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Multiple microabscesses as a complication of dermatomyositis: A case report

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Abstract

Dermatomyositis is an autoimmune inflammatory myositis with the involvement of the muscles as well as the cutaneous surface. It usually presents with skin lesions and progressive muscle weakness. It can sometimes also present with complications such as microabscesses and secondary malignancies. We present a case of a young male patient with classical CT and MRI findings of dermatomyositis along with multiple microabscesses as its complication. Every radiologist, and treating physician too, should be able to appreciate these findings correctly as timely diagnosis and intervention can decrease the morbidity and the mortality associated with this condition.

Keywords

dermatomyositis; inflammatory myopathy; proximal myopathy; microabscesses.

Case Report

A 23-year-old male presented with the chief complaint of muscular pain and weakness for the past six months. He had features of proximal muscle weakness in the form of difficulty in raising his shoulders and in standing from his sitting position. No preceding history of trauma was noted. It was associated with fever for the last one week. On examination, the patient was conscious and was well oriented to time, place, and person. His blood pressure was 130/80 mmHg and his pulse rate was 110 beats per minute. He had motor weakness in the form of proximal myopathy. No sensory symptoms were noted. His lab results showed raised CPK levels with increased serum lactate dehydrogenase. Based on the history, clinical examination, and lab findings, with the suspicion of dermatomyositis, MRI of bilateral upper and lower limbs was performed with selective non contrast CT of right proximal thigh. Non-contrast CT revealed sheet-like calcification along the right proximal thigh with scattered areas of spotty calcification (Figure 4). MRI bilateral upper and lower limbs demonstrated diffuse T2 high signal intensity along the cutaneous and muscu-

lar plane in bilateral upper and lower limbs predominantly involving the proximal muscles (Figure 1,2,3). Multiple areas of intramuscular loculated collection suggestive of microabscess were also noted (Figure 1,2,3). Biopsy taken from the involved muscles with T2 high signal intensity was suggestive of inflammatory myositis. The patient was managed conservatively and improved subsequently.

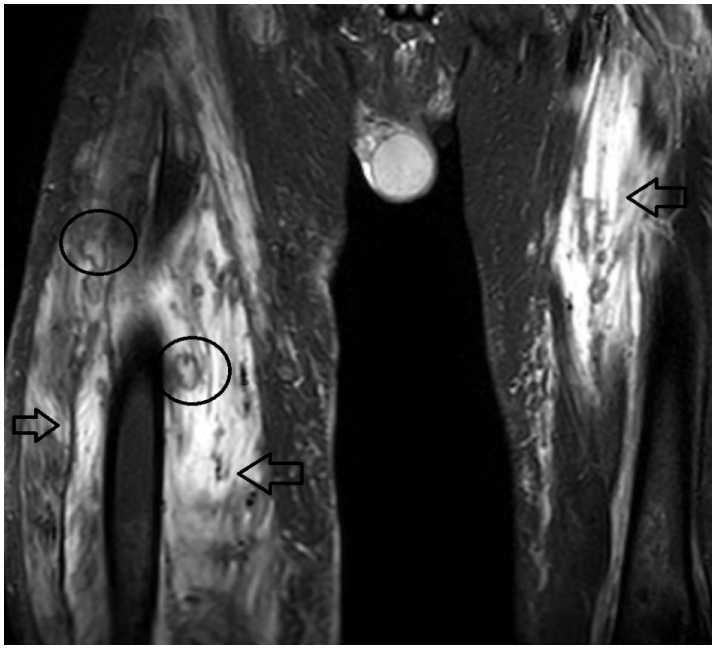

Figure 1: Non contrast MRI of bilateral lower limbs STIR images demonstrate diffuse high signal intensity in the subcutaneous as well as the muscular plane (black arrows) bilaterally suggestive of the oedematous changes. Scattered areas of well-defined STIR high signal intensity with peripheral low signal intensity rim (black circles) suggestive of microabscesses are also noted.
Origin: © Department of Radiodiagnosis and Imaging, Grande International Hospital, Kathmandu, Nepal.

