

Acquired Partial Lipodystrophy Associated with Rheumatoid Arthritis: A Rare Association

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Abstract

Observation: Lipodystrophy is a diverse group of metabolic disorders involving the body's adipose tissue in the form of either complete or partial loss of fat, which may be associated with pathological accumulation of fat in other regions of the body. Various metabolic abnormalities, including insulin resistance, diabetes mellitus, hypertriglyceridemia, and hepatic steatosis, are frequently observed; other common associations include acanthosis nigricans, polycystic ovarian disease, hypertension, and proteinuric kidney disease. We report here a case of a 31-year-old woman who developed acquired partial lipodystrophy in association with chronic rheumatoid arthritis for its rarity.

Introduction

Lipodystrophy is an umbrella term used to describe a diverse group of metabolic disorders characterized by abnormal or degenerative conditions of the body's adipose tissue in the form of either complete or partial loss of fat, which may occur in conjunction with pathological accumulation of fat in other distinct regions of the body. Metabolic abnormalities, including insulin resistance, diabetes mellitus, hypertriglyceridemia, and hepatic steatosis, are frequently observed, and the severity of such complications typically correlates with the degree of fat loss. Other common associations include acanthosis nigricans, polycystic ovarian disease, hypertension, and proteinuric kidney disease [1]. We report here a case of acquired partial lipodystrophy which has occurred in association with chronic rheumatoid arthritis for its rarity.

Case Report

A 31-year-old lady presented to us with the complaint of progressive hollowing of her face for the preceding 1 year. She also reported emaciation of areas around both her shoulders and arms. There was no history of swelling or redness preceding the onset of the disfigurement and there was no discomfort felt on skin. She had never suffered from any skin disease in the past.

Further enquiry had revealed history of bilaterally symmetrical, additive, swelling with pain and tenderness of small joints of hand for 6 years. There was no history of low back pain, neck pain or pain involving any other joint. There was history of morning stiffness, but no ocular pain/redness, burning sensation in urine, red urine, oral ulcer, fever, sore throat or history suggestive of Raynaud's phenomenon. Based on this clinical history, suggestive radiography, and positive rheumatoid factor she was diagnosed as a case of rheumatoid arthritis and treated by her rheumatologist with oral methotrexate, hydroxychloroquine, sulfasalazine, injectable steroid and other supportive treatments. She had resolution of her symptoms and remained asymptomatic for 4 years



Figure 1. Face of the patient symmetrically hollowed to the contours of the facial bones with no evidence of deformity of ears or mandibular hypoplasia



Figure 2. A photograph of the patient taken 3 years previously



Figure 3. Upper extremity of the patient showing loss of subcutaneous tissue with thinning of the area around both shoulders and arms

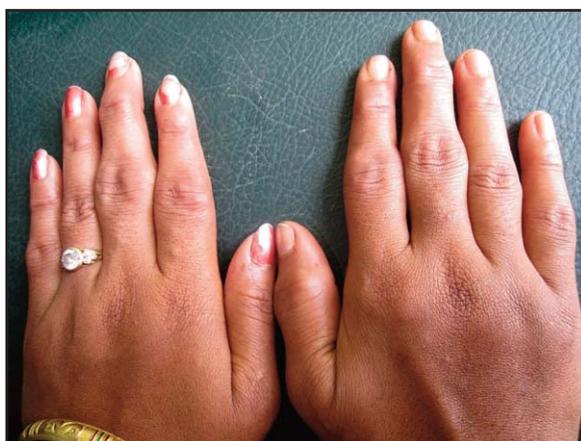


Figure 4. Hands of the patient showing swelling of bilateral 2nd, 3rd metacarpophalangeal and proximal interphalangeal joints

when she suffered recurrence of similar symptoms. She was reinitiated on methotrexate, hydroxychloroquine, and sulfasalazine to which she again responded favorably. Besides the joint disease her past history was unremarkable.

On examination, her face was found to be symmetrically hollowed to the contours of her facial bones with no evidence of deformity of ears or mandibular hypoplasia (**Figure 1**). There was loss of subcutaneous tissue with thinning of the area around both shoulders and arms which was significantly evident when compared to her previous photograph taken 3 years previously (**Figure 2**).

The surface of the skin was clinically normal and there was no induration. Muscle contours over her extremities were clearly demarcated (**Figure 3**). Trunk and the lower limbs were spared. The patient did not give consent for skin biopsy.

She also had mild pallor; swelling of bilateral 2nd, 3rd metacarpophalangeal joints (MCP), and pro-

ximal interphalangeal (PIP) joints (**Figure 4**). All the MCP and PIP joints were mildly tender but no altered temperature or color. Bilateral wrist joints were tender as well. There was swan-neck deformity of left middle finger. Examinations of all other axial and peripheral joints were normal. Other system examination was normal and revealed no organomegaly. Lab tests revealed neutrophilic leukocytosis (TLC-12000/cmm, N78), raised ESR (92mm/hr) and positive serum rheumatoid factor and anti-CCP antibodies. Serum anti-nuclear antibody was negative. X-ray of hand showed bilateral osteopenia around PIP, MCP joints, in carpal bones and distal ends of radii.

The final diagnosis of acquired partial lipodystrophy associated with rheumatoid arthritis was made. Possibility of drug induced lipodystrophy was also considered. The causality association done by Naranjo's causality scale [2] (maximum possible score 12) showed scores of 2 with methotrexate, and 1 with hydroxychloroquine and sulfa-

salazine. Thus, with none of the drug any definite or probable drug induced etiology for development of lipodystrophy could be established.

Discussion

Lipodystrophy can be total, partial, or localized, and may be congenital or acquired. Absence of affection of lower extremities is a feature of partial form, as in the present case. The majority of patients with APL are of European descent. The condition affects 4 to 8 times as many females as males and typically has a childhood or adolescent onset.

With the exception of hepatomegaly, metabolic complications are rarely seen in association with APL [3]. There are several disorders reported to be associated with acquired partial lipodystrophy including membranoproliferative glomerulonephritis, systemic lupus erythematosus and juvenile dermatomyositis [4]. A high degree of association has been increasingly demonstrated between APL and membranoproliferative glomerulonephritis (MPGN) as it has been shown that patients with both APL and MPGN are likely to have low serum levels of C3 and also tend to exhibit polyclonal immunoglobulin C3 nephritic factor in the serum [5]. It has also been hypothesized that factor D (a serine protease enzyme also referred to as adipsin) is expressed due to lysis of adipocytes which in turn is induced by the C3 nephritic factor in the serum of these patients, and the cephalocaudal pattern of fat loss, characteristic of APL, is dictated by the differential expression of factor D by various tissues of the body [6]. However, mutations in the LMNB2 gene has been found to cause APL, as according to a recent report a rare mutation in this gene is

associated more frequently in patients with APL than control subjects [7]. C3 nephritic factor could not be assessed in our patient owing to local unavailability and financial constraints.

Drug induced acquired localized lipodystrophy are also reported to arise from injection of steroid, insulin, and methotrexate [4, 8] but in our case such possibility was unlikely. Thus, our case represented a rare association of acquired partial lipodystrophy with RA.

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