Into the unknown: IVUS lights the way through a blunt cap mystery

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We present a challenging case of a 67-year-old woman admitted with non-ST elevation myocardial infarction (NSTEMI) and complex coronary anatomy. Coronary angiography revealed severe triple-vessel disease, including a proximal LAD chronic total occlusion (CTO) with a blunt proximal cap. During antegrade wire escalation, the microcatheter unintentionally advanced into an unexpected vessel with atypical course and contrast staining. Multiple angiographic views raised suspicion of coronary venous entry. The guidewire was withdrawn, and intravascular ultrasound (IVUS) was utilized, confirming misplacement outside the true lumen. Under IVUS guidance, successful re-entry into the true LAD lumen was achieved, followed by complete stenting. The patient recovered uneventfully and was discharged in stable condition. This case highlights the critical role of imaging, especially IVUS, in resolving ambiguous cap anatomy and preventing complications in complex CTO PCI.