Clinically Amyopathic Dermatomyositis Associated with a Metastatic Undifferentiated Carcinoma in an Adult Filipino Male: A Case Report

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ABSTRACT

A 40-year old Filipino male was managed as a case of clinically amyopathic dermatomyositis (CADM) after presenting only with pruritic photodistributed symmetric erythematous-violaceous patches, nail fold telangiectasia and the pathognomonic Gottron papules. There was no clinical evidence of muscle involvement. The patient shortly presented with a metastatic undifferentiated carcinoma on the cervical lymph nodes. This case demonstrates that dermatomyositis can present uncommonly as CADM with associated metastatic undifferentiated carcinoma.

Key Words: dermatomyositis, amyopathic, carcinoma, malignancy

INTRODUCTION

Dermatomyositis (DM) is an autoimmune disease belonging to the spectrum of idiopathic inflammatory myopathies which also includes inclusion body myositis and polymyositis.[1] It is a rare disease with a worldwide occurrence, with an incidence ranging from 2 to 9 per million across various populations and affects women more than men approximately two to three times more often.[1]

DM can further be classified into classic DM and clinically amyopathic dermatomyositis (CADM). Patients present with a photodistributed symmetric pruritic confluent violaceous erythematous macules and patches. When specific areas are affected, the hallmark cutaneous findings can be seen such as the shawl sign involving the arms, deltoid, posterior shoulders and neck; V-sign involving the anterior neck and upper chest; and the holster sign involving the lateral aspects of hips and thighs.[2] The pathognomonic lesions are Gottron sign and Gottron papules when violaceous erythematous macules and papules, respectively, are present on the interphalangeal joints and metacarpophalangeal joints.[2] In addition, highly characteristic lesions include heliotrope erythema or edema of the periorbital area and visible periungual telangiectasia with dystrophic cuticles.[2] Other cutaneous findings that can be seen in DM include poikiloderma atrophicans vasculare, mechanic's hands, and calcinosis cutis.[2]

The presence of typical cutaneous findings along with proximal muscle weakness and laboratory evidence of myositis define the classic DM.[3] If patients present with the characteristic cutaneous lesions for 6 months or longer but without any clinical evidence of muscle weakness, they are

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classified as CADM.[3] To further classify CADM, additional diagnostic tests such as blood work up (muscle enzymes, liver enzymes, aldolase and lactate dehydrogenase (LDH)), muscle biopsy, and electrophysiologic studies can be done. If the tests are suggestive of myositis, patients are classified as hypomyopathic DM, otherwise the patient has amyopathic DM, also called DM Sine Myositis.[3]

CASE

A 40-year-old Filipino male with a 10-pack year history of smoking, presented with a 5-month history of multiple pruritic well demarcated symmetric round to irregularly shaped erythematous-violaceous macules, papules, and patches on the anterior neck and chest (V sign) (Figure 1A, 1D), upper back and posterior neck involvement (Shawl Sign) (Figure 1B, 1E) and scalp, face with upper eyelid involvement (Heliotrope rash), and nasolabial fold sparing (Figure 1C); also seen were multiple pruritic linear-irregularly shaped erythematous plaques on the proximal interphalangeal, metacarpophalangeal, and distal interphalangeal joints of the hands (Gottron papules) (Figure 1F) and on the left lower back (flagellate erythema) (Figure 1B). Multiple dilated tortuous blood vessels were seen on nail fold dermoscopy (Figure 2). There were no complaints of proximal muscle weakness and manual motor testing was normal. The classic lesions of dermatomyositis (DM) without a clinical evidence of myositis led to the diagnosis of clinically amyopathic dermatomyositis (CADM). There were no symptoms of a possible underlying malignancy at

