

Varied Manifestations of Rheumatoid Arthritis

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Abstract

Introduction: Rheumatoid arthritis (RA) is associated with higher risk of atherosclerotic vascular disease, including peripheral arterial disease (PAD) and rheumatoid vasculitis (RV). Decreased tibial artery blood flow in rheumatoid arthritis (RA) is primarily driven by chronic inflammation, leading to accelerated PAD, atherosclerosis and RV, which restricts blood flow in the lower limbs. Patients are at a higher risk of developing arterial obstructions, particularly with long-standing disease or severe, deformed joints, which can cause severe pain, cold extremities, and tissue damage.

Case report: We report a forty eight-year-old female, a known case of hypothyroidism and Rheumatoid arthritis for last twelve years on regular treatment. She had an episode of cerebrovascular stroke with left sided hemiplegia, one year back. She still had hemiparesis of left upper and lower limb and required support from others for doing normal routine activities. The computed tomography scan (CT scan) brain, Electroencephalogram (EEG), ECG, Echocardiography and all other routine investigations done at time of stroke were all normal. She developed left lower limb paraesthesia, numbness and blackening of great toe of left foot for last one month. She was also having moderate grade fever, along with leucocytosis for last fifteen days and was started on antibiotics, lipid lowering and antipyretics by cardio thoracic vascular surgeon for last one week. She developed persistent pain abdomen and vomiting for last ten days and hence was referred to our department. All the routine tests including complete hemogram, liver & renal function tests, lipid profile, blood sugar, urine complete, ECG, Chest x-ray, ultrasonogram abdomen and viral screen were normal. In view of persistent symptoms and background of hypothyroidism & Rheumatoid arthritis, Upper gastro-intestinal endoscopy was done which was found to be normal. In view of persistent vomiting and pain abdomen, CT scan abdomen was done which was also reported to be normal. For her gangrene on left toe, Angiogram including bilateral lower limb was done which revealed decreased blood flow in both tibial arteries. The complete hemogram revealed microcytic hypochromic anemia with significant leucocytosis which was due to sepsis. Hence, patient was started on broad spectrum antibiotics, in addition to proton pump inhibitors (PPI) and prokinetics. She responded to treatment, became afebrile, leucocytosis normalized and gastro-intestinal symptoms resolved, as these were due to sepsis only. The repeat CTVS consultation was taken who advised for conservative treatment for next few days and to decide for amputation on follow up.

Conclusion: Rheumatoid arthritis can have varied manifestations including CNS, Skin, blood vessels and nerves. The involvement of CNS led to stroke in our patient and involvement of blood vessels led to gangrene. Rheumatoid arthritis can lead to GIT symptoms also but in our case, these were related to sepsis due to gangrene, hence settled after sepsis was controlled.

Keywords: Vomiting, Pain abdomen, Gangrene, Vasculitis, Rheumatoid arthritis, Computed tomography Scan.

Introduction

Rheumatoid arthritis (RA) is a complex inflammatory disease characterized mainly by systemic inflammation, persistent synovitis and auto antibodies [1]. Rheumatoid arthritis has been described as one of the most severe and common conditions across the spectrum of inflammatory rheumatic conditions [2]. Atherosclerosis is common in RA [3] and is associated with the chronic disease-related inflammation involving activation of T-lymphocytes and macrophages and the production of pro-inflammatory cytokines [4]. As a result, RA patients exhibit a higher risk of peripheral arterial disease (PAD) compared to the general population [5] but it appears to be under-diagnosed [6,7]. RA patients are up to 2.4 times more likely to develop PAD than the general population, with accelerated atherosclerosis due to systemic inflammation. Other reason can be rheumatoid vasculitis in which inflammation can cause damage to the blood vessel walls themselves, leading to stenosis or obstruction, particularly in long-term, severe RA. The reduced flow can lead to coldness in the lower leg, painful skin rashes, numbness, weakness, and, in extreme cases, necrosis or ulcers. The risk is higher in patients with long standing history i.e. more than 10 years, high inflammation markers,

joint damage, rheumatoid nodules, smokers and those using corticosteroids. The diagnosis depends on raised ESR & CRP, angiogram and tissue biopsy. The treatment is with high-dose corticosteroids for managing immediate inflammation. Cyclophosphamide or biologics like rituximab are used for severe cases. Quitting smoking and tight control of the underlying RA are critical.

