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Radiocontrast-Related Leukocytoclastic Vasculitis Misdiagnosed as Diabetic Foot Ulcer in a Type 2 Diabetic Patient: A Case Report

Radyokontrast İlişkili Lökositoklastik Vasküliti Olan Diyabetik Hasta: Bir Vaka Sunumu

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Abstract

The skin is the most affected tissue by many vasculitis syndromes. Leukocytoclastic vasculitis is the most common type of vasculitis syndrome and involves the small vessels. A long list of causative factors has been reported for leukocytoclastic vasculitis. Here, we present a type 2 diabetic patient who had purpuric skin lesions predominantly on the lower limbs and acute renal failure overriding to underlying chronic kidney disease due to leukocytoclastic vasculitis associated with radiocontrast administration. He was initially diagnosed as having diabetic foot ulcer at our outpatient clinic. After single dose betamethasone depot (9.6 mg i.m.), skin eruptions paled and improved; renal function showed an improvement on the following days. There are few case reports on the relationship of radiocontrast agent with leucocytoclastic vasculitis. Our case had leukocytoclastic vasculitis due to radiocontrast agent exposure which is very rare in the literature. *Turk Jem 2013; 17: 78-80*

Key words: Leukocytoclastic vasculitis, radiocontrast agent, diabetes mellitus, renal failure

Özet

Deri bir çok vaskülit sendromundan çoğunlukla etkilenir. Lökositoklastik vaskülit genellikle küçük damarları tutar. Lökositoklastik vaskülite sebep olan uzun bir liste bildirilmiştir. Biz burada öncelikle alt ekstremiteleri tutan purpurik cilt lezyonları olan ve altta yatan kronik böbrek yetmezliği üzerine akut böbrek yetmezliği gelişmiş olan radyokontrast ilişkili lökositoklastik vaskülit vakasını sunmak istedik. Hasta başlangıçta polikliniğe diyabetik ayak ülseri tanısıyla gelmişti. Tek doz depo betametazon (9.6 mg i.m.) sonrası cilt lezyonları soldu ve düzeldi, takip eden günlerde böbrek fonksiyonları düzelme gösterdi. Bir kaç radyokontrast ilişkili lökositoklastik vaskülit vakası bildirilmiştir. Radyokontrast ilaca bağlı lökositoklastik vaskülitli bu vaka literatürde çok nadirdir. *Turk Jem 2013; 17: 78-80*

Anahtar kelimeler: Lökositoklastik vaskülit,radyokontrast ajan, diabetes mellitus, böbrek yetmezliği

Introduction

Vasculitis is a nonspecific clinicopathologic condition characterized by inflammation and necrosis of the blood vessels (1,2). Leukocytoclastic vasculitis (LV) is the most common form seen in clinical practice.

Inflammation of the vessel wall is the basic pathology in LV and may result in structural disturbances and disrupted blood flow. It may be localized to the skin or may manifest in other organs. The joints, gastrointestinal tract, and the kidneys are the most commonly involved internal organs. The prognosis is good in the absence of internal involvement (2-4). LV can be seen as primary or secondary to an underlying systemic disease, cancer, medicines, infections and trauma. More than 70% of cases are due to drugs, infection, malign disorders, connective tissue disorders and primary vasculitis (4). Idiopathic vasculitis can be diagnosed only after exclusion of known causes.

Radiocontrast agent-related vasculitis is very rare in the literature. Here, we report a patient with type 2 diabetes mellitus (T2DM) who had LV due to lower extremity contrast-enhanced magnetic resonance angiography. Interestingly, the patient had been initially diagnosed as having diabetic foot ulcer at our outpatient clinic.

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Case

A 64-year-old male patient was hospitalized in our clinic for diabetic foot ulcer (initial diagnosis). In his medical history, he had T2DM for 20 years and had been treated with diet and premix insulin regimen two times a day. He also had hypertension and chronic renal disease for 2 years. Two weeks before hospitalization he had undergone a lower extremity angiography for pain in both legs (claudication). Following day of the angiography, purpuric skin lesions and ecchymoses developed on both legs especially below knees, ankle and the feet. There were necrotic areas on the toes consistent with diabetic foot ulcer. The skin lesions involved the whole body except his face and upper extremities.

In the past; he had undergone gallbladder surgery 3 years ago and bilateral iliac stenting 2 years ago.

His medicines administered for 2 years were amlodipine 10 mg/day, pentoxyfylline 800 mg/day, aspirin 300 mg/day, alpha lipoic acid 600 mg/day, and essential amino acids and antipotassium tablets.

On physical examination; height was 175 cm, - weight 73 kg, - blood pressure 130/80 mmHg, - pulse rate 80 per minute-regular, and respiration rate was 18 breaths per minute. His overall condition was average, and he cooperated well.

