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Internal Medicine

A RARE COMPLICATION OF COVID- LERICHE'S SYNDROME WITH RECENT ANTERIOR WALL MYOCARDIAL INFARCTION: A CASE REPORT AND REVIEW OF LITERATURE

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ABSTRACT **Background:** Leriche's syndrome is a relatively rare aortoiliac occlusive disease characterized by claudication, decreased femoral pulses, and impotence. We present a case of concomitant acute myocardial infarction and Leriche syndrome as a post covid complication. **Case presentation:** A 54-year-old male with a history of bilateral lower limb weakness was admitted for evaluation of blackish discolouration of both lower limbs. He had Elevated serum troponin level, ST-T wave changes on electrocardiogram, and segmental regional wall motion abnormality of the left ventricle on transthoracic echocardiography. Bilateral lower limb arterial plus venous doppler showed common iliac and bilateral lower limb arterial thrombosis. A diagnosis of evolved anterior wall myocardial infarction with Leriche's syndrome was made and injectable heparin was initiated. The patient had a history of fever for a week, cough and cold 2 months prior to this presentation which was not evaluated and also had raised COVID IgG levels. During the course of hospitalization, the patient landed in acute kidney injury and required dialysis. After stabilization, he underwent planned hip disarticulation of left lower limb and above knee amputation of the right lower limb for gangrene. The patient expired post-operatively due to sepsis secondary to gangrenous changes in the lower limb. **Conclusion:** An atypical presentation of the prothrombotic sequalae causing aortoiliac occlusive disease and myocardial infarction as a late complication of Covid-19 infection necessitates the need for a long term antithrombotic prophylaxis following recovery from the illness.

KEYWORDS : Acute myocardial infarction, Leriche syndrome, Aortoiliac occlusive disease, post covid complication

CASE REPORT

Background:

Leriche's syndrome also known as Aortoiliac Occlusive Disease is a relatively rare clinical condition characterized by atherothrombotic obliteration of the infrarenal aorta and both common iliac arteries(1,2). We report a rare post covid complication - concomitant evolved Anterior wall myocardial infarction and Leriche's syndrome with acute kidney injury.

Case presentation:

Our patient was a 54-year-old male with a history of hypertension, and dyslipidaemia. He was admitted to a local hospital's ED with giddiness, sweating, bilateral lower limb weakness and discolouration since 3 days. MRI brain with angiography showed gliosis/old infarct in the left PCA territory, old ischemic changes in bilateral cerebral white matter and no significant abnormality in MRA while MRI lumbosacral spine showed asymmetrical ligamentum flavum thickening, indenting the cord and causing mild canal and foraminal narrowing. The ECG was normal, but the following day's ECG showed evolved ST-T changes in anterior leads. His serum troponin I level was 2.904 ng/ml (reference range < 0.04 ng/ml), troponin T level was 151.2 pg/ml (reference range <14 pg/ml). 2 D Echocardiography revealed regional wall motion abnormality of LAD territory (grade 3),ischemic heart disease, severe LV dysfunction (LVEF 30 %). His labs reported, haemoglobin 14.2 gm %, total leucocyte count 23000 /mm3, platelet count 3.08 l/mm3 , total bilirubin 0.7, SGOT 153 u/l, SGPT 71 u/l, total protein 3.09 g/dl, serum albumin 1.78 g/dl, serum globulin 1.31 g/dl, PTINR 3.18, HIV Tridot non-reactive. Serum sodium 135.5 mmol/l, serum potassium 5 mmol/l, BP was non-recordable on admission and inotropic support was initiated. On foley's catheterization, frank haematuria was noted. Urine examination showed plenty of RBCs/ HPF, 2-3 pus cells /HPF, 1-2 epithelial cells /HPF, protein +, sugar trace.

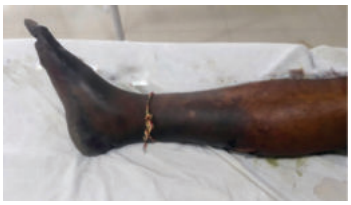

Figure 1. Right lower limb showing blackish discolouration with early gangrenous changes