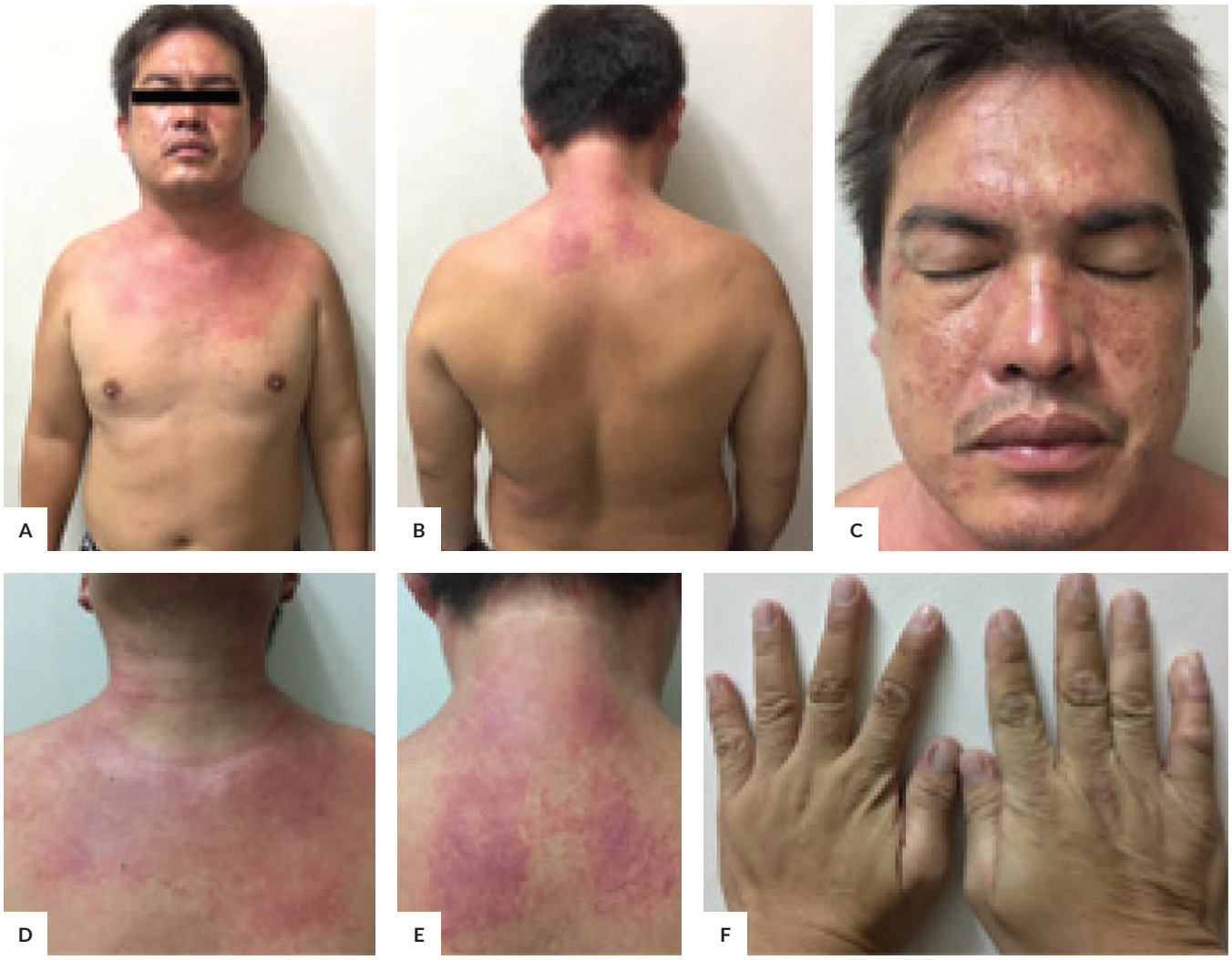

Figure 1. **A.** V sign: Well demarcated irregularly shaped erythematous-violaceous patches on the anterior chest. **B.** Shawl Sign and flagellate erythema: well-demarcated irregularly shaped erythematous-violaceous patches on the posterior neck and upper back and on the lower back. **C.** Note the subtle periorbital erythema and nasolabial fold sparing. **D.** Closer view of the V sign showing submental sparing. **E.** Closer view of the Shawl sign with note of skin fold sparing. **F.** Gottron papules: multiple linear irregularly shaped plaques on the proximal interphalangeal, metacarpophalangeal and distal interphalangeal joints, more pronounced on the right hand.

