CASE RECORD 02

BILATERAL FOOT DROP AND DIGITAL GANGRENE IN A PATIENT WITH RHEUMATOID ARTHRITIS; RHEUMATOID VASCULITIS

Case report

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Case no: 02

Ward: 19

BHT: 18-125584

Name of the patient: Mrs.S.M.Thushani

Age: 25-years

Address: Morogollagana, Nahaalagama, Kekirawa.

Date of admission: 08.10.2018

Date of discharge: 04.11.2018

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Abstract

Rheumatoid vasculitis (RV) is a destructive inflammatory process of blood vessels occurs in patients with severe and longstanding rheumatoid arthritis (RA). It can involve any organ and associates with significant morbidity, and mortality which needs aggressive immunosuppression therapy. RV affects mostly medium and small vessels. In this case report, I present a 25-years-old mother who was diagnosed to have sero-negative rheumatoid arthritis for one year duration presented with fever for one week and worsening of arthritis with maculo-papular rash.

She was managed at privet sector with methotrexate, sulphasalazine and corticosteroid short course which she was deflated recently. The physical examination revealed high fever, active polyarthritis, paresthesia on lower limbs, and vasculitis rash mainly on extremities. Over the stay in the hospital she went on to develop toe gangrene, necrotic ulcer on bilateral malleoli, and bilateral foot drop. The laboratory investigation revealed anaemia, high ESR, positive ANA. The rheumatoid factor, P-ANCA, C-ANCA, ds-DNA, hepatitis B, Hepatitis C, retro viral studies, VDRL, cryoglobulins, and anti-cardiolipin antibody was negative.

On admission, the working diagnosis of RV developed based on the presence of fever, skin rash, necrotic lesion of his toe, mononeuritis multiplex with bi lateral foot drop with background history of RA, and excluded all other possible causes. Expert opinion sought from Dermatologist and Rheumatologist for the management. Significant regression was observed with intravenous methylprednisolone treatment. Rehabilitation programme arranged for her neurological deficit. This is rare case describing the early onset of rheumatoid vasculitis in a patient with sero-negative rheumatoid arthritis.

Keywords: Rheumatoid arthritis, skin rash, foot drop, vasculitis, methylprednisolone

Introduction

Rheumatoid vasculitis is a destructive inflammatory process of blood vessels occurs in patients with severe and longstanding rheumatoid arthritis. It can involve any organ and associates with significant morbidity, and mortality which needs aggressive immunosuppression therapy. RV affects mostly medium and small vessels. This leads to occlusion of blood vessels, tissue ischemia and necrosis. This can mimic other medium vessel vasculitis like polyarteritis nodosa or other small vessel vasculitis.

The incidence is decreased since the 1980s to mid-1990s due to the widespread use of methotrexate and other DMARDS.(1) Usually the patient's presents with significant constitutional symptoms, including myalgia, fatigue, fever and loss of weight. Majority of patient develops skin vasculitis, includes palpable purpura, nail fold lesions, leg ulcers, and ischemic necrosis.

Risk factors for RV include long standing rheumatoid arthritis, smoking, male, who are with rheumatoid nodule, and HLA class I and class II genotypes. A genetic predisposition appears to be related to the development of RV in patients with RA. The postulated pathogenic mechanism of RV is complex, involving the activation of the endothelial cells, with up-regulated expression of HLA-DQ, interleukin-1α and expansion of CD28null T cells.(2)

Neurological involvement also a frequent component which includes mixed sensory or motor neuropathy, symmetrical polyneuropathy, and mononeuritis or mononeuritis multiplex, but central nervous system rarely affected. Peripheral ulcerative keratitis and necrotizing scleritis are the most common eye manifestations which associate with RV.

I present a patient who was diagnosed to have sero-negative arthritis for one year duration was treated with methotrexate, sulphasalazine and corticosteroid short courses, this time she was presented with fever for one week, worsening of arthritis with maculo-papular rash, paraesthesia in both lower extremities and went on to develop toe gangrene and bilateral foot drop.

Case presentation

A 25-year-old mother of two children, followed up in the private sector for sero-negative rheumatoid arthritis for one year, was admitted at our casualty medical with fever, maculo-papular skin rash, worsening of symmetric polyarthritis, and paraesthesia of both lower limbs. Initially she had high grade fever for one week, and then developed worsening of symmetrical polyarthritis with swelling, morning stiffness, and limitation of movement. The involved joints were metacarpophalangeal, proximal interphalangeal and bilateral wrist joints in upper limbs. She also had bilateral knee joint, and ankle joint involvement.

