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Case Report

Acute Arterial Thrombosis in Anticoagulated Patient for Acute Pulmonary Thromboembolism

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ABSTRACT

Acute limb ischemia is a rare condition in patients with venous thromboembolism (VTE), who already receive anticoagulation treatment. Inflammation is a risk factor for thrombus formation. Patients with active ulcerative colitis, especially at time of exacerbation, are more prone to thromboembolism, both venous and arterial. Risk for thrombosis is 18% higher risk, with also higher risk of bleeding. Up to date, there is no contraindication to any anticoagulant drug in patients with ulcerative colitis. We represent a case of a 73 year - old woman with ulcerative colitis (UC) exacerbation, hospitalized initially for pulmonary thromboembolism, that developed acute arterial thrombosis when switched on novel oral anticoagulant (NOAC).

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INTRODUCTION

Ulcerative colitis (UC) is a highly inflammatory disease with various intestinal and extraintestinal manifestations. The elevated risk of thromboembolism in patients with UC, especially in acute exacerbation, is well documented. Acute arterial thrombosis is a rare condition in patients already on anticoagulation therapy due to venous thromboembolism (VTE).[1] We presented a rare case of acute limb ischemia in a patient treated with rivaroxaban for pulmonary thromboembolism occurring during acute exacerbation of UC. .

CASE REPORT

A 73-year-old woman was transferred from the clinic of gastroenterohepatology. She was initially hospitalised for moderate UC exacerbation because of computer tomography pulmonary angiography (CTPA) finding of segmental pulmonary thromboembolism (PTE) with thrombus on the branching of the left pulmonary artery. Her previous medical history revealed hypertension, except for UC, diagnosed 40 years ago. Before hospitalisation, the patient was treated with mesalazine for UC. Additionally, she received carvedilol, spironolactone, pantoprazole, perindopril and furosemide. During her stay in the gastroenterohepatology clinic, she received additional metronidazole, methotrexate and corticosteroid treatments. On admission, the patient was hemodynamically stable with a blood pressure of 140/80 mmHg, ECG showing sinus rhythm with 90 bpm and an S1Q3T3 pattern. Her oxygen saturation was 88% on ambient air. The initial laboratory showed mild microcytic anaemia with haemoglobin levels 10 g/L, elevated troponin levels (984 ng/L) and D-dimers (1,548 mmol/L), as well as high inflammatory markers (C-reactive protein [CRP] 95 mg/L). Liver and kidney laboratory parameters and other values were in their referential range. Bedside echocardiography showed dilated right ventricle (50 mm), pulmonary artery hypertension with systolic pulmonary artery pressure (sPAP) 60 mmHg, moderate tricuspid regurgitation and collapsible vena cava inferior with a diameter of 21 mm. The right ventricle was with preserved function (TAPSE 18, S' 9). There were no structural or functional abnormalities of the left ventricle. Venous Doppler ultrasound of the lower extremities also did not show any abnormalities. Treatment was started with low molecular weight heparin (LMWH) with a dose of 1 mg/kg/12 h. Additionally, she received parenteral antibiotics, beta-blockers (BB), angiotensin-converting enzyme inhibitors (ACEi), thiazide diuretics and proton pump inhibitors (PPI). On the seventh day of her hospitalisation, she was switched from LMWH to apixaban 5

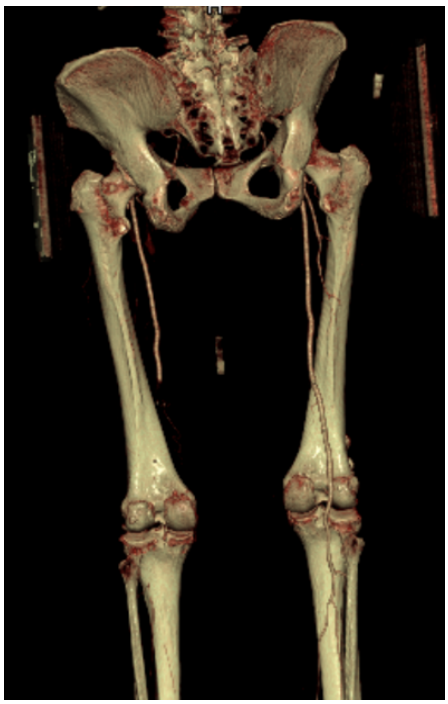

Figure 1. Anteroposterior view of peripheral angiography demonstrating thrombus occluding the distal part of the superficial femoral artery.

