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Diffuse Calcinosis in a Patient with Dermatomyositis: A Case Report

F.S. Ondongo[1*], S. Taddart[1], N. Hammoune[1], A. Mouhcine[1]

[1]Radiology Department, Avicenne Military Hospital, Mohamed VI University Hospital, Marrakech, Morocco

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***Corresponding author:** F.S. Ondongo
Radiology Department, Avicenne Military Hospital, Mohamed VI University Hospital, Marrakech, Morocco

Abstract **Case Report**

Dermatomyositis is a chronic inflammatory myopathy that may present with cutaneous manifestations, dystrophic calcifications, and occasionally be associated with a paraneoplastic syndrome. We report the case of a 54-year-old woman followed for dermatomyositis, who presented with diffuse calcinosis during an oncologic extension workup. Thoraco-abdominopelvic CT revealed extensive calcifications in the subcutaneous and supra-aponeurotic soft tissues, without suspicious parenchymal lesions or deep lymphadenopathy. A nodular uterine calcification and a nodular thyroid gland were also observed. The absence of suspicious bone lesions or peritoneal effusion helped rule out progressive neoplastic involvement. We discuss the clinical and radiological features of dystrophic calcinosis associated with dermatomyositis and its potential link to neoplastic syndromes. This case is noteworthy for the massive extent of the calcifications, their unusual distribution, and their paraneoplastic context.

Keywords: Dermatomyositis, Cutaneous calcinosis, Paraneoplastic Syndrome, Whole-body CT scan.

INTRODUCTION

Dermatomyositis is a chronic inflammatory myopathy characterized not only by muscle weakness but also by distinctive skin changes. It affects approximately 1 to 10 cases per million people annually, with a slight female predominance. Among its complications, dystrophic calcinosis—deposition of calcium salts in soft tissues damaged by inflammation—is relatively rare in adults, occurring in about 20–40% of cases, though it is more frequent in juvenile dermatomyositis. In some patients, dermatomyositis may be linked to underlying malignancies, with paraneoplastic syndromes reported in 15–30% of adult cases. Imaging, especially whole-body CT, plays a vital role in assessing the extent of calcinosis and in screening for associated neoplastic processes.

CASE REPORT

A 54-year-old woman with a history of dermatomyositis complicated by diffuse soft tissue calcinosis underwent a contrast-enhanced thoraco-abdominopelvic CT scan as part of an oncologic workup. The scan showed no suspicious pulmonary nodules or significant lymphadenopathy in the mediastinum, hilum, or deep abdominal regions. A band of right lower lobe atelectasis was observed. Diffuse calcifications were extensively present in the subcutaneous and supra-aponeurotic soft tissues of the thoracic and abdominopelvic walls. At the abdominal level, calcified granulomas were noted in the liver, and a large uterine endometrial macro-calcification measuring 18 x 17 mm was identified. The thyroid gland contained a nodular lesion requiring further ultrasound evaluation. No bone lesions suspicious for malignancy were seen, although a small sclerotic focus was present in the right humeral head. Additionally, vascular calcifications consistent with atherosclerosis affected the aortic arch and abdominal aorta branches. Overall, the imaging findings align with diffuse dystrophic calcinosis secondary to dermatomyositis, without current evidence of active neoplastic disease. The thyroid nodule merits further investigation to exclude malignancy.