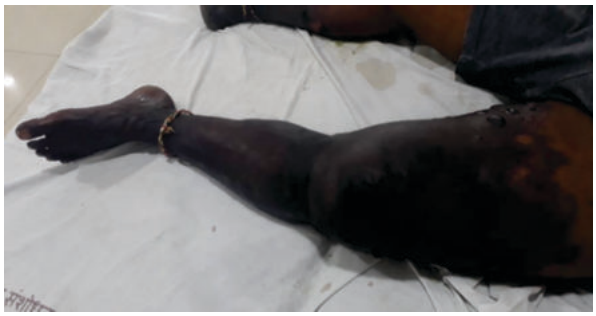

Figure 2. Left lower limb showing gangrene till mid-thigh

The patient was then referred to our institute for further evaluation wherein a history of intermittent claudication with erectile dysfunction was further elicited. He also had a history of fever for a week, cough and cold for 2 months prior to this presentation which was not evaluated earlier, on investigating he had raised COVID IgG levels (95.6) [reference range =<0.80- negative, >0.80 positive] but was not vaccinated so we concluded that he had recovered from COVID infection recently. The vitals showed blood pressure in the upper extremities to be 130/80 mm Hg and was non-recordable in the lower extremities, a regular heart rate of 76 beats per minute and an oxygen saturation of 96% on room air. Physical examination was remarkable for absent pulsations of bilateral dorsalis pedis arteries. The bilateral radial artery pulsations were present. The right femoral artery pulsation was initially present, later on absent , while left femoral artery pulsation was absent. The blood panel showed urea 172 mg/dl, serum creatinine 8.4 mg/dl, PTINR 1.03 with antinuclear antibodies and antineutrophil cytoplasmic antibodies (ANA) and antiphospholipid antibody (APLA) being negative. (Reference range <0.8 negative, >0.8 positive). ABG was suggestive of metabolic acidosis (PH 7.05, PCO2 14.5, PO2 61, HCO3- 5.8). Serum Protein C and Protein S were within normal limits. ECG recorded a Q wave in Lead V1-V4 and T inversion in V1-V6. 2D echo showed regional motion wall abnormality of LAD territory (grade 3) suggestive of ischemic heart disease with severe LV dysfunction (LVEF 30 %). USG (A+P) findings were right kidney- 10.4 x 7.1 cm, left kidney- 10 x 8,2 cm with bilateral slightly raised cortical echogenicity with partial loss of CMD. The arteriovenous doppler of bothlower limbs showed

thrombosis with no colour flow in the right anterior tibial artery, right posterior tibial artery, right deep peroneal artery, left common femoral artery, left superficial femoral artery, left deep femoral artery, left popliteal artery, left anterior tibial artery extending up to common iliac artery, while the superficial, as well as deep venous system, appeared normal. The patient underwent dialysis for acute kidney injury. Once stabilized, the patient was taken up for surgery with moderate risk and underwent hip disarticulation of the left lower limb with above knee amputation of the right lower limb.

DISCUSSIONS AND CONCLUSIONS:

The prothrombotic nature of Covid-19 infection is well established in literature with venous system thrombosis being more common than the arterial system(3). The hypercoagulable state seen, is believed to be multifactorial with the complement mediated endothelial damage playing a major role(4). Gomez-Arbelaez, D et al reported 4 cases of aortic thrombosis with ischemic complications and respiratory symptoms in patients with Covid-19 infection despite receiving antithrombotic prophylaxis on admission. The mean time from the disease onset to the thrombotic complication was 14.7 days(3). Similarly Vulliamy, P et al described two cases of thrombotic sequalea of the descending aorta at about two weeks since Covid-19 affection. In our case the thrombotic event occurred at a much later date since the infection. In terms of disease manifestation, it is clear that while some Covid-19 infected people experience a life-threatening severe acute respiratory syndrome, others experience a mild respiratory illness and some others are completely asymptomatic(5). LaFree, A et al reported one case of aortoiliac thrombosis with Covid-19 infection and no respiratory complaints. Malignancy, oestrogen only HRT, tobacco consumption, and autoimmune diseases such as SLE, and antiphospholipid syndrome have been well recognized as procoagulative factors mediating through different mechanisms(6). Screening for coagulopathy was done and no signs were evident.

Leriche syndrome is a subset of the atherosclerotic occlusisve disease. Apart from the common risk factors like hypertension, diabetes mellitus, hyperlipidaemia and smoking other aetiologies are developmental defect of aorta, radiation exposure, congenital rubella infection, luetic aortitis, Takayasu arteritis, retroperitoneal fibrosis, Ormond's disease and TAO .It is commonly seen in males around the fifth decade of life(7). The classical trio of symptoms seen are intermittent claudication, impotence, and weak or absent femoral pulses.An insidious onset of the occlusion triggers sprouting of collateral circulation via the choke vessles. The aorta can show a suprarenal, infrarenal, inter-renal or diffusely located occlusion. Various associated conditions like ischemic bowl disease, COPD, malignancy and dilated cardiomyopathy have been reported(7,8). The treatment regimen aims at revascularization with aortofemoral bypass, balloon angioplasty or stenting, augmented with antiplatelet and lipid-lowering drugs(8,9). The incidence of AMI accompanied by Leriche syndrome could be attributed to the overlapping nature of their pathophysiology and/or as a complication of post-COVID. Although respiratory symptoms are the typical feature of the disease, an associated coagulation dysfunction is also seen which predisposes patients to an increased risk of both venous and arterial thromboembolism (TE) and potentially higher risk of mortality(10). Our management was titrated to an anticoagulation regimen that included heparin and dual antiplatelet therapy for Leriche syndrome and possible AMI. After dialysis, the patient was optimized for surgery with moderate risk, he underwent left hip disarticulation and right above knee amputation. On occasion of the rare instance of concomitant lower limb arterial thrombosis and AMI, our anticoagulation and dual antiplatelet treatment regimen were based on anecdotal cases reported in literature(11–13). Unfortunately, our patient expired post-operatively due to sepsis secondary to gangrenous changes in the lower limb.

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