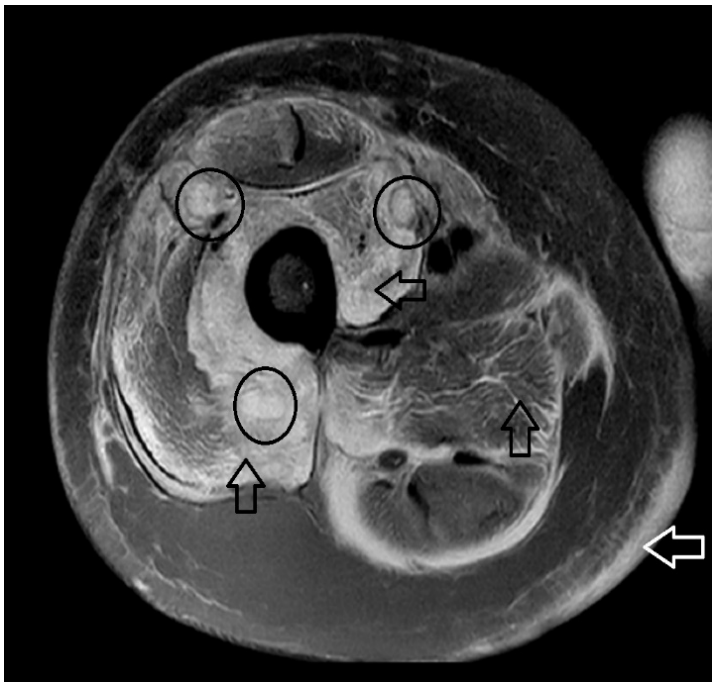

Figure 2: Non contrast MRI of right proximal thigh STIR images demonstrate diffuse high signal intensity in the subcutaneous (white arrow) as well as the muscular plane (black arrows). This high signal intensity symmetrically involves all the muscular compartments. Intramuscular well-defined areas of STIR high signal intensity with peripheral low signal intensity rim (black circles) suggestive of intramuscular microabscesses are also seen.
Origin: © Department of Radiodiagnosis and Imaging, Grande International Hospital, Kathmandu, Nepal.

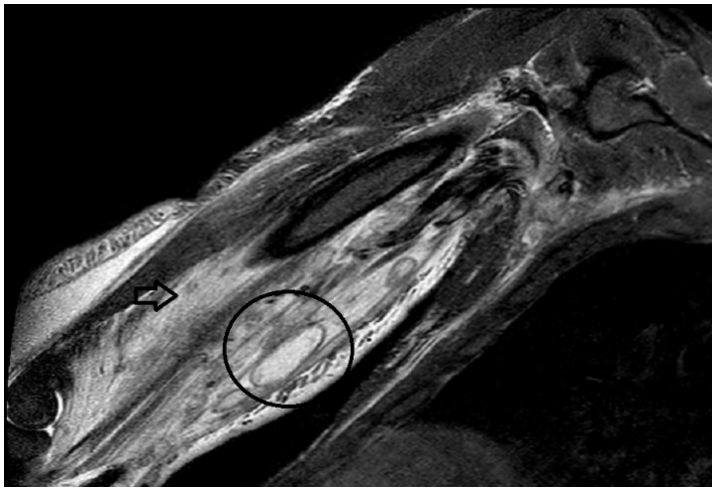

Figure 3: Non contrast MRI of right arm show diffuse high signal intensity in the subcutaneous and muscular plane (black arrow). Intramuscular microabscesses (black circle) are also seen.
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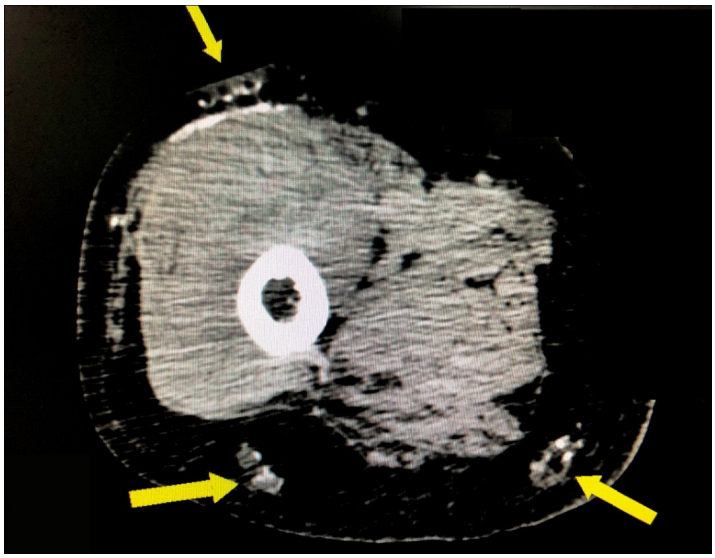

