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Absorbable Stents for Acute Iliofemoral and Caval Thrombosis: Temporary Support, Lasting Benefit

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Opinion

We've all stood there. A 28-year-old woman, left-sided May-Thurner thrombosis, symptoms for a few days. You do the percutaneous mechanical thrombectomy with good access, clean technique, a result you'd happily put in a talk. Then you pull back for the completion run and there it is: thrombus still clinging to the wall of the common iliac vein. Not much. But it's there. And you're standing in the angiography suite asking the question our guidelines don't really answer: do I stent this, or anticoagulate and trust it to resorb?

Residual thrombus after thrombectomy, lysis, or hybrid CDT is common (depending on how hard you look) 30–60% of these veins aren't fully clear at the end of the case [1,2]. And here's the distinction we blur far too often: residual thrombus is not chronic occlusion. Chronic occlusion is organized, fibrotic, recanalized tissue with the valves already gone; scarred vein that needs a durable scaffold to stay open [3-5]. Residual thrombus in the acute phase is a different case: fresh material in an otherwise patent vein that, given flow and time, can actually go away [2]. So, the real question is whether residual thrombus in a patent vein needs permanent metal at all.

Right now, the answer is improvised. Some of us stent aggressively: thrombus visible, stent deployed, keep the lumen wide, drop the re-thrombosis risk, protect against PTS. Others hold off, reserving stents for chronic obstruction or a hemodynamically significant lesion. Neither camp stands on firm ground. The trials we quote don't settle it. CaVenT, ATTRACT, and CAVA compared thrombus removal with anticoagulation, not absorbable versus permanent stenting [6-10]. The ESVS and SVS documents recommend stenting an underlying obstructive lesion after thrombus removal, but the evidence behind "stent the residual thrombus" specifically is thin [1,11]. We're operating on judgment, not data.

And the judgment has a cost. Drop permanent nitinol into that 28-year-old and you've committed her to a metal cage for the next fifty or sixty years. In-stent restenosis, intimal hyperplasia, stent thrombosis, an edge surface that may never fully endothelializes and they compound over decades [3,5]. In an older patient with chronic post-thrombotic disease that trade is easy; the vein was never recovering on its own. But committing a young woman to lifelong metal for an acute, possibly self-limiting problem? That's where the proportionality starts to bother me.

This is where absorbable scaffolds get interesting and I want to be careful, because I'm not proposing them for chronic disease. I'm proposing them as a bridge. The logic is almost embarrassingly simple. In the days to weeks after PMT or other removal strategies, residual thrombus threatens patency and re-thrombosis risk peaks. A temporary scaffold holds the lumen, keeps flow moving, carries the vein through the dangerous window. Meanwhile the thrombus resorbs, the endothelium heals, the vein remodels [2]. Then once the danger's passed, the scaffold dissolves. No permanent foreign body. No lifelong burden. You supported the vein when it needed it and got out before it became the problem.

"But the timing's wrong," people say the vein needs support for weeks, and these scaffolds take years to vanish. I used to think that too. Look closer. We don't need it gone in two weeks; we need it gone before it turns chronic. The coronary data are

instructive: the Absorb everolimus scaffold resorbs completely by roughly 36 months, and (the part I like) the vessel shows expansile remodeling and late lumen enlargement after the first year as the struts dismantle [12]. Newer magnesium and PLLA/PLGA platforms let you tune degradation and radial support with real precision [13,14]. Resorption over one to two years isn't "too slow." If by then the vein has re-endothelialized and stabilized, that might be exactly right.

Iliofemoral and caval thrombosis deserve special attention because the stakes are simply higher. These are capacitance vessels draining the whole limb and, for the IVC, the viscera. Lose patency here and it's not one symptomatic leg but bilateral disease or a systemic hit. We've measured the load: recanalizing and stenting these segments produces a real, measurable rise in cardiac biomarkers as venous return is restored [15]. That's why stenting feels almost reflexive in the iliocaval segment because the price of re-thrombosis is steep. But high stakes cut both ways. The same urgency that makes us reach for a stent is exactly what makes permanent metal, with its own chronic complications, a poor default in a young patient. A scaffold that supports acutely and then leaves could give us both.

Now the honest part, because a scaffold that dissolves isn't automatically a good scaffold. The coronary field already burned itself here. First-generation Absorb showed higher device thrombosis than metallic stents. 3.5% versus 0.9% in AIDA, and 2.3% versus 0.7% at two years across the pooled trials and much of it during the vulnerable resorption phase [16,17]. We can't wave that away. A degrading scaffold in a low-flow, low-pressure venous bed could be more thrombogenic than in a coronary artery, not less. Which is exactly why this belongs in a trial, not in routine practice.

So, what do we need to know first? The natural history, honestly. What fraction of residual thrombus in a patent iliofemoral vein resorbs with no scaffold at all, and over what time course? What's the re-thrombosis rate in that window? And the crux: does an absorbable scaffold lower that risk during resorption without introducing new thrombogenic trouble as it degrades? Until we can answer those, we're guessing.

Then the trial. I'd run a prospective, multicentre RCT in patients under 60 with acute iliofemoral or caval thrombosis treated by PMT or CDT and residual thrombus present, chronic occlusion absent. Three arms: absorbable scaffold, permanent stent, anticoagulation alone. Primary endpoint, patency at 6, 12, and 24 months. Secondary, PTS by Villalta [18], re-thrombosis, duplex residual-thrombus burden, valve competence, and scaffold thrombosis during resorption. And follow them long: ten years minimum, because "no lifelong metal" only pays off if you look across a lifetime.