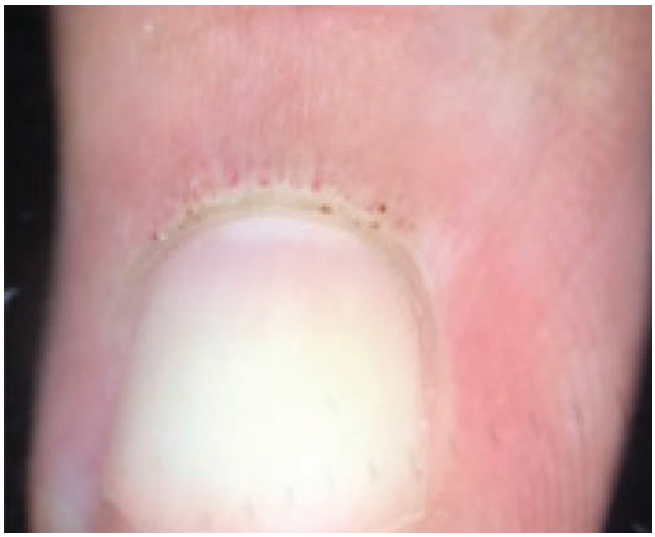

Figure 2. Nail fold telangiectasia. The dilated tortuous vessels were not grossly visible and were only appreciated with nail fold dermoscopy.

the initial consult: fever, weight loss, dysphagia, hoarseness, dyspnea, abdominal pain, and urinary and bowel changes. Systemic physical examination was also normal.

Histological examination of a plaque on the knuckle and a macule on the chest both revealed interface dermatitis with increased mucin deposition in the reticular dermis consistent with dermatomyositis (Figure 3). Muscle enzyme laboratory tests (creatine kinase-total, creatine kinase-MB) and liver enzyme tests (AST, ALT) were not suggestive of myositis (Table 1); further diagnostic studies, such as electromyography-nerve conduction studies, are needed to further classify the patient as hypomyopathic DM or amyopathic DM/DM Sine Myositis. Immunologic work up was negative for ANA-Immunofluorescence and Anti-Jo1. Tests for other antibodies associated with CADM were not locally available (anti-p155/140 or anti-TIF1γ for CADM with increased risk of malignancy, anti-p140 or anti-MDA5 CADM with increased risk of interstitial lung disease (ILD), and anti-Mi2 with association to the Shawl sign and cuticular overgrowth).[2] Initial screening for an occult

