Case Report

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A Report of Thigh Muscle Infarction in a Diabetic Patient

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ABSTRACT

BACKGROUND AND OBJECTIVE: Diabetic muscle infarction, which is a rare microangiopathic complication of uncontrolled diabetes, should be considered as a differential diagnosis for diabetic patients with lower extremity swelling and local pain, and without any other systemic symptoms. In this study, we presented the case of a diabetic patient with thigh muscle infarction.

CASE REPORT: The case was a 63-year-old diabetic male with pain and dysfunction in the right lower limb, who was referred to cardiology clinic for vascular assessment. During hospital stay, after rheumatology consultation, a mass was detected in the anterior thigh, which was confirmed with magnetic resonance imaging. Samples were taken from the mass, and the pathology reports showed diabetic muscle infarction. The patient was treated with analgesics and insulin. After partial improvement, the patient was discharged, and two months after hospital discharge the mass size and pain had reduced considerably.

CONCLUSION: Diabetic muscle infarction is a rare complication of uncontrolled and prolonged diabetes, which has a simple treatment. In this study, we call attention to this condition to prevent unnecessary actions and help with its early diagnosis.

KEY WORDS: *Diabetes, Thigh mass, Thigh Muscle Infarction.*

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Introduction

Diabetic muscle infarction is a rare microangiopathic complication in patients with uncontrolled diabetes. This condition has been reported as an ischemic and aseptic myonecrosis (non-infectious muscle necrosis) and local tumor deformation (especially in muscle. Its clinical symptoms are swelling, sudden onset of pain, and palpable mass. Quadriceps muscle is the most commonly involved muscle; moreover, diabetic muscle infarction often goes unrecognized and recurs in 48% of cases (1, 2). Magnetic resonance imaging in T_2 weighted can rule out other diagnoses; therefore, other diagnostic tests and treatments should be avoided. In most cases, diabetic muscle infarction is diagnosed by tissue sample analysis (3).

Diabetic muscle infarction was first reported in 1965, and nowadays almost 200 cases of this condition have been reported (4, 5). Diagnosis of this diabetic muscle infarction is based on combination of clinical and imaging findings, and magnetic resonance imaging (MRI) is one of the best diagnostic methods, which should be performed upon clinical suspicion of this condition. Sampling is not a suitable diagnosis method for diabetic muscle infarction; however, it is sometimes applied due to physicians' lack of awareness and in the absence of clinical suspicion. Previous studies reported that the sampled patients had a longer period of pain; therefore, biopsy should be avoided considering the potential complications (2, 3, 5). The mean age of onset of symptoms is about 40 years (age range: 13-81 years) (6, 7). The most common differential diagnoses of diabetic muscle infarction are as follows: deep vein thrombosis, cellulitis, pyomyositis, soft-tissue abscesses, necrotizing fasciitis, myositis focal, nodular myositis, primary muscle lymphoma, osteomyelitis, diabetic amyotrophy, muscle and baker cyst rupture, parasitosis, and liposarcoma (7).

In this study, we presented the case of a patient with a rare complication of diabetes, who was admitted to Firoozgar hospital with a chief complaint of lower limb pain. After examinations and rheumatology consultation, physicians noticed swelling and a painful mass in the right thigh, which was treated as diabetic muscle infarction

Case Report

The case was a 63-year-old male with a 15-year history of type 2 diabetes and hypertension and chief complaint of pain and dysfunction in the right lower extremity (8). The patient's symptoms did not ameliorate by standing straight or bending forward. The patient mentioned numbness and tingling in the feet, especially at nights. Moreover, no past history of trauma, fever, weight loss, and nocturnal hyperhidrosis were reported. The patient was administered oral hypoglycemic agents (500 mg of metformin three times a day, and 5 mg of glibenclamide twice a day) and blood pressure-controlling drugs (25 mg of losartan twice a day). However, these drugs were not effective in controlling the patient's blood sugar and pressure.

On physical examination, the patient's blood pressure was 155/90 mmHg. The right leg had lost hair, its skin looked shiny, and its muscles were atrophied. A 1+ pitting edema was observed in the right lower extremity. Doppler ultrasonography was performed with suspicion of lower extremity stenosis. Through arterial and venous color Doppler ultrasonography, deep vein thrombosis was rejected; however, due to tibialis posterior and peroneal artery stenosis, balloon angioplasty was carried. Nevertheless, no significant improvement in the symptoms was observed, and he still complained of pain and not being able to stand on his right leg.

Rheumatology and orthopedic consultation was carried out. Through rheumatological examination, a painful mass was reported in the distal part of the right thigh along with warmth and knee joint effusion. The test reports demonstrated erythrocyte sedimentation rate of 81 mm/h (normal maximum rate: 30 mm/hour), acute-phase protein of 47 mg/l (normal maximum rate: 6 mg), A_{1C} hemoglobin of 11% (normal rate: 6-4%), and fasting blood glucose of 275 mg/dl; moreover, liver and kidney function tests and blood count were normal. Effusion drainage was performed with a needle; the white blood cell count was 217000 mm^3 with 90% multi-core structure, and joint fluid cultures were negative.