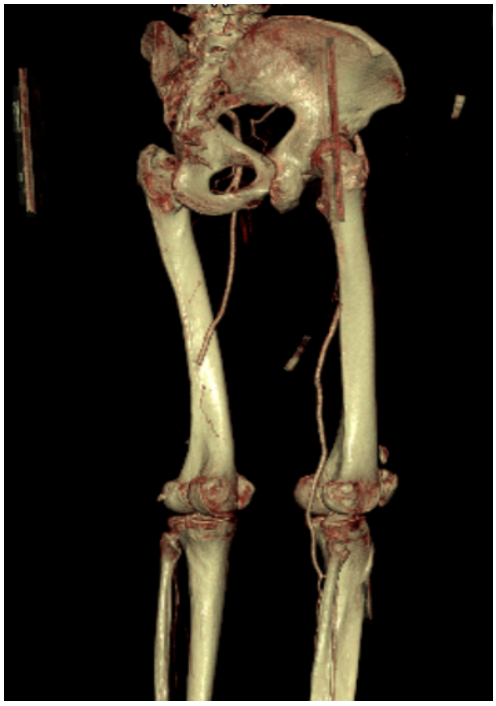

Figure 2. Lateral view of peripheral angiography demonstrating occlusion of the distal part of the superficial femoral artery.

mg twice daily.[2]

Two days later, she complained of pain and paresthesia on the left foot. The examination showed a pale, cold left foot with no pulsation on the dorsal pedal artery. Doppler ultrasound was made with absent signals on the superficial femoral artery, popliteal and posterior tibial artery. Computed tomography angiography of the lower extremities showed an acute thrombus with a length of 22 cm occluding the distal part of the left femoral artery continuing up to the exit site of the anterior and posterior tibial artery.[3] (Figure 1 and 2).

The patient was again switched on LMWH 1 mg/kg/12 h. Dual antiplatelet therapy and a high dose of statins were immediately started. No abnormality was observed in thrombophilia examinations. After consulting a vascular surgeon, an indication for emergency surgery was made. The patient was transferred to the University Clinic of Cardiac Surgery, where a thrombectomy was made immediately after admission. The Doppler ultrasound postoperatively showed normal signals on the dorsal pedal artery. There was no loss in motorial and sensory function of the foot, but there was necrosis starting from the toe and tip of the second and third finger due to reperfusion ischemia. After a few days, the demarcation line developed in the necrotic tissue and reached the first three fingers. She was transferred to a plastic surgeon for finger amputation. The patient was then discharged home. On her ambulatory control after one month, the patient was in good condition, and the wound was healing well. Unfortunately, she was suffering from depression that developed due to her amputation.

DISCUSSION

Patients with active UC, especially during an exacerbation, are more prone to venous and arterial thromboembolism, with an 18% higher risk for VTE. The arteries and veins in the upper and lower limbs, digits, cerebral and retinal vasculature, pulmonary, portal, hepatic, retinal, mesenteric and cardiac systems have all been reported to be involved with thromboembolic events.[3,4]

On the other hand, the risk of bleeding in this patient population is also higher, which should be considered when choosing a suitable anticoagulant. The current practice in treating VTE for patients with inflammatory bowel disease (IBD) is similar to patients with non-IBD.[2,5] Anticoagulation with unfractionated heparin or low-molecular-weight heparin is recommended in the acute setting, with the eventual transition to oral anticoagulation. For novel anticoagulants (NOACs), new evidence from studies suggests that they have comparable efficacy to that of vitamin K antagonists (VKAs) with a more favourable safety profile.[6]

Although NOACs are not officially approved for treating arterial thrombosis, ongoing studies show promising results. Rivaroxaban is the only NOAC approved for secondary prevention of arterial thrombosis, together with aspirin.[7] Nevertheless, developing arterial thrombosis while on NOACs is a rare condition. Compared to VKAs such as warfarin, NOACs have more predictable pharmacokinetics and do not need to be routinely monitored in the laboratory for their plasma level. However, due to the variation in the plasma drug level between the individuals, some patients may be at increased risk of treatment failure or bleeding events.

CONCLUSIONS

Acute arterial limb thrombosis in patients already on NOAC because of VTE is rare but possible in extraordinary conditions like UC. To date, the concentration of anti-Factor Xa is the only way to evaluate the treatment's efficacy indirectly.[8] It should be routinely taken in patients undergoing therapy with NOACs. There are still no guidelines that can stratify patients with UC as low or high risk for thromboembolism. More research is needed on the efficacy of anticoagulation drugs in this specific patient group.[5]

Conflicts of Interest

All authors declare that there is no conflict of interest in this study.

Authors' Contribution

Study Conception: AC, LP,EG,; Study Design: LP,AC,; Supervision: LP, OB, ZZ,; Literature Review: ZZ, EG,; Critical Review: LP, OB,; Data Collection and/or Processing: AC, EK,; Statistical Analysis and/or Data Interpretation: AC, ZZ,; Manuscript preparing: AC, EK.

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