

- **Dalteparin Induced Delayed Hypersensitivity Reaction in the Orthopedic Trauma Patient: A Case Report**

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**ABSTRACT:**

**Background:** Heparins are widely used for the prophylaxis and treatment of venous thromboembolism. Several types of immunologically mediated reactions to anticoagulants are reported, among them delayed-type hypersensitivity reactions. Hypersensitivity reactions from these agents are rare. However, due to their widespread use, they may have a considerable impact on patient safety and treatment. Accurate diagnosis of potentially life threatening adverse events and identification of alternatives is mandatory. Our purpose was to investigate the data and describe a single case report regarding the development of a delayed-type hypersensitivity reaction in a patient receiving dalteparin DVT chemoprophylaxis as a result of traumatic injury.

**Methods:** A 40 year-old male involved in severe all-terrain vehicle collision received damage control orthopedics to address a grade III open tibial plateau fracture. The patient was initially placed in a spanning external fixator for provisional stabilization. Postoperatively the patient was given dalteparin for deep venous thrombosis prophylaxis. Upon readmission ten days later for staged definitive management of his injury the patient was noted to have a diffuse bullous rash. The patient was then transitioned to enoxaparin, however the rash persisted. After close inspection and further evaluation this rash was deemed to be secondary to the dalteparin administration and all anticoagulation was held with complete resolution of the bullous rash. Seven days later there with complete resolution of any remaining rash and the patient underwent definitive plate and screw fixation to address the tibial plateau injury.

**Results:** Complete resolution of a low molecular weight heparin induced delayed type hypersensitivity allergic reaction with the transition to warfarin for continued anticoagulation. A solid fixation was achieved with no evidence of long standing dermatologic sequelae.

**Conclusions:** There is currently limited data reporting on the incidence of dermatologic reaction secondary to the use of dalteparin in the orthopedic patient. In this case, the treatment course reveals the development of a diffuse bullous rash in the orthopedic trauma patient. This case report suggests the orthopedic surgeons must remain aware of potential dermatologic reactions associated with low molecular weight heparins such as dalteparin to guide proper chemoprophylactic therapy.

**Level of Evidence:** Therapeutic IV, case report

**Keywords:** dalteparin, low molecular weight heparin, trauma, orthopedic, bullous rash, delayed type hypersensitivity reaction