She had vasculitis rash on bilateral lower limbs, mainly on dorsum of the foot and soles. She was complained severe generalised body aches and lethargy, vomiting and nausea. She never had double vision or difficulty in swallowing but no difficulty in breathing or imbalance. On further inquiry, she was found to have a history of high fever for one week before the appearance of above symptoms.

She had constitutional symptoms such as fatigue, malaise and nausea. She was not had irritability, confusion, psychosis or depression. She never had convulsions or loss of consciousness. No vision impairment. No recent history of respiratory tract infections or diarrhoeal illness.

Her past medical history is unremarkable other than arthritis. No any past surgical history. She was not on any long term medications other than above drugs. No recent visits to abroad or intravenous drug abuse.

Her family has five members, her husband is a business man and her mother in law helps in family keeping. Her two children were at home and the younger one is 2-years-old. She was not an alcohol user or a smoker. Her overall family income is about 65,000/= per month.

Clinical findings

On admission examination revealed that the temperature of 39.5°C, respiratory rate of 20breaths/min, heart rate of 102 bpm, oxygen saturation of 96% in room air and blood pressure of 115/70 mm Hg. She had heeled maculo-papular rash over limbs and vasculitis rash on foot and soles. She was mildly dehydrated. She had a regular heart beat and rhythm, and first and second heart sounds were normal without any murmurs. On auscultation of lungs clear bilaterally, and her abdomen was soft, non-distended, and non-tender without hepatosplenomegaly.

Joint examination revealed tenderness, swelling, limitation of movement in bilateral wrist and MCP, PIP and large joints of lower limbs. She had dark pain full lesions on bilateral toes suggestive of digital gangrene (figure 1). There was necrotic ulcer on both lateral malleolus region (figure 2). Neurological examination revealed bilateral foot drop suggestive of mononeuritis multiplex, and reduced sensation in both lower legs which consistent with polyneuropathy.

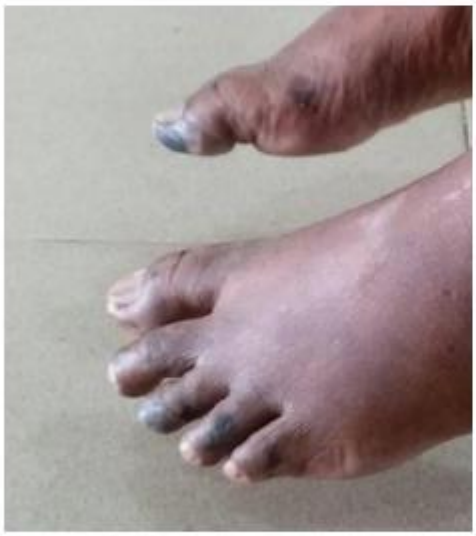

Figure 4: Digital gangrene

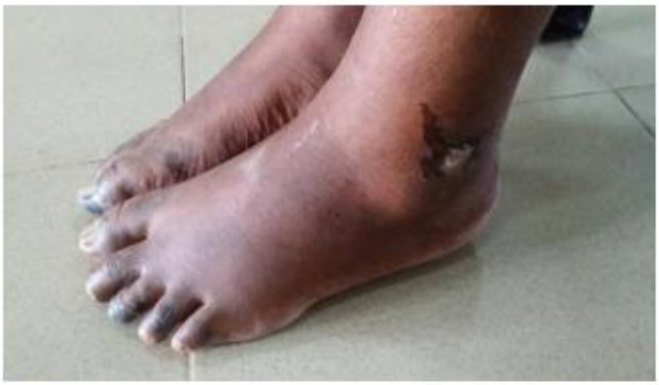

Figure 5: Necrotic ulcer on lateral malleolus

Investigations

The laboratory investigation revealed a WBC count of 7.6cells/mm3, with 68.5% polymorphonucleated cells, lymphocytes 15.8%, monocytes 11.1%, platelet count of 266.000per mm3 and hemoglobin 9.2g/dL, MCV of 61.2fl. Her INR was 1.4. Sodium 135mmol/L, Potassium 3.7mmol/l BUN 07mmol/l, creatinine 81micmol/l, total bilirubin 2.3mmol/l, AST 41U/L, ALT 50U/L, and alkaline phosphatase 123 U/L, C-reactive protein 6.5mg/l and ESR 53mm/h. RBS 110mg/dl, serum ferritin 536ng/dl.

Urine full report demonstrated 15 pus cells, 1-2 normal erythrocytes per high-power field and 1+ proteinuria, and CPK 35 U/i. Urine cultures was negative. ANA was positive. Rheumatoid factor, P-ANCA, C-ANCA, ds-DNA, hepatitis B, Hepatitis C, retro viral studies, VDRL, cryoglobulins, and anti-cardiolipin antibody was negative. Blood and urine culture was negative. Ultrasound of abdomen, chest x-ray, and 2D-ECHO was normal. Because she did not give the consent the tissue biopsy not performed.

