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CATHETER DIRECTED THROMBOLYSIS IN ACUTE LIMB ISCHEMIA (ALI)

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ABSTRACT:

Acute limb ischemia (ALI) is one of the most treatable and dangerous presentations of peripheral arterial disease (PAD). We present a case of 63 years old diabetic male with previous history of CABG 8 years ago, now presented with recent onset left lower limb pain. The limb was ischemic on examination, Doppler ultrasound showed absent arterial flow at the level of left popliteal artery confirmed with the CT angiogram. Invasive angiogram was performed followed by catheter based thrombolysis using streptokinase for 24 hours. A repeat check injection revealed resolution of thrombus and establishment of good flow in the popliteal artery and anterior tibial artery, however the distal posterior tibial artery was still occluded. The flow to the planter arch and digital vessels was well established via anterior tibial artery and its branches. The patient's ischemic symptoms were resolved and had a patent dorsalis pedis artery at two weeks follow up and no signs of limb ischemia at rest and at moderate physical activity.

KEY WORDS: *Acute limb ischemia, peripheral arterial disease, thromboembolism, thrombolysis, thrombectomy, streptokinase, alteplase.*

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INTRODUCTION

Acute limb ischemia (ALI) standard definition is that in which symptoms duration is less than 2 weeks. [1] Catheter directed thrombolysis (CDT) is one of the well established modality of treatment for acute limb ischemia. This kind of intervention will result rapid restoration of arterial blood flow in selected patients. Catheter-directed thrombolysis can results rapid restoration of arterial blood flow to a viable or marginally threatened limb, especially in the setting of acute/sub acute occlusion, synthetic grafts thrombosis, and stent thrombosis. Patient should be monitored for allergic reaction, bleeding complication and compartment syndrome. It can be done with either alteplase, reteplase or streptokinase after ruling out contraindications. In our case we used Streptokinase. [2]

CASE REPORT:

63 year old male normotensive and non-smoker having background history of Ischemic heart disease status post CABG 8 years back with good compliance and regular follow up, Diabetes Mellitus with good compliance and well controlled on Insulin presented to ED with left lower limb rest pain for last 10 days worsening over a period of time. On examination left leg was paler, cold with absent popliteal and below arterial pulses. On relevant physical examination patient has average built and height with pulse 80/min, regular, B.P 130/80 mmHg and Respiratory rate 16/min. Systemic examination was unremarkable. Base line investigations, ECG, CXR and Echocardiography were normal. Doppler ultrasound showed absent arterial flow below femoral artery. CT peripheral angiogram of lower limb done reported, no visualisation of left popliteal artery and its distal course. Patient was subjected to peripheral angiogram through left femoral artery approach by using 6F sheath through Seldinger Technique. A JR4.0 4F catheter was placed in distal femoral artery which was removed after 24 hrs when ACT was in safe range.

Total occlusion of popliteal artery as shown in Fig 1. Intraluminal thrombus in popliteal artery after placing wire distally as shown in Fig 2. Check injection after IV Streptokinase for 24 hours showed resolution of intraluminal thrombus in popliteal artery with visualization of distal arteries and still clot in posterior tibial artery as shown in Fig 3.