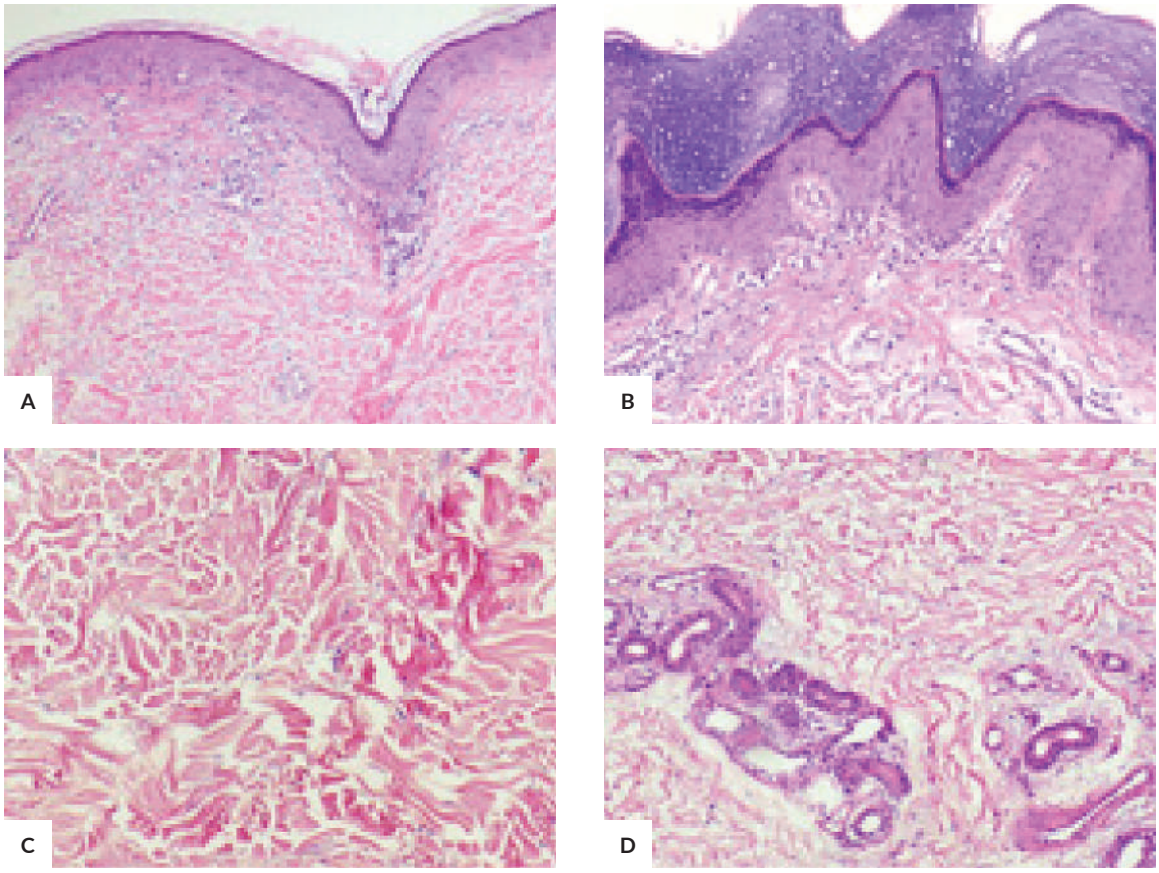

Figure 3. **A.** Histopathology of a patch on the chest (V-sign) (40x) showing vacuolar interface change with sparse superficial perivascular infiltrates of lymphocytes. **B.** Histopathology of a plaque on the metacarpophalangeal joint (Gottron papules) (40x) showing vacuolar interface change with sparse superficial perivascular infiltrate of lymphocytes with overlying compact hyperkeratosis and hypergranulosis. **C.** Histopathology of a patch on the chest (V-sign) (40x) showing mucinous deposition on the deep reticular dermis. **D.** Histopathology of a plaque on the metacarpophalangeal joint (Gottron papules) showing mucinous deposition on the deep reticular dermis.

Table 1. Myositis laboratory work up done for the patient. These values were not highly suggestive of myositis hence electromyography-nerve conduction is planned for the patient

Laboratory Parameter	Value
CK-Total	69 (within normal limits)
CK-MB	18.9 (1.18x elevated)
AST	130 (2.5x elevated)
ALT	67 (1.9x elevated)

malignancy with chest X ray, whole abdominal ultrasound, urinalysis, fecal occult blood test, and prostate specific antigen did not reveal any possible underlying malignancy.

Patient was then started on topical steroids (desonide 0.05% cream once a day for the face, clobetasol propionate 0.05% ointment twice a day for other affected areas), which relieved the pruritus and erythema. Sunscreen SPF 30 Broad Spectrum to be applied every 2 hours was also prescribed with decrease in erythema. However, lesions would shortly recur upon discontinuation of the topical steroids, requiring repeated courses of topical steroids. The patient did not develop signs and symptoms of muscle weakness throughout the course of consultations.

However, one month after the initial consult, the patient developed multiple cervical lymphadenopathies on level II, III and IV. Biopsy of the cervical lymphadenopathy showed metastatic undifferentiated carcinoma. With the significant history of smoking and a normal chest x-ray, a primary nasopharyngeal cancer was initially considered. Upon consultation with the otorhinolaryngology service, a nasopharyngeal mass was detected and was subsequently biopsied. However, the histopathology revealed that the nasopharyngeal mass was a only a reactive process from the cervical lymphadenopathies showing a round cell proliferation, which was leukocyte common antigen (LCA), CD3 and CD20 positive on immunohistochemical staining. With nasopharyngeal carcinoma ruled out as the primary malignancy, the patient is still for positron emission topography (PET) scan to detect for the possible source of the metastatic undifferentiated carcinoma.

DISCUSSION

Dermatomyositis (DM) is a rare autoimmune disease and its variant, clinically amyopathic dermatomyositis (CADM), comprise approximately 20%-46 of DM cases.[4,5] In other studies, CADM patients comprise an even lower percentage of DM at 11% to 14% [6,7] Adult patients who develop classic DM have an increased risk of having malignancy at around 20%-24%.[8,9,10] CADM has a slightly lower proportion of patients developing malignancy at around14% to 20%.[3,10,11] Hence, CADM with an associated malignancy is an unusual presentation of DM.