Case Report

We report a forty eight-year-old female, a known case of hypothyroidism and rheumatoid arthritis for last twelve years on regular treatment. She had an episode of cerebrovascular stroke with left sided hemiplegia, one year back. She still had hemiparesis of left upper and lower limb and required support from others for doing normal routine activities. The computed tomography scan (CT scan) brain, Electroencephalogram (EEG), ECG, Echocardiography and all other routine investigations done at time of stroke were all normal. She developed left lower limb paraesthesia, numbness and blackening of great toe of left foot for last one month. She was also having moderate grade fever, along with leucocytosis for last fifteen days and was started on antibiotics, lipid lowering and antipyretics by car-

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dio thoracic vascular surgeon for last one week. She developed persistent pain abdomen and vomiting for last ten days and hence was referred to our department. All the routine tests including complete hemogram, liver & renal function tests, lipid profile, blood sugar, urine complete, ECG, Chest x-ray, ultrasonogram abdomen and viral screen were normal. The rheumatoid factor, anti-CCP antibody, ESR, CRP were significantly raised. In view of persistent symptoms and background of hypothyroidism & Rheumatoid arthritis, Upper gastro-intestinal endoscopy was done which was found to be normal. In view of persistent vomiting and pain abdomen, CT scan abdomen was done which was also reported to be normal. For her gangrene on left toe, Angiogram including bilateral lower limb was done which revealed decreased blood flow in both tibial arteries. The complete

hemogram revealed microcytic hypochromic anemia with significant leucocytosis which was due to sepsis. Hence, patient was started on broad spectrum antibiotics, in addition to proton pump inhibitors (PPI) and prokinetics. She responded to treatment, became afebrile, leucocytosis normalized and gastro-intestinal symptoms resolved, as these were due to sepsis only. The repeat CTVS consultation was taken who advised for conservative treatment for next few days and to decide for amputation on follow up. She has been advised to continue same treatment as advised by rheumatologist and endocrinologist for rheumatoid arthritis and hypothyroidism.



Figure 1 : Showing Gangrene on Left Great Toe.

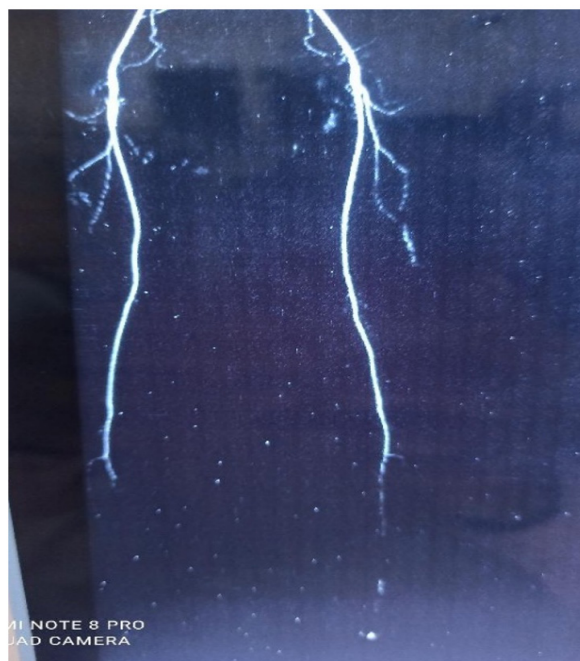


Figure 3 : Angiogram showing decreased Blood supply in Tibial arteries.