Absorbable stents aren't ready for the iliocaval segment today, and anyone selling them as such is ahead of the evidence. But they're not fantasy either. For acute iliofemoral and caval thrombosis with residual burden, where our only options right now are a permanent cage or a re-thrombosis gamble, a scaffold that supports and then steps aside is a theoretically sound third choice. We owe it to the 28-year-old on the table to find out whether the theory holds.

References

1. Meissner MH, Gloviczki P, Comerota AJ, Dalsing MC, Eklof BG, et al. (2012) Early thrombus removal strategies for acute deep venous thrombosis: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. J Vasc Surg 55(5): 1449-1462.
2. Prandoni P, Lensing AWA, Prins MH, Bernardi E, Marchiori A, et al. (2002) Residual venous thrombosis as a predictive factor of recurrent venous thromboembolism. Ann Intern Med 137(12): 955-960.
3. Neglén P, Hollis KC, Olivier J, Raju S (2007) Stenting of the venous outflow in chronic venous disease: long-term stent-related outcome, clinical, and hemodynamic result. J Vasc Surg 46(5): 979-990.
4. Raju S (2015) Treatment of iliac-caval outflow obstruction. Semin Vasc Surg 28(1): 47-53.
5. Jalaie H, Barbati ME, Piao L, Doganci S, Kucher N, et al. (2025) Prognostic value of a classification system for iliofemoral stenting in patients with chronic venous obstruction. Eur J Vasc Endovasc Surg 69(2): 315-322.
6. Enden T, Haig Y, Kløw NE, Slagsvold CE, Sandvik L, et al. (2012) Long-term outcome after additional catheter-directed thrombolysis versus standard treatment for acute iliofemoral deep vein thrombosis (the CaVenT study): a randomised controlled trial. Lancet 379(9810): 31-38.
7. Haig Y, Enden T, Grøtta O, Kløw NE, Slagsvold CE, et al. (2016) Post-thrombotic syndrome after catheter-directed thrombolysis for deep vein thrombosis (CaVenT): 5-year follow-up results of an open-label, randomised controlled trial. Lancet Haematol 3(2): e64-e71.
8. Vedantham S, Goldhaber SZ, Julian JA, Kahn SR, Jaff MR, et al. (2017) Pharmacomechanical catheter-directed thrombolysis for deep-vein thrombosis. N Engl J Med 377(23): 2240-2252.
9. Comerota AJ, Kearon C, Gu CS, Julian JA, Goldhaber SZ, et al. (2019) Endovascular thrombus removal for acute iliofemoral deep vein thrombosis. Circulation 139(9): 1162-1173.
10. Notten P, Ten Cate-Hoek AJ, Arnoldussen CWKP, Strijkers RHW, de Smet AAEA, et al. (2007) Ultrasound-accelerated catheter-directed thrombolysis versus anticoagulation for the prevention of post-thrombotic syndrome (CAVA): a single-blind, multicentre, randomised trial. Lancet Haematol 7(1): e40-e49.
11. Kakkos SK, Gohel M, Baekgaard N, Bauersachs R, Bellmunt-Montoya S, et al. (2021) Editor's Choice — European Society for Vascular Surgery (ESVS) 2021 clinical practice guidelines on the management of venous thrombosis. Eur J Vasc Endovasc Surg 61(1): 9-82.
12. Otsuka F, Pacheco E, Perkins LEL, Lane JP, Wang Q, et al. (2014) Long-term safety of an everolimus-eluting bioresorbable vascular scaffold and the cobalt-chromium XIENCE V stent in a porcine coronary artery model. Circ Cardiovasc Interv 7(3): 330-342.
13. Menze R, Wittchow E (2021) *In vitro* and *in vivo* evaluation of a novel bioresorbable magnesium scaffold with different surface modifications. J Biomed Mater Res B Appl Biomater 109(9): 1292-1302.
14. Buszman PP, Kachel M, Łukasik K, Nożyński J, Skowronek R, et al. (2025) Improved vascular response to a novel polymeric blend PLLA/PLGA coronary scaffold material: preclinical study. Sci Rep 15(1): 34219.

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15. Yan Y, Barbati ME, Avgerinos ED, Doganci S, Lichtenberg M, et al. (2024) Elevation of cardiac enzymes and B-type natriuretic peptides following venous recanalization and stenting in chronic venous obstruction. Phlebology 39(9): 619-628.

16. Wykrzykowska JJ, Kraak RP, Hofma SH, van der Schaaf RJ, Arkenbout EK, et al. (2017) Bioresorbable scaffolds versus metallic stents in routine PCI. N Engl J Med 376(24): 2319-2328.

17. Ali ZA, Serruys PW, Kimura T, Gao R, Ellis SG, et al. (2017) 2-year outcomes with the Absorb bioresorbable scaffold for treatment of coronary artery disease: a systematic review and meta-analysis of seven randomised trials with an individual patient data substudy. Lancet 390(10096): 760-772.

18. Kahn SR, Partsch H, Vedantham S, Prandoni P, Kearon C (2009) Definition of post-thrombotic syndrome of the leg for use in clinical investigations: a recommendation for standardization. J Thromb Haemost 7(5): 879-883.

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