

Acquired Bleeding Disorders



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KEYWORDS

- Bleeding • Thrombocytopenia • Coagulopathy • Anticoagulant • Hemorrhage
- Hemostasis • Transfusion • Emergency

KEY POINTS

- Emergency medicine practitioners treat bleeding patients on a regular basis.
- Disorders of hemostasis are an additional challenge in these patients but can be assessed and managed in a systematic fashion.
- Of particular importance to the emergency clinician are the iatrogenic causes of abnormal hemostasis.
- Acquired causes of abnormal hemostasis include renal disease, immune thrombocytopenia, thrombotic thrombocytopenic purpura, hemolytic uremic syndrome, acquired coagulation factor inhibitors, acute traumatic coagulopathy, liver disease, and disseminated intravascular coagulopathy.

PATHOPHYSIOLOGY OF HEMOSTASIS

The hemostatic process comprises 3 main steps: injury to a blood vessel exposing prothrombotic materials, formation of a platelet plug, and activation of the clotting cascade to generate fibrin clot.¹ The clotting cascade itself consists of 3 components: the intrinsic, extrinsic, and common pathways. **Fig. 1** summarizes the clotting cascade with relevant medication action points noted.

Multiple mechanisms oppose clot formation. Blood flow removes and dilutes activated clotting factors and mechanically opposes the growth of the hemostatic plug. Endothelial cells produce nitric oxide and prostacyclin that trigger pathways to inhibit platelet activation and aggregation. Proteins C and S, antithrombin, and plasmin all degrade or inactivate components of the clotting cascade.

CLINICAL ASSESSMENT

Stabilization

The initial approach includes stabilization with adequate intravenous (IV) access, airway management, volume resuscitation, and control of active bleeding sites. The

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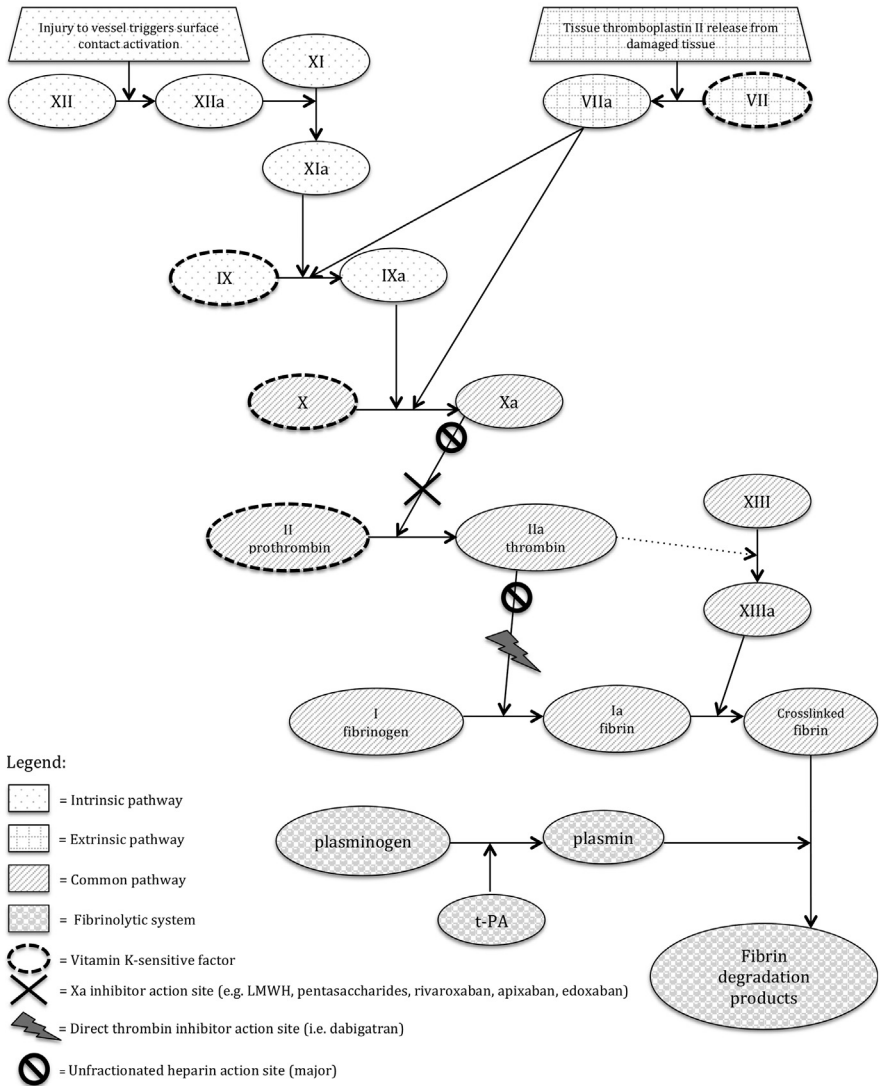


Fig. 1. Clotting cascade summary. LMWH, low-molecular-weight heparin; t-PA, tissue plasminogen activator.

clinician may then obtain a complete history and physical examination and order appropriate diagnostic studies.

History and Physical

The history of present illness provides important clues to the cause of a bleeding episode. Useful pieces of information include

- *Type* of bleeding (eg, petechial, purpuric, ecchymotic, or significant hemorrhage)
- *Site* of bleeding (eg, skin, mucosa, muscle, gastrointestinal, genitourinary, intraarticular)

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