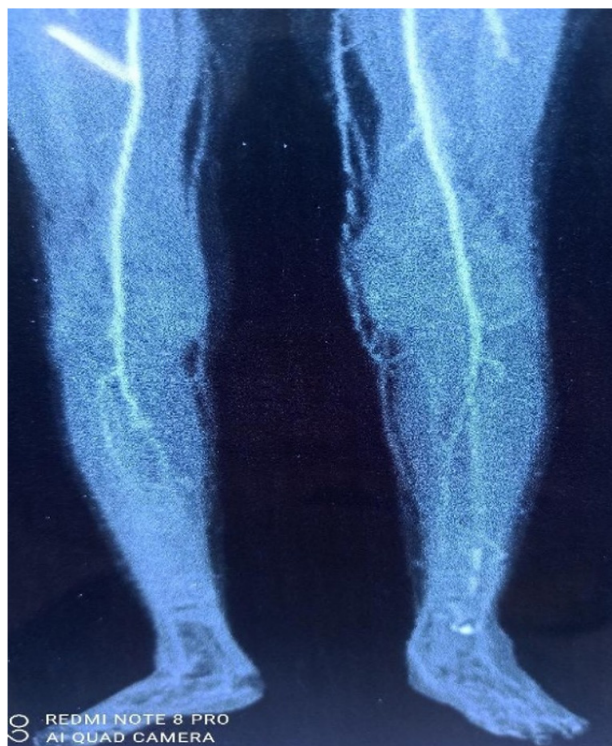


Figure 2 : Angiogram Showing decreased blood Supply in Bilateral Tibial arteries.

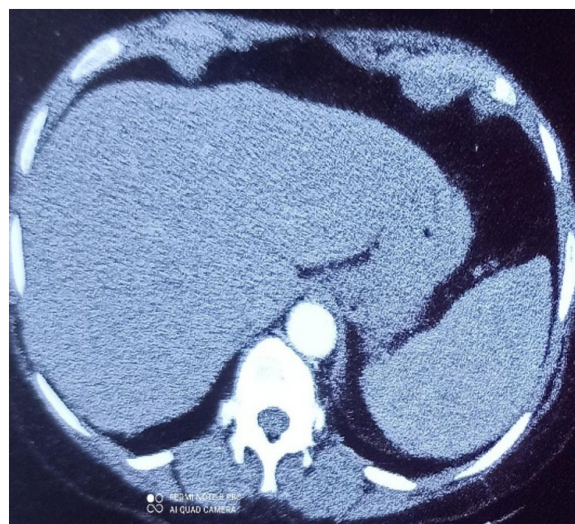


Figure 4 : CT Scan abdomen showing normal findings.



Figure 5 : Showing Rheumatoid Nodules in hand.

Discussion

Rheumatoid vasculitis (RV) is a rare, severe extra-articular complication of long-standing, active rheumatoid arthritis (RA) occurring in 1–5% of patients, often characterized by high RF/anti-CCP titers, digital gangrene, or neuropathy. It results from immune complex deposition causing small-to-medium vessel inflammation. The common manifestations include cutaneous vasculitis (palpable purpura), nail bed infarcts, digital gangrene, and mononeuritis multiplex. The risk factors include long-standing disease, male gender, smoking, and high levels of rheumatoid factor (RF) or anti-CCP antibodies. Diagnosis is primarily clinical, supported by histological evidence from skin or muscle biopsy and ruling out other causes of vasculitis. Mild cases may only require careful monitoring, while severe visceral disease requires immunosuppression (e.g., corticosteroids, cyclophosphamide, or rituximab). It carries high mortality rate (up to 40% over

5 years), and is often due to infection or complications. Our case had a long history of twelve years of RA with hypothyroidism and remained under control for almost eleven years but in last one year developed complications of RA. The first manifestation was development of stroke with normal CT scan brain which points towards vasculitis due to involvement of small and medium sized blood vessels supplying brain. Later on, rheumatoid nodules were felt in hands. Finally, she developed gangrene in left great toe and adjoining area with documented decreased blood supply in bilateral tibial arteries on angiogram. She is even at risk of developing gangrene on right foot in future, in view of findings on angiogram. She requires life-long treatment by multi-disciplinary team.

Conclusion

Rheumatoid arthritis can have varied manifestations including CNS, Skin, blood vessels and nerves. The involvement of CNS led to stroke in our patient and involvement of blood vessels led to gangrene. Rheumatoid arthritis can lead to GIT symptoms also but in our case, these were related to sepsis due to gangrene, hence settled after sepsis was controlled.

Conflict of Interest

The authors declare that there were no conflict of interest and no financial support taken.

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