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A Case of Proximal Deep Vein Thrombosis Following Lower Limb Angioplasty

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Abstract Peripheral arterial disease can be treated with angioplasty. Complications of percutaneous angioplasty include arterial occlusion, thromboembolism and arterial rupture. I report a case of lower limb proximal deep vein thrombosis (DVT) that developed 1 day after a peripheral arterial angioplasty via common femoral artery approach. My literature search failed to identify any previously reported cases. The incidence of DVT following coronary intervention via femoral artery catheterization was reported to be 0.05% but the incidence of DVT following peripheral angioplasty remains unknown. This case showed that DVT can happen after peripheral angioplasty and further studies should be conducted to document its incidence. This also raised the point if routine short course of anticoagulation is required after angioplasty of lower limb to prevent DVT.

Keywords: *deep vein thrombosis, angioplasty*

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1. Introduction

The incidence of deep vein thrombosis following lower limb angioplasty is unknown. My literature search failed to identify any previously reported cases. I report a case of lower limb proximal deep vein thrombosis that developed 1 day after a peripheral arterial angioplasty via common femoral artery approach.

2. Case Report

Mr. M is a 67-year-old Malay gentleman with significant past medical history of diabetes mellitus, dyslipidaemia, ischaemic heart disease with depressed ejection fraction and peripheral arterial disease. He had undergone percutaneous coronary intervention in 2014 and angioplasty of right lower limb in 2011.

He presented to us with 1-week history of left lower limb swelling that started 1 day after he underwent an angioplasty of his left lower limb. The angioplasty puncture point was the left common femoral artery.

The angiogram showed: 30% stenosis of superficial femoral artery, 80% stenosis of popliteal artery, 90% stenosis of anterior tibial artery, 60%-70% stenosis of tibio-peroneal trunk, 70% stenosis of peroneal artery, total occlusion of posterior tibial artery, dorsalis pedis artery and plantar arteries.

Angioplasty of superficial femoral artery, popliteal artery, tibio-peroneal trunk, peroneal artery and anterior peroneal artery was performed with satisfactory result. Angioplasty of posterior tibial artery was unsuccessful. Intra-arterial heparin of 2500 IU was given during angioplasty. No stent was deployed. Patient was advised to take clopidogrel and aspirin for 6 months after angioplasty followed by lifelong aspirin.

A venous Doppler ultrasound of his left lower limb showed thrombosis of left external iliac vein, common femoral vein and superficial femoral vein. The popliteal vein had normal flow.

Enoxaparin and warfarin were given to treat his deep vein thrombosis. The dual antiplatelet therapy was stopped. Enoxaparin was stopped after his INR (international normalised ratio) achieved therapeutic range of 2-3. He was discharged well with follow up appointment with our anticoagulation clinic and thrombosis physician.

3. Discussion

Peripheral artery disease (PAD) can be treated with revascularization via surgical bypass or endovascular therapy [1]. The optimal post-procedural care after endovascular therapy however is not well established [1]. The pharmacological therapy such as anti-platelet, lipid lowering drug and anti-hypertensive after endovascular treatment is important as stroke and ischemic heart disease are common in patients with PAD [1].

Having extrapolated from the anti-platelet therapy trials in percutaneous coronary intervention with the use of stent, it is believed that antiplatelet can maintain stent patency in peripheral arterial angioplasty [1]. There are no modern randomised trials studying the optimal anti-platelet therapy after peripheral percutaneous transluminal angioplasty (PTA) but long term aspirin therapy seems adequate after peripheral PTA [1]. If a stent is inserted during angioplasty of the upper or lower limbs, the

common practice is lifelong aspirin therapy with at least 4 weeks of an additional thienopyridine anti-platelet therapy [1]. The American College of Chest Physicians (ACCP) 2012 guideline on antithrombotic therapy for PAD however recommends long term aspirin or clopidogrel therapy for patients undergoing PTA with or without stenting [2]. The ACCP 2012 guideline recommends single rather than dual anti-platelet therapy for patients undergoing PTA with stenting [2]. The guideline however mentioned that "Patients who place a high value on an uncertain reduction in the risk of limb loss and a relatively low value on avoiding a definite increased risk of bleeding are more likely to choose to use dual antiplatelet therapy." [2]

Our patient was prescribed by the primary vascular surgeon 6 months of dual anti-platelet therapy (aspirin and clopidogrel) followed by indefinite aspirin therapy after the peripheral PTA. Mr. M claimed that he has been ambulating independently and has been compliant with the dual antiplatelet treatment after the angioplasty. Intra-arterial heparin was given during the angioplasty. It has been reported that peripheral arterial disease increases the risk of DVT [3]. Other contributing factors of venous thromboembolism following femoral artery catheterization include prolonged bed rest, immobility of a catheterized limb, groin compression and haematoma compressing the femoral vein [4]. These raised the question if short term prophylactic anticoagulation rather than antiplatelet or dual antiplatelet following angioplasty for peripheral arterial disease should be a routine practice.

The incidence of DVT following coronary intervention via femoral artery catheterization was reported to be 0.05% [4]. The true incidence may be higher as most events may not be clinically evident [4]. The incidence of DVT post angioplasty of lower limb is however unclear and my literature search failed to identify any previously reported cases. Our patient developed left lower limb swelling 1 day after the angioplasty but he only sought medical attention 1 week after the onset of symptom. This has led to delayed diagnosis of his proximal DVT.

One study showed that acute arterial lumen occlusion due to thrombosis (2%) was the most important complication of angioplasty [5]. Sub-intimal passage of the guide wire/catheter (2%) may also cause luminal compromise [5]. Other less important complications include arterial dissection following balloon dilatation (1%), distal emboli (1.5%) and rarely vessel wall rupture (0.4%) [5]. DVT was not reported to be one of the complications of PTA.

In conclusion, DVT can happen following lower limb PTA. Further studies are required to study its true incidence and to determine if prophylactic anticoagulation for a short period of time is required following lower limb angioplasty.

Acknowledgements

Nil.

Conflict of Interest

Nil.

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