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Lower Extremity Gangrene As A Presentation Of Multiple Myeloma With Hypercryoglobulinemia Mimicking Peripheral Arterial Disease – A Rare Case Report

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Abstract: Thromboembolic complications are the second leading cause of death in cancer patients.[1]However lower limb gangrene in absence of diabetes mellitus or systemic atherosclerosis is a rare condition and one of the causes of such a case is multiple myeloma. We are presenting a case report of multiple myeloma ISS stage 3, associated with gangrene of lower extremities mimicking the peripheral arterial disease.

.Introduction

Palpable purura, soft tissue and skin necrosis, arthralgia and myalgia are the different conditions that can be manifested by hypercryoglobulinemia. Cryoglobulins are made up of immunoglobulins and complement components that undergo reversible precipitation at low temperature. Cryoglobulinemia may be classified based on the composition of cryoglobulin, which is Type 1 cryoglobulinemia or simple cryoglobulinemia is a result of a monoclonal immunoglobulin, usually immunoglobulin M or less frequently immunoglobulin A or G. Type 2 and 3 cryoglobulinemia or mixed cryoglobulinemia contains rheumatoid factors which usually contains IgM, IgG or IgA. Type 1 is associated with multi myeloma while mixed cryoglobulinemia are associated with autoimmune disorders, chronic infections(that is Hepatitis C and HIV infections) and lymphoproliferative disorders. Monoclonal cryoglobulin are often present in multiple myeloma patients.Hypercryoglobulenimia can lead to organ damage by production of autoimmune mediated vasculitis and accumulation of cryoglobulins that can cause obstruction of small vessels and causes peripheral vascular disease.

Lymphoproliferative disorders with hyperviscosity syndrome is a rare but life threatening condition. Delay in diagnosis can lead to severe organ disfunction. Peripheral arterial disease is very prevalent in cancer patients. The annual incidence of peripheral arterial disease in cancer patients is not well studied but prevalence is in the range of 1.5-3.1%[2].Multiple factors are responsible for these types of events in cancer patients. Acute limb ischemia has very high mortality in cancer patients[3]. The aim of this case report is to report the rare association of patient who developed soft tissue necrosis in lower extremities due to manifestation of multiple myeloma and hypercryoglobulinemia.

Case Presentation

A seventy two year old lady ,reformed smoker, a known case of multiple myeloma ISS stage 3, severe osteopenia, steroid induced hyperglycemia, COPD, systemic hypertension, presented to OPD with complaints of blackening of the digits and pain in lower extremities since 15 days. She is on treatment for multiple myeloma since six years. Liver function tests revealed high serum proteins and raised alpha1, alpha 2, beta and u gamma-microglobulins and positive M protein. Patients rest blood investigations were almost normal ex-

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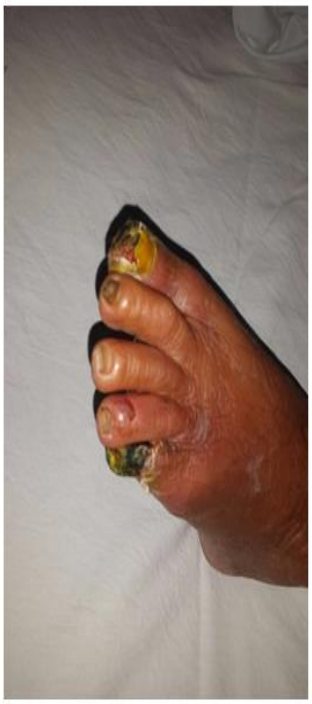
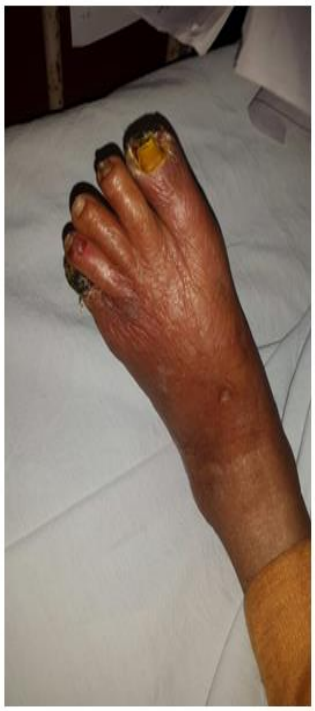
cept albumin of 2.4 and raised serum creatinine of 1.6 Cryoglobulin electrophoresis was not performed due to technical reasons. Ultrasound Doppler arterial bilateral lower limbs revealed triphasic flow till dorsalis pedis and posterior tibial artery on right and on left side till popliteal artery , there is biphasic flow till dorsalis and posterior tibial artery on left side and there was no obstruction or stenosis at any level . Patient was having dry gangrene and was discharged in satisfactory condition . At present , she is currently on regular medication for multiple myeloma dry gangrene management on out-patient department basis.





Discussion

Peripheral arterial disease is the most common cause of lower limb soft tissue disorder.[4] The patient's initial presentation of lower extremity gangrene, together with advanced age and history of tobacco abuse, indicated atherosclerotic arterial ischemia of the lower limb. However, there were no signs suggestive of ischemia in the other vascular systems (myocardial infarction or cerebrovscular insult) and Ultrasound Doppler showed no signs of obstruction the arteries with good flow. Malignancies like multiple myeloma causes hyperviscosity syndrome which leads to peripheral arterial disease.Multiple myeloma is a plasma cell neoplasm that is characterised by a single clone of plasma cells producing a monoclonal protein (M protein). Malignant proliferation of plasma cells produces skeletal destruction,causing bone pain and pathological fractures. It accounts for 10 % of all haematological malignancies[5]. Diagnostic criteria include the presence of M protein in serum and urine, presence of 10 % or more clonal bone marrow plasma cells and related organ or tissue impairment (such as hypercalcemia, renal insufficiency, anemia and lytic bone lesions on radiographic survey)[6]. The M protein might also lead to hyperviscosity syndrome or recurrent infections through the suppression of normal immunoglobulins.

Conclusion

Hypercryoglobulonemia in patient with multiple myeloma produces signs related to hyperviscosity and/or thrombosis. Severe cases, if not treated, may lead to gangrenous changes.

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