There were numerous scattered palpable purpuric skin rashes on both legs, ankles and the feet which were similar to ischemic vascular foot necrosis. Skin rashes were also present on anterior and posterior parts of the body. Desquamations were observed on the ankle skin.

There was stocking-and-glove pattern of sensory disturbance on the legs. Otherwise, thorax, abdomen, skeletal and other neurological examinations were normal.

According the results of the biochemical analysis performed at another clinic one year ago, BUN was 44 mg/dl and creatinine 2.59 mg/dl.

Laboratory investigations performed in our clinic revealed the following results:

CBC: Hb 8.1 g/dL, Hct: 24%, MCV: 76 fL, WBC: 7700 UL, Plt: 405000 mm/cubic, blood glucose 143 mg/dL, BUN 38 mg/dL, initial creatinine 3.1 mg/dL, creatinine (on day 5) 2.7 mg/dL. Serum electrolytes, liver and thyroid function tests were within normal ranges. Blood analysis showed total protein 6.1g/dL, albumin 2.7 g/dL, PTH 9 pg/mL (12 to 88), ferritin 200 ng/dL, Fe 20 mg/dL, TIBC 275 mg/dL, HbA1c 6.2%, VitB12 372 pg/mL, folic acid 25 ng/mL, Ca 8.8 mg/dL, P 4.2 mg/dL, LDH 130 UL, Mg 2.2 mg/dL, uric acid 8 mg/dL, INR 1.0, APTT 26 second (22 to 34.6), serum Ig A 275 mg/dL, Ig G 829 mg/dL, IgM 94 mg/dL, total IgE 1360 IU/mL (10 to 180), 25(OH)D 25 ng/mL, haptoglobulin 271 mg/dL (30 to 200), fibrinogen 560 mg/dL (180 to 380), Bence Jones protein negative, 24-h urine albumin 1176 mg, Ccr 35 ml/min/1.73m^2.

A thin blood film disclosed erythrocyte fragmentation and polychromasia, a microscopic examination of the urine revealed a few erythrocytes and leukocytes. Stool hemoccult test was negative. Serum anticardiolipin antibodies, cryoglobulin, cryofibrinogen, ANA, Anti DNA and ANCA profiles were negative. C3 and C4 complements were within normal range. HbsAg, anti-HBs Ab, anti-HCV, anti-HIV 1/2 were negative. Protein electrophoresis showed albumin 49% (52 to 68), α1 2.8% (2 to 5), α2 15.3% (6.6 to 15.5), β 17.3% (8.5 to 14.5), γ 15.4% (11 to 21) without monoclonal spike. Hemoglobin electrophoresis showed HbA1 64.3% (96 to 98), HbA2 1.2% (1.5 to 3.5), HbF 0% and HbS 34.5%.

Chest radiography was normal. Abdominal ultrasonography disclosed mild hepatic steatosis and left renal calculi. Echocardiography showed left ventricular hypertrophy, mild degree of mitral and aortic valves insufficiency, left ventricular diastolic dysfunction with a 60 percent of ejection fraction.

Clinical management:

After hospitalization of the patient, premix insulin injection two times a day before meals was started for metabolic control of DM. We considered systemic vasculitis because of the skin lesions involving the body and lower extremities (Figure 1). A skin biopsy was obtained from the lesions on the leg. Histopathological examination of the specimen confirmed LV (Figure 2). Skin biopsy specimen by immune flourescent dye revealed that C3, Ig G, Ig A and Ig M were negative. All medicines except insulin were discontinued

