Case Report

Novel oral anticoagulant induced upper limb haematoma: A case report

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ABSTRACT

The development of novel oral anticoagulant agents (NOACs) such as dabigatran, rivaroxaban, apixaban and edoxaban has given patients better treatment alternatives to aspirin, clopidogrel, heparin and warfarin, mainly for stroke prophylaxis in patients with non-valvular atrial fibrillation (NVAF), prophylaxis/treatment of venous thromboembolism (VTE) and also for the secondary prophylaxis of acute coronary syndromes. These agents are gaining in popularity due to their more stable pharmacokinetic profile, fewer drug interactions, as well as eliminating the need for routine monitoring.

NOAC induced haematomas of the upper limb are rare and there is no real consensus on management. We present a case of a 70-year-old male on rivaroxaban who developed a delayed onset intramuscular forearm haematoma after a simple fall onto his left arm. Simple elevation of the limb was successful in leading to resolution of symptoms. As these agents increase in popularity, clinicians need to be more aware of potential risks of treatment and subsequent management.

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Introduction

The development of novel oral anticoagulant agents (NOACs) such as dabigatran, rivaroxaban, apixaban and edoxaban has given patients better treatment alternatives to aspirin, clopidogrel, heparin and warfarin, mainly for stroke prophylaxis in patients with non-valvular atrial fibrillation (NVAF), prophylaxis/treatment of venous thromboembolism (VTE) and also for the secondary prophylaxis of acute coronary syndromes. These agents have a more stable pharmacokinetic profile, have fewer drug interactions, and can be administered in a standard dose without the need for routine monitoring, however, the risk of bleeding and haematoma formation remain.1

We present a case of a 70-year-old male on rivaroxaban who developed a delayed onset intramuscular forearm haematoma after a fall onto his left arm. This case is of interest due to the unusual location of the haematoma and associated symptoms of ulnar nerve compression which are most likely due to previous ulnar nerve transposition. To our knowledge, this is the first report of a NOAC induced upper limb haematoma.

Case presentation

A 70-year old-male on anticoagulant therapy presented with pain and numbness in the ulnar nerve distribution of his left arm six days after a simple fall. The pain initially affected his wrist but gradually extended up to his elbow along with marked bruising. He also noticed progressive paraesthesia in the ulnar nerve distribution affecting his ring and little fingers. His motor function was not affected. His past medical history included, bilateral ulnar nerve decompression and transposition, bilateral carpal tunnel decompression, chronic back pain and atrial fibrillation managed with Xarelto (rivaroxaban). An MRI confirmed a 20×20×34 mm focal haematoma within the flexor digitorum superficialis muscle at the junction of the middle and distal thirds of the forearm (Figures 1 and 2). There was no evidence of ulnar nerve compression. No fracture was seen on x-ray. His coagulation profile revealed an

Figure 1. Forearm MRI in the axial plane, showing a focal haematoma (a) in the flexor digitorum superficialis muscle (b).
elevated APTT (39 s) and PT (15.4 s). His rivaroxaban was ceased and his arm was elevated. The bruising improved after elevation and he was discharged after five days with a tubigrip. He was restarted on rivaroxaban after two weeks and his symptoms of paraesthesia resolved six weeks following discharge.

Discussion

Haemorrhage and haematoma formation are significant complications of anticoagulant use and it is essential to weigh up the risk of bleeding in any patient being considered for anticoagulant therapy. A recent meta-analysis showed that NOACs had better efficacy compared to warfarin in terms of stroke and haemorrhage risk reduction, but had a similar overall bleeding risk and higher risk of gastrointestinal tract bleeding due to direct caustic damage and inhibition of gut mucosal healing. Bleeding can be traumatic, spontaneous or iatrogenic. In a cohort study of 1082 patients on rivaroxaban therapy, traumatic bleeding was uncommon with 170 patients suffering from trauma related bleeding with the remaining bleeds being spontaneous or following surgery.

Minor trauma can lead to muscle haematomas with anticoagulant use although upper limb haematomas are rare. Lower limb haematomas are far more commonly reported in anticoagulated patients. A study on injury patterns in the geriatric population found the most common locations
were the head and lower extremity with upper extremity injuries making up less than 1%. This explains the prevalence of lower limb haematomas as the majority of anticoagulated patients are elderly and falls are a common mechanism of injury in this age group.

NOAC induced intramuscular haematomas are rare and to our knowledge, this is the first reported case of an isolated flexor digitorum superficialis haematoma. Our case is also unusual as there were symptoms of ulnar nerve paraesthesia without corresponding radiological evidence. It was therefore hypothesised that following transposition, the ulnar nerve would be running in a more superficial course and thus more susceptible to minimal extrinsic compression.

Our patients’ symptoms also resolved on elevation of the limb without the need for surgical intervention. Little evidence exists around the management of NOAC induced traumatic haematoma however consensus shows that even in the absence of specific antidotes, NOAC related bleeds can usually be managed non-operatively with cessation of the anticoagulant, fluids and packed red cells. We utilised non-operative measures in this case as there was no evidence of continuing haemorrhage, worsening nerve compression symptoms or compartment syndrome requiring urgent surgical intervention. Simple elevation of the limb was successful leading to spontaneous resolution of symptoms.

Conclusion

Our case highlights the importance of remaining aware of the complications of NOAC therapy. With an increasing number of patients being placed on NOAC therapy, more information is needed on the safety of long term therapy. Even though rare, minor trauma can result in significant bleeding and haematoma formation necessitating the need for urgent surgical intervention.

Conflicts of interest

None.

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Ethics approval

Not applicable.

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