MRI demonstrated a mass with the size of 35×37×106 mm in the distal, internal anterior surface of the right thigh between vastus intermedius and vastus muscles, which contained air bubbles. In addition, increased signal rate was observed in the vastus muscles (Figure 1). Due to the presence of a mass, MRI-guided open biopsy was performed. The results of pathology biopsy showed fibrinoleukocytic exudate mass and infiltration of inflammatory cells in muscle fibers. Considering the history of diabetes and

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clinical and paraclinical findings, thigh muscle infarction was confirmed.

In order to reduce the level of blood sugar, endocrinology consultation was sought, and the administration of neutral protamine Hagedorn and regular insulin was initiated. The patient was administered pethidine, 100 mg of diclofenac twice a day, 75 mg of clopidogrel daily, 20 mg of atorvastatin daily, and 25 mg of losartan twice a day. He was also advised to rest and avoid putting weight on the right leg. After six days of treatment, the patient was discharged with reduced pain and a relative improved walking ability. At the time of discharge thigh mass was still palpable. The patient was advised to continue treatment performing erythrocyte sedimentation rate examination in the rheumatology clinic. Two months after the admission, clinical and laboratory signs and the mass size were significantly different.

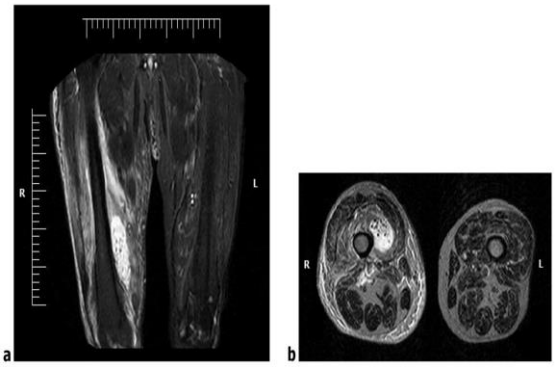

Figure 1. Magnetic resonance imaging of the patient's thigh, (a) coronal view, (b) axial view

Discussion

The diabetic patient was referred to Firoozgar hospital with lower limb pain and dysfunction as a result of diabetic muscle infarction. In diabetes, musculoskeletal complications are more common than renal or ocular complications. The overall prevalence of rheumatic symptoms was different in different studies. In a study conducted by Zabihi et al., the prevalence rate of musculoskeletal complications in diabetic patients was reported to be 50% (9).

Diabetic muscle infarction is a rare complication of uncontrolled and prolonged diabetes type 1 and 2, which occurs in most of the diabetic patients with end-organ complications such as neuropathy, retinopathy, and nephropathy (1, 10). According to Mokta et al., in most of the cases, the lower extremities, especially the thigh muscle, are involved in infarction. While involvement of Distal part of lower extremity is rare, in some rare cases, upper extremity involvement has also been reported. In some cases, bilateral hip involvement has also been reported (14).

Physicians' unfamiliarity with this rare diabetic complication leads to delayed diagnosis and unnecessary diagnostic testing (11). Cardillo et al. reported upper extremity diabetic muscle infarction as well (12). Although the pathogenesis of this condition is not completely clear, but vascular complications such as atherosclerosis and diabetic microangiopathy are associated with it (1, 13).

In several studies, clinical symptoms including local swelling, limited range of motion, and pain during movement and touching have been reported. In this condition, the patients do not present with fever, the affected area is not stiff, the muscular enzymes are often normal, and increased blood sodium is monitored in about 50% of the cases (5).

Although our patient had type 2 diabetes, but it is often reported in patients with type 1 diabetes (70%) (14). Musculoskeletal complications are among the commonly ignored diabetic complications that have not attracted enough attention. Considering the relatively high (50%) prevalence of these complications, musculoskeletal examination is recommended as an essential part of care giving for patients with type 2 diabetes (9). In this case, the patient was referred to several cardiologists, and after vascular disease diagnosis, he underwent angiography and angioplasty. However, due to lack of improvement in the limb dysfunction, orthopedic and rheumatology consultation was sought.

After performing MRI, biopsy was done, which indicates lack of clinical suspicion of diabetic muscle infarction, and accentuates the importance of musculoskeletal examinations in diagnosis of this condition in patients with prolonged diabetes and painful edema.

Unfamiliarity with this rare diabetic complication can lead to unnecessary diagnostic work-up. Its treatment is based on precise blood glucose control and protective treatment, but in most cases, lack of clinical suspicion of this condition results in unnecessary diagnostic procedures.

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