

Subintimal Dissection

Subintimal dissection refers to the unintended or intentional passage of a guidewire or catheter into the space between the intima and media of an artery (the subintimal space) rather than within the true vascular lumen.

□ Key Concepts

In endovascular interventions, subintimal dissection often occurs during attempts to cross occluded or highly stenotic segments, especially when the true lumen is not easily navigable.

While sometimes intentional (e.g., in peripheral artery CTO crossing), in neurovascular interventions it is usually accidental and considered a complication.

□ Mechanism

A stiff or angled wire enters the intimal layer.

It separates the intima from the media, forming a false passage.

If not corrected, this can lead to:

Failure to reenter the true lumen

Compromised blood flow

Distal embolization or rupture

△ Clinical Relevance

Neurointervention (e.g., carotid occlusion): Subintimal dissection poses high risk of stroke due to vessel perforation or emboli.

Rescue options include:

Reentry catheters (e.g., Outback™, Pioneer™)

Surgical conversion

Aborting the procedure

□ Imaging Findings On DSA or IVUS:

Wire path outside expected lumen contour

Contrast stagnation or “rail tracking” in false lumen

On CT angiography:

Crescentic wall separation or flap

Non-opacified true lumen

□ Management Strategies If minor and non-flow limiting: observation

If flow-limiting or embolic: stenting or reentry technique

If catastrophic: emergency surgical repair or conversion

□ In neurointervention, a subintimal dissection is not just a detour—it's a dangerous blind alley. Recognize early, and reenter decisively.

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