the symptoms of Chron’s colitis showing it as a separate entity with inflammatory origin compared to hypokalemia or steroid induced myopathy.

Immune mediated pathogenesis of both conditions has contributed to rapid remission with immunosuppressant in this patient. Another study has shown that when myositis in CD is immune mediated the treatment of bowel inflammation should be emphasized as opposed to steroid or other immunosuppressive therapy [10]. In this case initial prednisolone and Azathioprine treatment achieved only partial recovery of myositis and the patient was continued to have intestinal symptoms despite recommended treatment. However, addition of Mesalazine to the treatment regimen hastened the recovery of both conditions and supports the above finding. Gut immune response could have acted as a trigger for overall immune activation. More evidence is required on this regard to decide on best combination and timing of therapeutic agents.

Myositis and CD together cause profound effects on muscle biology due to immune mediated damage, nutritional and metabolic deficiencies. Therefore overall patient management should give equal emphasis to achieving remission as well as correcting metabolic derangements and nutrition. Hypokalemia should closely monitor and steroids should be used cautiously in this unique association as it can add to the muscle damage.

**Conclusion**

Polymiocitis is a less common but important and variable association of CD which has many diagnostic and therapeutic implications. Even though complex pathogenesis behind this association is not well understood autoimmune disorder is likely possibility. Immune mediated polymyositis being an important differentiated diagnosis for hypokalemia or steroid induced myopathy, immune suppressive therapy with steroids, Azathioprine and Mesalazine are effective as therapeutic agents for induction and maintenance of immune polymiocitis and CD. This case report will give new insights into the pathogenesis of CD and adds useful evidence in the diagnosis and the management.
Consent

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

List of abbreviations

CD: Crohn’s disease
IBD: Inflammatory bowel disease
UC: Ulcerative colitis
ANA: Anti-nuclear antibodies
ENA: Extractable nuclear antigen
p ANCA: p Anti-neutrophil cytoplasmic antibodies
ASCA: anti-Saccharomyces Cerevisiae antibodies
HE: Hematoxylin and eosin stain

Competing interests

The author(s) declare that they have no competing interests.

Authors’ contributions

VRB participated in the management of the patient and drafted the manuscript. NF carried out the endoscopies and involved in the management of the patient. UL participated in the management and clinical decision making. CJ participated in the coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

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References


Figure legends

Figure 1

Muscle biopsy histology with HE staining.

Muscle fibers show perimiceal inflammation with unequal muscle fiber sizes and swelling of muscles fibers. Mononuclear infiltrations of interfiber areas are seen. There is no granulomata formation.

Figure 2

Muscle biopsy histology with HE staining.

This view shows loss of cross striations, focal disintegration of sarcoplasm, nuclear vesiculations and centralizations suggestive of myositis.

Figure 3

Endoscopic view of ascending colon

This view shows large apthous ulcers involving the mucosa.

Figure 4

Endoscopic view of descending colon

This view shows extensive ulcerations of the mucosa. Intervening normal segments are not shown in this view.

Figure 5

Endoscopic view of rectum

There is a large ulcer with undermine edges and surrounding chronic inflammation.

Figure 6

Section from ileal mucosal biopsy with HE staining
This section shows focal surface ulceration and blunting of villi. There is crypt distortion with mucin depletion, glandular distortion and branching. These are no granuloma formation or crypt abscesses noted.

Figure 7

Section from rectal mucosal biopsy with HE staining

Lamina propria is focally edematous with dilated vascular spaces. There is moderate to dense inflammatory cell infiltrate composed of polymorphs, eosinophils, lymphocytes and plasma cells with micro abscess formation.