29 - Title: Simultaneous Induction of Arterial and Venous Thrombosis in a Rat Model Using Femoral Vessel Ligation

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***Background*:** Thrombosis contributes significantly to global morbidity and mortality, yet direct comparative studies of arterial and venous thrombi remain limited. Most models evaluate thrombi in isolation, hindering understanding of shared and divergent mechanisms. This study introduces a novel rat model enabling simultaneous induction of arterial and venous thrombi in the same animal for temporal and comparative analysis.
Methods/Research Design. Femoral artery (right limb) and femoral vein (left limb) ligation were performed in Sprague-Dawley rats (n=32). Thrombi were harvested at Days 2, 4, and 8 post-ligation. Histological analysis assessed thrombus formation and progression. Preliminary validation of the ligation method was also conducted in a porcine model.
***Results (or Preliminary Results, as applicable for a project in progress)*:** The dual-ligation model reliably produced thrombi in both arterial and venous compartments with minimal variability. Histological evaluation confirmed consistent thrombus formation across all time points, validating model reproducibility

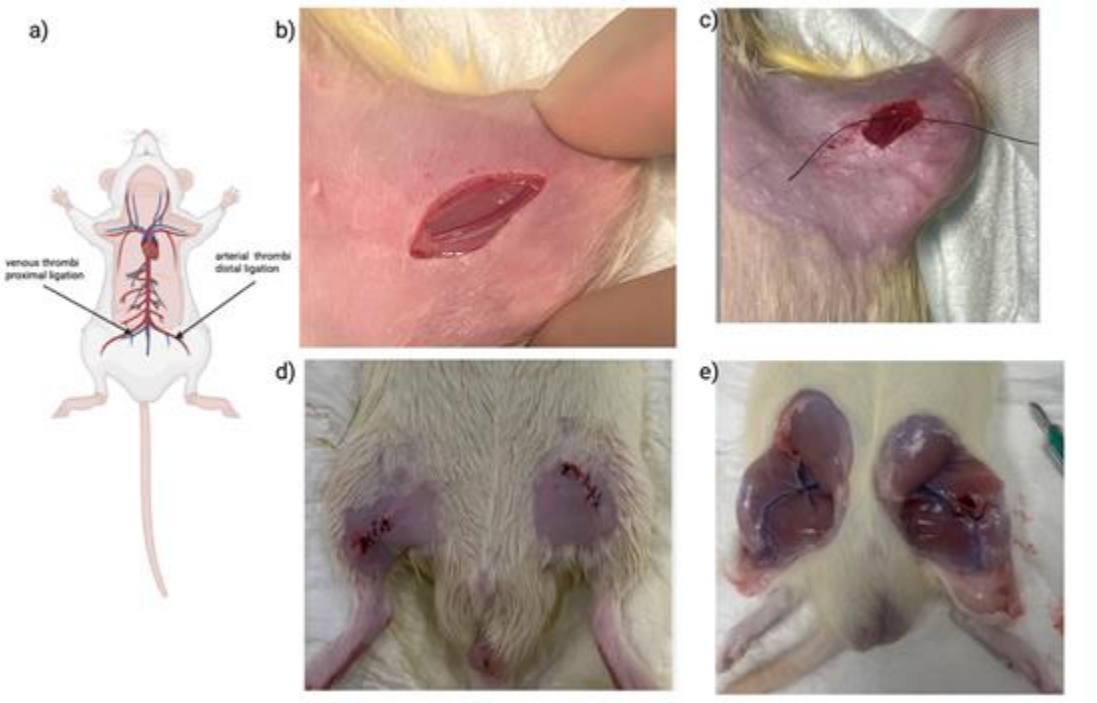

Figure 1. Simultaneous induction of arterial and venous thrombi in a rat model via femoral vessel ligation.
(a) Schematic representation of dual-ligation approach: proximal ligation of the left femoral vein to induce venous thrombus, and distal ligation of the right femoral artery to induce arterial thrombus.
(b) Exposure of the femoral vessels prior to ligation.
(c) Intraoperative image showing femoral artery ligation with visible suture placement.
(d) Post-operative appearance of bilateral groin incisions following vessel ligation and closure.
(e) Representative dissection image showing successful thrombus formation in both femoral vessels at Day 4 post-ligation.

***Conclusion (or Preliminary Conclusion, as applicable for a project in progress)*:** This is the first ever validated rat model to induce arterial and venous thrombi simultaneously, providing a robust platform for comparative thrombus analysis. The model demonstrates strong translational potential, with future studies aimed at evaluating thrombus biology and response to therapeutic interventions.