Figure 4: Non contrast CT of right proximal thigh demonstrate sheet like dystrophic muscular calcification in the anterior thigh. Scattered cutaneous and subcutaneous calcification is also noted in the anterior and posterior thigh.
Origin: © Department of Radiodiagnosis and Imaging, Grande International Hospital, Kathmandu, Nepal.

Discussion

Introduction and general epidemiology

Dermatomyositis is a connective tissue disorder that is characterized by idiopathic inflammatory myopathy and skin manifestations. It can either have a juvenile or an adult-onset. The prevalence of dermatomyositis is 1 in 100,000 and women are affected more commonly than men [1,2]. Dermatomyositis is diagnosed based on the cutaneous manifestations, progressive muscle weakness, elevated serum muscle enzymes, and abnormal findings on muscle biopsy. Dermatomyositis can be associated with internal malignancies and interstitial lung disease. Sometimes a secondary infection can also occur as a result of the use of immunosuppressive drugs and immune system dysfunction due to dermatomyositis itself [3].

Imaging findings

Imaging in dermatomyositis is done to help in the diagnosis as well as to assess the extent of involvement and to look for complications if any. Plain radiographs and CT can help to evaluate the dystrophic calcification that occurs in a sheet-like pattern in patients with dermatomyositis [4]. These dystrophic calcifications are more commonly seen around the thigh (as in our case). Acro-osteolysis associated with dermatomyositis can also be evaluated with radiographs or with CT. CT can also help in assessing the complications associated with dermatomyositis such as internal malignancies and interstitial lung diseases. Esophageal involvement in the form of deranged peristalsis of the upper esophagus (due to the presence of skeletal muscle in the upper third of the esophagus) can be evaluated with a barium swallow. MRI is the modality of choice for the evaluation of patients with dermatomyositis. MRI shows diffuse T2 and STIR high signal intensity in the muscular as well as subcutaneous plane. These areas of T2 high signal intensity are suggestive of active involvement sites at the time of imaging and hence can also guide us for the best possible site of biopsy. Follow up MRI can be done to monitor the response to treatment as the high T2 signal intensity within the muscles decreases with the increasing response to treatment [5,6]. Chronic cases may show fatty atrophy of the muscles evident in the form of decreased bulk of muscle associated with fat signal intensity within the muscle. These areas of fatty atrophy should be avoided during biopsy sampling.

Management and prognosis

Treatment of dermatomyositis is usually conservative unless associated with complications. It involves both general measures and specific measures to control muscle disease and skin disease. Systemic manifestations need also to be taken care of. The muscular manifestations are treated by administering corticosteroids, typically with an immunosuppressive agent. The skin disease is treated by avoiding sun exposure and by using sunscreens and photoprotective clothing, as well as with topical corticosteroids, antimalarial agents, and immunomodulatory medications [7]. Surgical removal of areas of calcinosis and underlying malignancies sometimes might be needed.

Teaching point

Dermatomyositis is an idiopathic inflammatory myopathy that is associated with cutaneous manifestations. Secondary infections and internal malignancies are the complications associated with dermatomyositis. Early diagnosis and treatment of these complications can significantly decrease the morbidity and mortality associated with this systemic condition.

Authors' contributions: Dr. Nirmal Prasad Neupane has done the image revision and sequence alignment and has drafted the case report. Dr. Ongden Yonjen Tamang and Dr. Subash Phuyal has helped in writing the findings and in the follow up of the patient. All the authors have read and approved the final manuscript.

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Consent: Did the author obtain written informed consent from the patient for submission of this manuscript for publication? Yes.

Human and animal rights: No experiments were done on human or animal subjects. No human or animals were harmed in any way during this case.

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