



IMPORTANCE OF TIMELY INTERVENTION IN PATIENTS WITH PERIPHERAL ARTERIAL THROMBOEMBOLIC DISEASE

General Surgery

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ABSTRACT

A 38-year old male welder by profession, smoker presented with complaints of pain in right lower limb of four days duration and absent peripheral pulses from femoral artery downwards. Arterial doppler revealed diffuse thrombus causing total occlusion of right common iliac, right common femoral and right superficial femoral artery with no flow. Emergency right femoro-popliteal thromboembolectomy was done after which femoral pulsations returned and patient reported pain relief and the limb was warm.

KEYWORDS

INTRODUCTION:

An embolus is any substance that is transported from one part of the circulation to another. Thromboemboli most commonly arise in the heart, in association with atrial fibrillation or subendocardial myocardial infarction. Alternative sources of emboli arise from a thrombus on atherosclerotic plaques or in aneurysms. Emboli can lodge anywhere downstream in the arterial circulation, most frequently at bifurcations. When a major vessel is occluded by an embolus, acute symptoms will arise in the area supplied by the occluded arteries. Thromboembolism is often associated with underlying systemic morbidity or procoagulant states and can be associated with high mortality. Acute lower limb ischemia is the most common presentation, but upper limb ischemia, mesenteric ischemia, and stroke can also occur.

Management is directed at treating the ischemia, by restoring perfusion through an open or endoluminal approach, using mechanical or thrombolytic means, followed by anticoagulation and possibly definitive treatment of the embolic source(1)

CASE REPORT:

A 38-year-old male non diabetic non hypertensive smoker presented in June 2021 with chief complaint of pain in right lower limb of four days duration which was sudden in onset gradually progressive in nature association with burning sensation of foot, aggravated by leg movements and not relieved by rest and medications. Patient also complained of decreased sensations over dorsum of foot. He had history of trauma 5 days ago.

Physical examination revealed young male, alert and oriented with severe pain in his right lower limb.

Vitals were stable.

Local examination: right lower limb was cold, swelling extending from about 2cm from knee joint onwards, decreased and painful movements of the ankle and foot. Early dusky discoloration of the distal foot and toes suggestive of pre-gangrenous changes. Calf was soft and supple. Absent pulses from femoral artery downwards. Left lower limb showed normal pulsations and decreased movements at the ankle and mid-foot.

INVESTIGATIONS:

Arterial Colour doppler of right lower limb revealed dense wall calcifications and diffuse echogenic thrombus in the common femoral, superficial femoral, popliteal, anterior tibial, posterior tibial and dorsalis pedis arteries. The right common iliac, common femoral and superficial femoral arteries were totally occluded with no flow. Trickle flow was noted in the popliteal, anterior and posterior tibial arteries. Venous colour doppler showed normal study and deep vein thrombosis was ruled out. Liver function tests showed elevated in alanine transaminase and aspartate transaminase. Abnormal deranged lipid profile with elevated triglycerides. He had tested negative for C-reactive protein and Rheumatoid factor. Prothrombin time was 19.4, activated partial thromboplastin time and international normalised ratio were normal. In view of the ongoing COVID pandemic, RTPCR and Rapid antigen test were done which was negative.

PROCEDURE:

Right Femoro Popliteal Thrombo embolectomy. Right femoral artery was exposed via vertical groin incision under local anesthesia and sedation. Proximal and distal control was obtained. Profunda femoris artery was dissected. Systemic heparinization with 10,000 IU Heparin injection was given. Vertical arteriotomy was done. No blood flow was seen. Fogarty catheter number 6 was passed distally up to dorsalis pedis and clot of 25 cm extracted. Good back flow was obtained. Next, Fogarty catheter was passed proximally up to Aortic bifurcation. 15 cm red and white thrombus was extracted (Figure 1). Good forward jet of blood was seen. Fogarty catheter was passed distally once more. Femoral artery was closed with 6-0 prolene in 2 layers. Good pulsations seen proximal and distal to arteriotomy site. Hemostasis obtained wound was closed in layers and dressing was done. The clot was sent for Histo pathological examination (Figure.3)

Pulsations in femoral artery, popliteal artery, dorsalis pedis, anterior tibial artery, posterior tibial artery returned on the table immediately after embolectomy. By the next morning, the limb was warm and subjective pain relief was seen and the patient was mobilized. Post-operative arterial doppler of right lower limb showed biphasic wave forms (Figure 2). He was discharged after 48 hours and was back to work on last follow-up after 15 days.