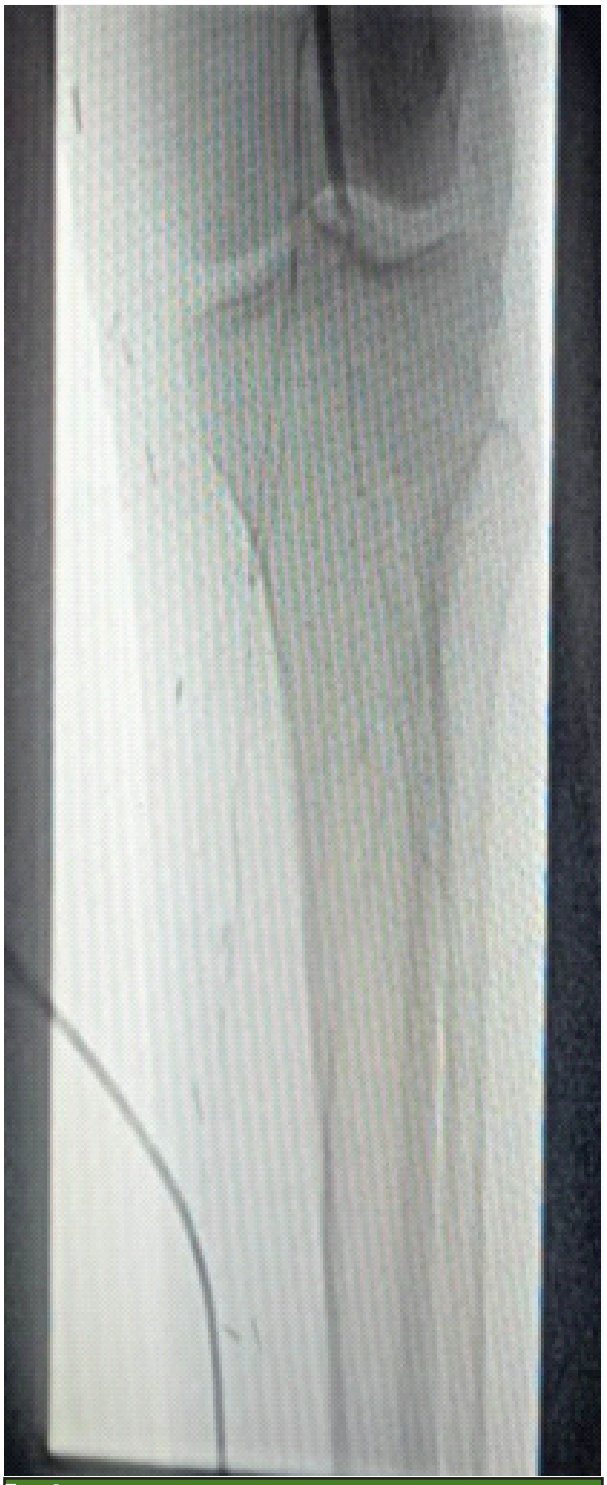

Fig-1:

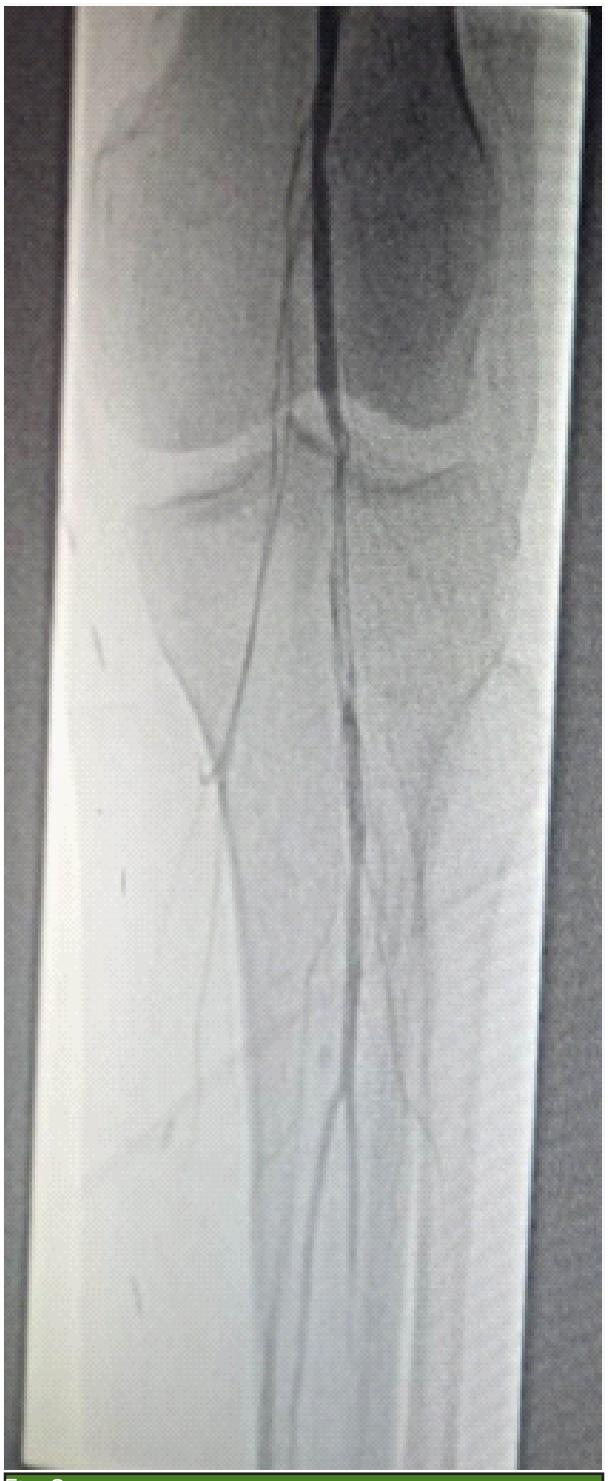

Fig-2:

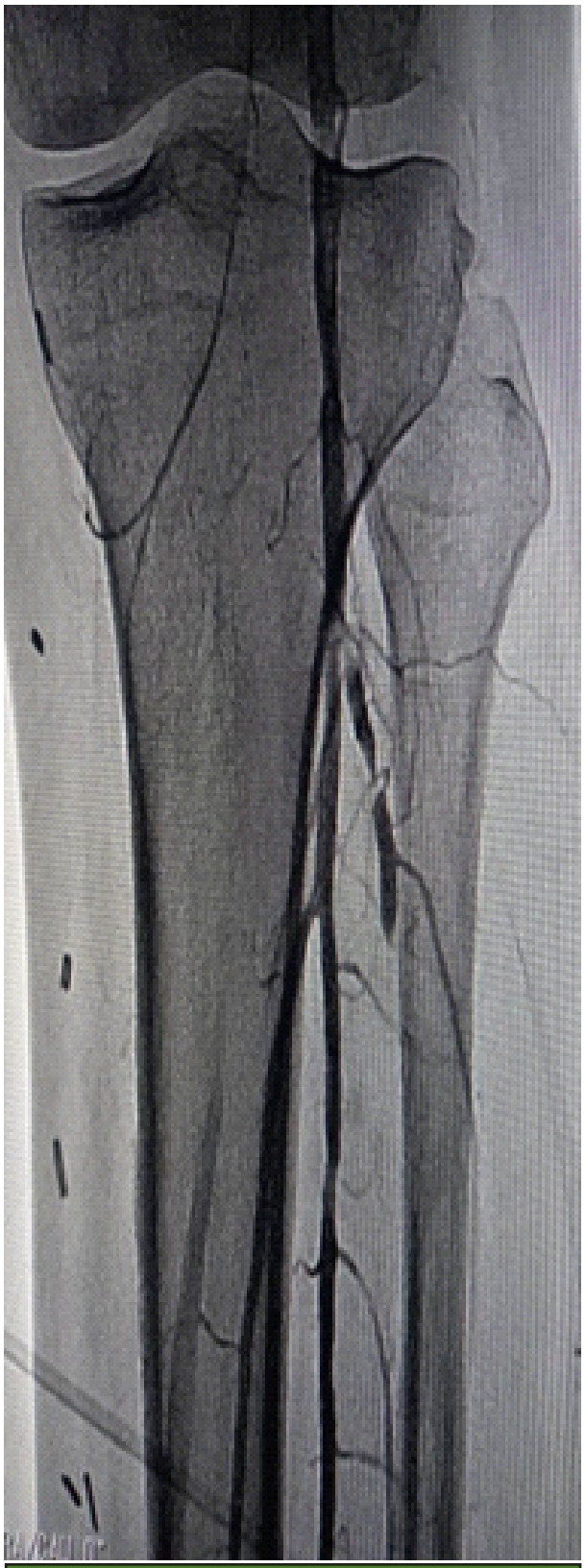

Fig-3:

Which showed total occlusion of popliteal artery (Fig 1). Glide wire crossed lesion and was placed distally, view taken which showed intraluminal thrombus in popliteal artery with distal sluggish flow (Fig 2). Vascular surgeon was involved after the peripheral angiogram of the patient, the consensus was to treat patient with catheter directed thrombolysis. So the patient was treated with catheter based streptokinase thrombolysis for 24 hours followed by check injection. So patient was shifted to ER ICU where monitor was attached. After taking written and informed consent and ruling out contra indications streptokinase was given for 24 hours (one 100,000 unit/hour). Before the treatment, PT was 16 seconds, aPTT was 34 seconds and INR was 1.0. Patient vitals were monitored, periodic assessment for peripheral arterial pulses, puncture site complications and bleeding complications. Check injection after dose completion was done which showed almost complete resolution of popliteal thrombus with distal good flow. Still there was thrombus in posterior tibial artery (Fig 3). Post treatment, PT was 21 seconds, aPTT was 41 seconds and INR was 1.3. Clinically patient was symptoms free with bounding distal arterial pulses and entire course of treatment was complication free. Patient was discharged on Rivaroxaban 15mg once a day and follow up in OPD after two weeks.

DISCUSSION:

CDT for peripheral arterial occlusions is an important and effective treatment technique performed and reported since the 1980s. The most important beauty of this therapy over surgical revascularisation of peripheral arterial occlusions include a lower morbidity, early discharge from hospital, with negligible patient discomfort. Angiographic success rate of CDT is 75%, with a mean treatment duration of about 21 hours only. Main complications are bleeding related, occurring in 18% of patients. 8.9% of all patients are complicated by major bleeding, resulting to an in hospital mortality of about 4.8%.[3] The main treatment outcomes are angiographic success in terms of patency, freedom from amputation, bleeding and mortality. Combined definitions of positive thrombolytic outcome, which includes improvement of clinical sign and symptoms, angiographic outcome, and 30 day patency, angiographic success with or without adjunctive percutaneous treatment and TIMI Score.[4]

Along with CDT adjunctive treatment i.e mechanical thrombus aspiration and ultrasound guided

thrombolysis have theoretical advantage to short overall treatment duration and/or fibrinolytic dosage and hence decreased bleeding related adverse outcomes.[5] However such experiences are limited to a small number of studies using various fibrinolytics with different dosage regimens, and mode of administration with variable outcome.[6]

CONCLUSION:

CDT is one of the most important and fruitful treatment technique for acute peripheral arterial occlusion with an angiographic success in terms of patency rate is 75% and rate of freedom from amputation is above 90%. The most important and danger complication is bleeding, which occurs in 18% of patients who opt CDT.

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