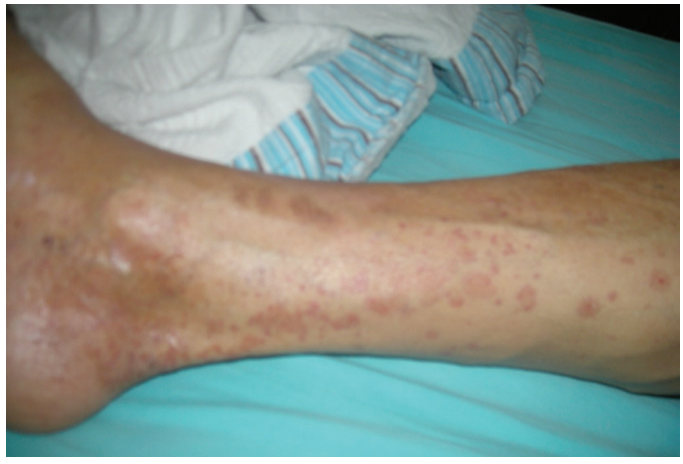

Figure 1. Purpuric skin eruptions due to leucocytoclastic vasculitis

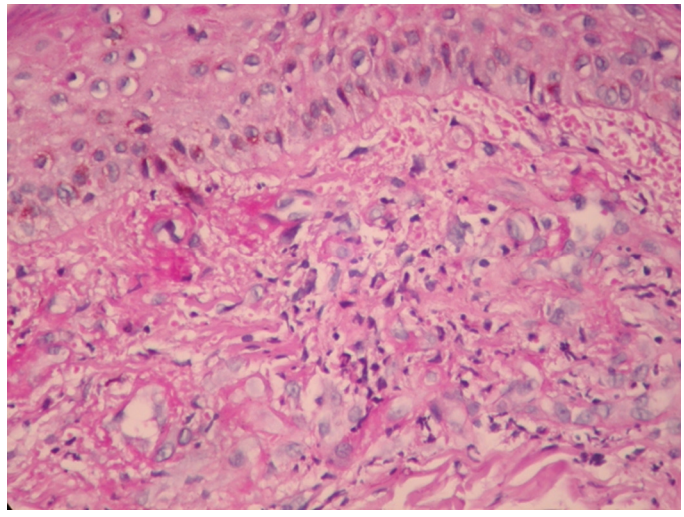

Figure 2. Microscopic examination revealed erythrocyte extravasation, swelling of endothelial cells, infiltration of largely neutrophils and lymphocytes around and within small-sized vessel walls, and fragmentation of nuclei (leukocytoclasis). Hematoxyline & Eosine (HE), x200

and a betamethasone depot (9.6 mg i.m.) injection was given to the patient. Following days, skin lesions improved. Blood glucose monitoring persisted in acceptable levels without any significant metabolic deterioration after betamethasone depot. An upper gastrointestinal endoscopic examination to evaluate the anemia revealed esophagitis grade C, multiple esophagial ulcers, pan gastritis, hemorrhagic duodenal mucosal lesions. Endoscopic gastric and duodenal biopsies showed chronic gastritis and partial villous atrophy, and chronic active duodenitis. A blood marrow aspiration biopsy revealed active normocellular bone marrow. In his detailed history, a week ago he had had a lower extremity angiography for claudicatio intermittens and been found to have bilateral stenosis and occlusions of the superficial femoral and infrapopliteal arteries; a day after this procedure, skin lesions developed.

He had also high serum creatinine (3.1 mg/dL) compatible with acute renal failure. With the treatment of intramuscular betamethasone depot, serum creatinine levels decreased to 2.4 mg/dL. To evaluate the renal function, a 24-h collected urine albumin screening revealed 1176 mg of albuminuria, and creatinine clearance 35 ml/min/1.73m^2. We considered a possible underlying diabetic nephropathy which made patient susceptible to acute renal failure. A hemoglobin electrophoresis disclosed sickle cell trait.

During the two-week follow-up period in the clinic, skin rashes disappeared and serum creatinine level reduced to 2.4 mg/dl and persisted at this level.

Discussion

LV is the most common form of vasculitis involving the skin. It involves the small blood vessels and postcapillary venules. More than 70% of cases are related to drug use, underlying diseases, infection, and malignancy. In the differential diagnosis, cryoglobulinemia, cutaneous leukocytoclastic angiitis or Henoch–Schönlein purpura should be considered. The remaining forms are called idiopathic. Biopsy from the skin lesion is essential for the diagnosis. We confirmed LV in this case with the help of skin biopsy obtained from the affected skin lesion. We excluded other possible causes of LV based on the medical history and investigations. The remaining cause was radiocontrast agent. In the medical literature, there were a few case reports related to radiocontrast agent and LV (4-6).

Treatment for LV consists of preventing the deposition of immune complexes, and suppressing the inflammatory response. H1 antihistamines, non-steroidal anti-inflammatory agents are used for alleviation of symptoms and to reduce tissue deposition of circulating immune complexes. If there is still no therapeutic response, systemic glucocorticoids or other immunosuppressants (azathioprine, methotrexate, cyclophosphamide, cyclosporine) should be considered (7). We gave a single dose betamethasone depot injection (9.6 mg i.m.) because the skin eruptions were getting worse and overriding acute renal failure. Following this treatment, rapid (in days) clinical improvement was observed. Kerdel et al. (5) reported 2 subjects in whom necrotising vasculitis and renal failure developed 12 to 24 hours after intravenous radiocontrast agent was given. Similarly, Vaillant L et al. (6), reported a patient who had widespread skin lesions, vasculitis and renal failure necessitating haemodialysis following radiocontrast agent application. Renal failure was also present in our case, but we considered underlying diabetic nephropathy and overriding acute renal failure due to LV. Renal function also showed an improvement after steroid injection.

Conclusions

Radiocontrast agents, which have been used in common daily clinical practice, can cause severe vasculitic syndrome and acute renal failure and, LV may be confused with diabetic foot ulcer.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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Declaration of Competing Interests: Nothing to declare.

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