Since adult onset CADM patients have a definite risk of malignancy, this mandates work up to detect any underlying malignancy. Screening for a possible malignancy is done by obtaining thorough history and complete physical examination including the breast and pelvic exam in women, testicular and prostate in men, rectal examination, and nasopharyngeal examination.[1] In addition, diagnostic tests that are recommended include urinalysis, stool occult blood test, serum prostate specific antigen (PSA) for men, serum CA125 mammogram and transvaginal pelvic ultrasound for women, imaging studies (CT of the chest, abdomen, and pelvis) and upper endoscopy and/or colonoscopy if with iron deficiency anemia, and occult blood in stool.[1] In this case, initial screening did not point to a possible malignancy.

In addition to screening for malignancies, knowing patients with various clinical parameters with increased risk of developing malignancy can help in determining patients for closer monitoring. Risk factors for developing malignancies in DM include being male and older than 40 years old with some studies noting a higher cut-off at 45 years old.[12,13] Symptoms of dysphagia, dyspnea, muscle weakness, and arthralgia are all associated with increased risk of malignancy.[8] Clinical findings of cutaneous necrosis, heliotrope erythema and presence of anti-p155/140 or anti-TIF1γ are also associated with developing malignancy.[8] For this patient, being male, 40 years old, and presence of heliotrope erythema were the risk factors for malignancy. In this case, the patient developed cervical lymphadenopathies that were already metastatic undifferentiated carcinoma 1 month after the initial consult. This demonstrates that close follow up should be done especially during the first year wherein the risk of developing malignancy is highest.[14]

The importance of finding the primary carcinoma cannot be overemphasized as the leading cause of death in patients with DM is the metastatic spread of the malignancy rather than the complications of myositis.[2] Additionally, definitive therapy of the carcinoma also results in the resolution of the DM.[2] In men, the most common malignancies associated with CADM are cancers of the nasopharynx, bladder, colon and rectum, lung, and prostate.[15] In Asian countries, nasopharyngeal carcinoma (NPCA) is a malignancy commonly associated with DM. [5,13,16,17] Metastatic disease of unknown primary source, such as seen in this case, was seen in 7% of DM patients.[15] Less common malignancies include cancers of the esophagus, stomach, pancreas, testes, kidney, thymus, and thyroid.[15]

With the 10-pack year history of smoking and NPCA being common in Asian men with CADM, NPCA was the initial consideration for the source of undifferentiated carcinoma of the patient. This led to detection of a nasopharyngeal mass by the otorhinolaryngology service. Histopathological examination of the nasopharyngeal mass only revealed a reactive process from the metastatic cervical lymphadenopathies. With the smoking history, lung cancer is also a consideration even with the normal chest x-ray. However, less common malignancies as mentioned cannot be completely ruled out. Hence for

this patient, positron emission tomography (PET) scan is needed to detect all the possible sources of the metastatic undifferentiated carcinoma.

In addition to carcinomas, another complication that might be seen in patients with CADM in particular is interstitial lung disease (ILD), which can be detected by anti-CADM-140 or anti-MDA5.[2,18] This antibody is present in up to 70% of CADM patients of which 93% had ILD.[19,20] Asian patients with CADM compared to DM had a poorer survival outcome with 50% having a rapidly progressing ILD within 1 year.[19] Although not locally available, this antibody can help determine the chances of ILD developing in this patient.

CONCLUSION

This case demonstrates two unique features to an already rare disease that is DM. First, this patient presented with only the characteristic cutaneous lesions of photodistributed violaceous patches with the pathognomonic Gottron papules without muscle weakness. This led to a diagnosis of CADM, which is an uncommon variant of DM. Second, this case also developed a metastatic undifferentiated carcinoma. This emphasizes the importance of malignancy screening in patients with CADM. In summary, this case highlights the role of dermatologists in detecting CADM and screening patients for development of malignancy.

Statement of Authorship

All authors approved the final version submitted.

Author Disclosure

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