Diagnostic Assessment

Detailed examinations are necessary in addition to the history where more focus should be given to skin and neurological examination. During the work up the

clinician should consider the mimics of RV such as other small and medium vessels vasculitis, infections, and paraneoplastic diseases.

The basic work up should contain complete blood count, complement levels, ESR, BUN, Serum creatinine, UFR with microscopy, ANCA studies, ANA, ds-DNA, RF, Anti-CCP, and hepatitis serology. Even though the ANA is a non-specific test, it usually detected in RV. The vasculitis is rare in sero-negative RA; therefore one must consider all the other differentials before concluding as RV.

Diagnostic imaging is useful in some patients where the patient suspected to having renal artery stenosis, mesenteric ischemia or aortic involvement. Because, the majority of the patients present with cutaneous features the imaging is not always done.

The tissue biopsy helps in confirm the disease. Biopsy usually performed in affected tissue such as skin, nerve, or renal if indicated. The finding of cutaneous vasculitis in specimen consistent with RV, in the setting of clinically apparent systemic involvement, is sufficient to establish the diagnosis.

Therapeutic Intervention

The treatment of RV requires analyzing the risks and benefits of individual regimes. The comorbidities of the patient which developed over the course of disease include renal dysfunction, cytopenias, gastric ulceration, hepatic dysfunction, and the complication of steroids include glucose intolerance, hypertension, and skin atrophy has major impact on treatment consideration. They are prone to develop number of infection including bacterial or viral etiology. Therefore infections must be excluded prior to commencing immunosuppressive therapy.

Therapeutic approach depends on the severity, the organ involvement, and the treatment that the patient was already on. In case of non-life threatening focal, not rapidly progressive RV, prednisolone 1mg/kg body for body weight is recommended.(3) In mononeuritis, severe scleritis, severe skin, renal, or

pulmonary disease, or pericarditis combination treatment with methylprednisolone and either rituximab or cyclophosphamide is given.(4)

Outcome and follow-up

The prognosis in RV depends on the severity of the damage to the organs involved. Infection and end-organ damage from active vasculitis are the main causes of death; 40% of patients die within 5 years of disease.

Working diagnosis of RV developed based on the presence of fever, skin rash, and necrotic lesion of his toe with background history of RA. After obtaining expert opinion from rheumatologist and dermatologist she was treated with pulse dose of intra-venous methylprednisolone (1000 mg methylprednisolone for 3 days) and then prednisone 60 mg daily while in the hospital.

The patient showed marked improvement of her symptoms. But she went on to develop bi-lateral foot drop due to mononeuritis multiplex and toe gangrene. The patient was discharged on prednisone 20 mg daily with tapering 5 mg every week, azathioprine, and DMARDS. Rehabilitation programme arranged for neurological deficit. One month after she was reviewed in the clinic, at that time her arthritis and skin lesions was improved but she was walking with aid for her foot drop.

Discussion

Rheumatoid vasculitis is a rare complication of long-standing, severe form of rheumatoid arthritis. It is characterised by an inflammatory process small and medium sized vessels and may involve any organ of the body. Usually the onset of vasculitis from the diagnosis of RA is 10 – 14 years and it is unusual to be presented within the first 5 years of RA diagnosis though it has been reported before.(5) The 30-year incidence of vasculitis in patients with RA was estimated to be 3.6%. Over the past 25 years, with the widespread use of biological agents early in the treatment of RA, has led to a decline in the prevalence of RV.(6)

The two most common organs to be involved are the skin and the peripheral nerves which comprises of nearly 80% of cases.(7) Other organ involvement includes bowel, heart and kidney which are much less common but it associates with significant morbidity and mortality in the form of bowel ischaemia, myocardial infarction and renal failure.

Laboratory tests may support, but do not confirm the diagnosis of RV. Some studies have shown an association between high titers of RF or anti-CCP antibodies and RV. Low complement has been associated with RV in 20–57% of the patients based on different studies.(8)

Management includes the use of corticosteroids, cyclophosphamide, traditional and biological disease modifying anti-rheumatic drugs. The emergence of rituximab during the past two decade as a new treatment of RA has dramatic change in the outcome of RV. It showed a remarkable effect in inducing and maintaining remission, plus decreasing the incidence of relapse. The other important consideration here is vaccination, attention to fertility and pregnancy, and steroid induced osteoporosis.

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