

Warfarin-induced skin necrosis: a rare but catastrophic complication of warfarin

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Abstract

Introduction

Warfarin-induced skin necrosis is a rare but catastrophic complication of warfarin therapy, ranging in prevalence from 0.01% to 0.1%. This case report discusses a case of warfarin-induced skin necrosis.

Case report

We report the case of an obese, 55-year-old woman who presented with extensive skin necrosis of the left lower limb on the fifth day of warfarin therapy and responded well with early diagnosis and treatment.

Discussion

Warfarin-induced skin necrosis is the result of a relatively hypercoagulable state produced by warfarin. Warfarin-induced skin necrosis typically occurs in obese, perimenopausal women of around 50 years of age with high loading doses of warfarin. Warfarin-induced skin necrosis typically involves skin and subcutaneous tissue overlying areas with significant adipose tissue, such as the breast, abdomen, thigh or buttocks. It presents within three to six days after beginning therapy.

Conclusion

Prevention and management of warfarin-induced skin necrosis in a timely manner should be emphasised to prevent permanent tissue damage. A more gradual approach using low initial dose and gradual increase in daily doses is believed to reduce the risk of warfarin-induced skin necrosis.

Introduction

Warfarin is a very commonly used anticoagulant in medical practice. Warfarin-induced skin necrosis (WISN) is a rare but catastrophic complication of warfarin therapy, ranging in prevalence from 0.01% to 0.1%^{1,2}. Here, we report the case of a 55-year-old woman with WISN.

Case report

A 55-year-old woman was admitted to the hospital due to pain and swelling of her right leg. Her right lower limb was cold and right leg circumference was 8 cm more than the left one. Her vital parameters were in the normal range. Cardiovascular, respiratory and abdominal examination was normal. The patient had had a right hip fracture 35 days prior to presentation and was under conservative therapy at the time of presentation at our hospital. Colour Doppler ultrasound of the lower limb vessels revealed thrombosis in the right popliteal, superficial, deep and common femoral veins. Parenteral heparin and oral warfarin were started and

coagulation tests were performed daily. Warfarin was initiated at a dose of 15 mg on the first day, 10 mg on the second day and 5 mg on the third day. On the third day, the international normalised ratio (INR) was in the normal range and parenteral heparin was discontinued. On the fifth day of warfarin therapy, the patient developed diffused, extremely painful, erythematous skin eruptions in the left lower limb. On the sixth day, the skin began to peel off and the condition progressed to an extensive lesion with severe skin necrosis of the left lower limb (Figure 1). Warfarin was discontinued and intravenous heparin was started. Vitamin K and fresh frozen plasma were also administered. Tests for factor V Leiden, lupus anticoagulant, anticardiolipin and antiphospholipid antibodies were negative. Surgical debridement of the necrotic area was performed and skin grafting was performed later. Finally, the patient was discharged after two months with a good general condition, on therapy with enoxaprin.



Figure 1: Warfarin-induced extensive skin necrosis.

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Discussion

WISN is the result of a relatively hyper-coagulable state produced by warfarin³. Warfarin acts by inhibiting the production of vitamin K-dependent clotting factors, which include factors II, VII, IX and X³. However, it also inhibits synthesis of anticoagulant proteins C and S, which have a shorter half-life (5 h) compared to clotting factors. Therefore, proteins C and S are depleted first, initially resulting in a relatively hyper-coagulable state^{3,4}.

WISN typically occurs in obese, perimenopausal women of around 50 years of age with high loading doses of warfarin^{1,2}. WISN is seen more commonly with lupus anticoagulant, hypersensitivity to heparin, protein C or S deficiency, or antithrombin or factor VII deficiency^{1,2}. WISN typically involves skin and subcutaneous tissue overlying areas with significant adipose tissue, such as the breast, abdomen, thigh or buttocks^{1,4}. It presents within three to six days after beginning therapy⁴. Our patient was an obese, 55-year-old woman, who presented with extensive skin necrosis of the left lower limb on

the fifth day of warfarin therapy and responded well with early diagnosis and treatment.

A more gradual approach using a low initial dose (1–2 mg/d) and daily increases of 1–2 mg/d until the desired INR is achieved in around 10–12 days, is believed to reduce the risk by maintaining protein C levels stable during the critical period⁵. Intravenous heparin can be used during this period until the desired INR is reached.

Conclusion

A more gradual approach in initiation of warfarin therapy is helpful in preventing WISN. In view of the widespread use of anticoagulant therapy, the importance of prevention and management of WISN in a timely manner should be emphasised to prevent permanent tissue damage.

Abbreviations list

INR, international normalised ratio;
WISN, warfarin-induced skin necrosis.

Consent

Written informed consent was obtained from the patient for publication of this case report and

accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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