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.

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Figure 1: Warfarin-induced extensive skin necrosis.
**Discussion**

WISN is the result of a relatively hyper-coagulable state produced by warfarin. Warfarin acts by inhibiting the production of vitamin K-dependent clotting factors, which include factors II, VII, IX and X. 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.

WISN typically occurs in obese, perimenopausal women of around 50 years of age with high loading doses of warfarin. WISN is seen more commonly with lupus anticoagulant, hypersensitivity to heparin, protein C or S deficiency, or antithrombin or factor VII deficiency. WISN 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. 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 period. 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.

**References**