

□ Delayed Bleeding

Delayed bleeding refers to hemorrhagic events that occur **hours to days after the initial trauma, surgery, or vascular event**, often when the patient is clinically stable or discharged.

□ Definition

A bleeding episode that is **not present on initial imaging or physical exam**, but appears **after a latent period**, frequently requiring **repeat imaging, reintervention, or close clinical observation**.

□ Typical Timeframes

- Within **6-72 hours** after:
 - **Mild traumatic brain injury** (especially in anticoagulated patients)
 - **Cranial or spinal surgery**
 - **Endovascular procedures**
 - **Biopsies or shunt placements**

⚠ Risk Factors

- Anticoagulant or antiplatelet therapy
- Advanced age (>75 years)
- Renal failure (affects drug clearance)
- Inadequate intraoperative hemostasis
- Unrecognized vascular anomalies

□ Neurosurgical Context

- **Delayed intracranial hemorrhage** after a normal initial CT in mild TBI
- **Epidural or subdural rebleeding** after surgical evacuation
- **Delayed hemorrhage in tumor bed** post-craniotomy
- **Spinal epidural hematoma** after lumbar puncture or decompression

□ Management

- Maintain **high index of suspicion** if symptoms recur (headache, confusion, vomiting, focal signs)
- Repeat **cranial imaging** (usually non-contrast CT)
- Consider ICU observation for high-risk patients even with normal initial imaging
- Surgical or endovascular intervention if mass effect or clinical deterioration

□ Best Practice

- Clearly document bleeding risk and timing of last anticoagulant dose
- Inform patients and families about **symptoms of delayed bleeding**
- Schedule structured follow-up or control imaging in high-risk scenarios

□ Related Entries

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Last update: **2025/06/14 20:19**