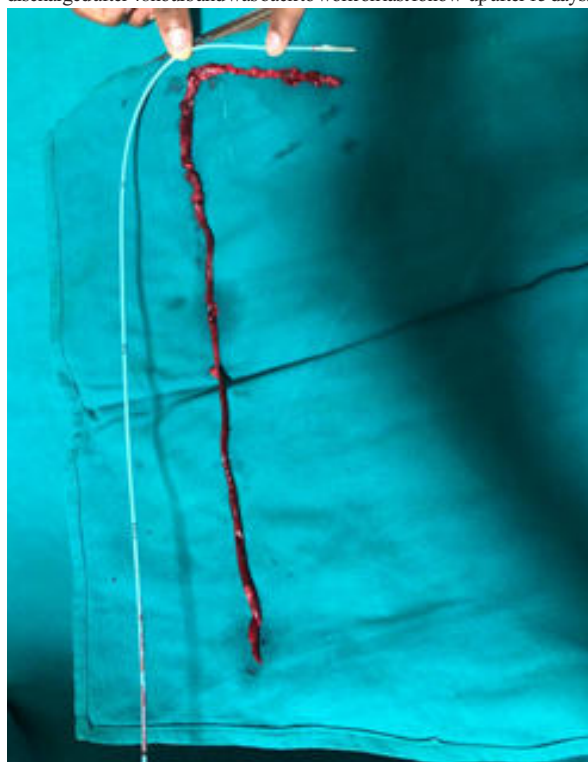


Figure 1 clot of length 40cm

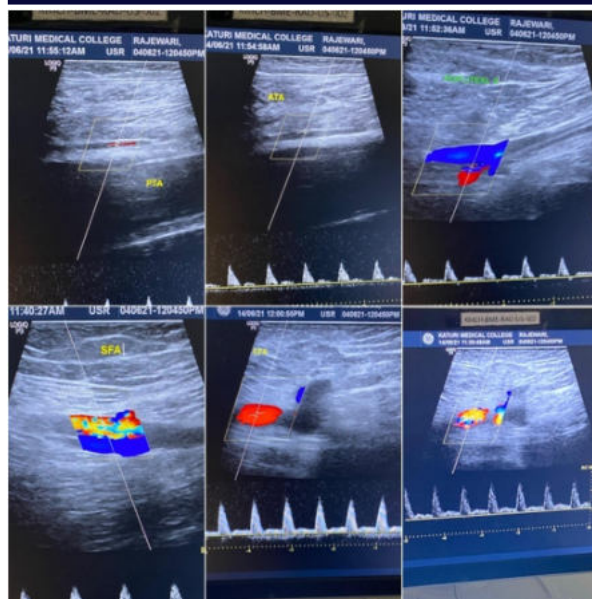


Figure 2. Post operative arterial Doppler of right lower limb showing biphasic wave forms

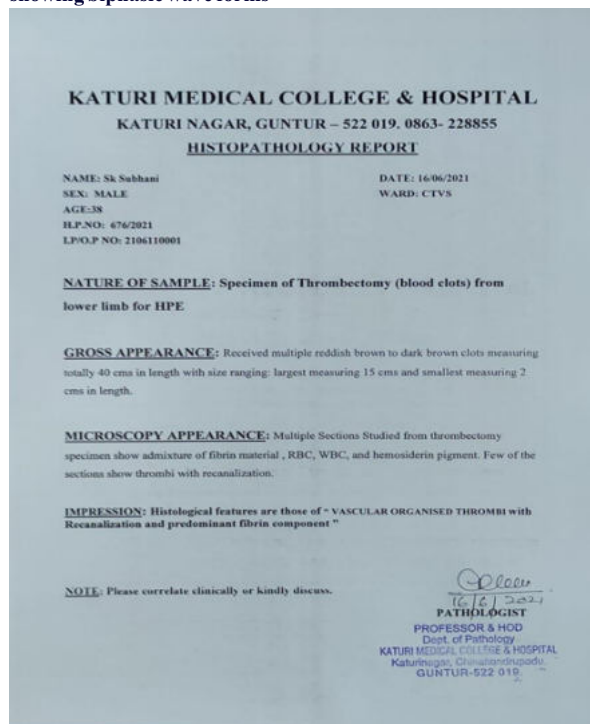


Figure.3 Histopathology report of specimen of Thrombectomy

DISCUSSION:

Acute arterial thrombosis is defined as an acute ischemia in presence of thrombosis (formation of a clot or thrombus inside the blood vessel obstructing the flow of blood). Precipitating factors like stasis, hyperviscosity caused by dehydration like in diarrhoea, blood disorders like polycythemia and trauma have to be ruled out. Usually patient reports with acute onset of symptoms, sometimes patient has prior history of trauma. The limb may be viable, threatened or irreversible damage has occurred.

When the limb shows features like tense calf, fixed plantar flexion, bulging anterior leg compartment or blue staining, irreversible damage has already started. It may also result in compartment syndrome which can be prevented early by fasciotomy. Reperfusion injury may result after restoring perfusion in an ischemic limb. Doppler and duplex scan can be done to localise and identify presence of embolus and thrombus. Arteriography can be done preoperatively to check the site of occlusion, proximal inflow and distal run off.

Treatment includes initial pain relief with morphine, iv fluids to correct dehydration, prophylactic antibiotics, and Heparin, the dose of which can be checked by 12 hourly APTT which should be maintained at 2.5 - 3 times above normal. Type of surgical treatment depends on whether the limb is viable. Embolectomy can be done by using Fogarty catheter, embolectomy and fasciotomy in cases of prolonged ischemia to prevent compartment syndrome. Signs of adequate embolectomy include pulses returning after clot removal, change in color and temperature of limb (2).

CONCLUSION:

Early intervention ideally within 48 hours of onset of ischemia and symptoms would help in preserving the entire limb and preventing renal damage and ultimately loss of life as well. The more late the presentation, the more bulk of clot being removed, results usually in calf getting tense after embolectomy, due to preoperative sluggish flow and stagnation of blood in the soleal venous plexus. Also, patients predisposed to long hours of standing and having tendency for venous stasis pre-operatively would be a candidate for emergency fasciotomy along with arterial embolectomy. Hence, the need for early presentation to the hospital and emergency embolectomy of the concerned vessels to avoid fasciotomy, preserving the limb, preventing renal damage, sepsis, metabolic acidosis and facilitating early return to work.

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