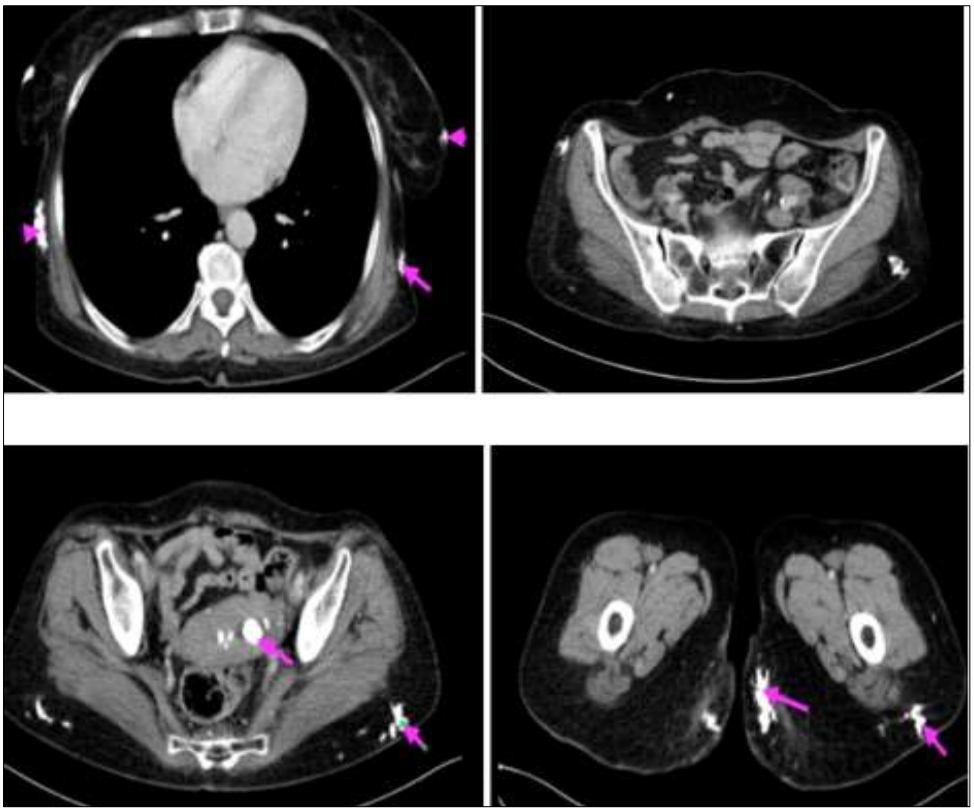

Figure 1 : axial CT images showing subcutaneous soft tissue abnormalities: (a) Thoracic wall lesions suggestive of metastases or soft tissue masses, (b) Right hip region soft tissue density, possibly infiltrative, (c) Perirectal soft tissue abnormality, (d) Bilateral thigh subcutaneous lesions indicating multifocal involvement.

DISCUSSION

Dermatomyositis (DM) is a multisystem autoimmune inflammatory myopathy characterized by muscle inflammation and distinctive cutaneous manifestations. Among its diverse complications, dystrophic calcinosis represents an uncommon but clinically significant feature, especially in adult patients. Radiologically, dystrophic calcinosis manifests as abnormal calcium deposition in soft tissues previously damaged by inflammation or trauma.

On CT imaging, dystrophic calcinosis typically appears as well-defined, high-attenuation foci within the soft tissues. These calcifications may be punctate, nodular, or confluent and often have a heterogeneous, lobulated appearance. Studies report that approximately **20–40%** of adult patients with dermatomyositis develop some form of calcinosis, although extensive diffuse calcinosis, as seen in our case, is much rarer, occurring in less than **10%** of cases.

Unlike metastatic calcifications, which tend to be more diffuse and associated with abnormal calcium-phosphate metabolism, dystrophic calcinosis occurs in the setting of normal serum calcium and phosphate levels, secondary to local tissue damage. The absence of cortical bone erosion or periosteal reaction on CT helps differentiate these benign calcifications from aggressive bone lesions or malignant calcific deposits. In dermatomyositis, periosteal reactions and bone erosions are uncommon and reported in less than **5%** of patients with calcinosis.

The radiological differential diagnosis includes tumoral calcinosis, myositis ossificans, and calcific metastases. Tumoral calcinosis is typically periarticular, lobulated, and may be associated with metabolic abnormalities, which were not present in our patient. Myositis ossificans is characterized by zonal ossification and a peripheral mature ossified rim on CT, features absent here. Calcific metastases usually accompany destructive bone lesions or soft tissue masses, none of which were observed.

Whole-body CT is invaluable for comprehensive evaluation in dermatomyositis patients with suspected calcinosis and paraneoplastic syndromes. It provides high-resolution visualization of the distribution and extent of calcifications and screens for occult malignancies. Paraneoplastic syndromes are identified in approximately **15–30%** of adult dermatomyositis cases. In this patient, the absence of suspicious pulmonary nodules, lymphadenopathy, or visceral lesions was reassuring. However, incidental findings such as uterine and thyroid nodules—detected in roughly **10–15%** of general CT screenings in this age group—warrant further evaluation and close follow-up.

Paraneoplastic dermatomyositis is reported in **15–30%** of adult cases and is often associated with malignancies of the ovary, lung, breast, and gastrointestinal tract. Calcinosis itself is less frequently described in paraneoplastic DM but may indicate chronic inflammation or disease severity. Radiological vigilance is critical since malignancy can be clinically occult or radiologically subtle.

Magnetic Resonance Imaging (MRI) can complement CT by better defining the soft tissue involvement and detecting active muscle inflammation. However, MRI is less sensitive to calcifications due to their low signal intensity. Plain radiographs may show soft tissue calcifications but lack the resolution and anatomical detail provided by CT.

The extensive calcinosis observed can cause pain, stiffness, and decreased mobility, significantly impacting quality of life. Surgical excision is considered for symptomatic or functionally limiting lesions. Imaging plays a crucial role in preoperative planning and postoperative assessment. Approximately **30–50%** of patients with calcinosis may require surgical intervention due to symptomatic burden.

CONCLUSION

This case illustrates the dramatic extent to which dystrophic calcinosis can develop in dermatomyositis, highlighting the crucial role of comprehensive imaging in evaluating both the calcinosis and potential paraneoplastic associations. Awareness of this presentation aids radiologists and clinicians in differentiating benign inflammatory calcifications from malignant lesions, ensuring appropriate patient care.

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