REAL BLEED™ ADVANCED SUTURING WORKSHOP

Kidney transplant. Every connection counts.

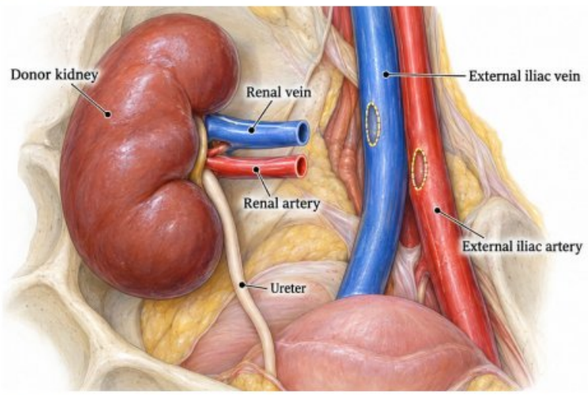
Vascular reconstruction: vein-first sequence | 120-minute faculty-led lab | Experienced residents, fellows and surgeons

PREPARE / 15 MIN One aorta + one carotid. Keep both aortic cannulas attached; arrange the carotid as a broad loop. Its right end is the venous task and its left end the arterial task. Both are sewn end-to-side into the aorta. Pump off during open reconstruction.

READ THE IMAGES Clinical anatomy above; proposed bench exercise below. Gold rings mark the current join.

01 Position the graft

PLAN THE CONNECTIONS / 15 MIN



ONE AORTA + ONE CAROTID / SAME CONNECTIONS

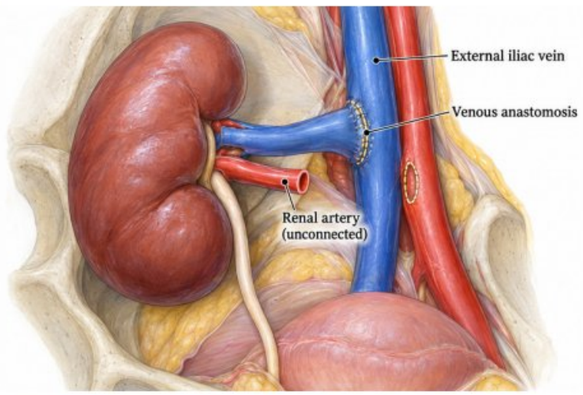


Left join: arterial task | Right join: venous task

Connect: Plan donor renal vein to iliac vein and donor renal artery to iliac artery.
Rehearse: Mark two sidewall sites on the intact aorta. Lay out the carotid loop with enough length for two end-to-side joins.
Check: Identify heel and toe; avoid tension or kinking. Both loop ends remain free.

02 Renal vein

VENOUS ANASTOMOSIS / 25 MIN



ONE AORTA + ONE CAROTID / SAME CONNECTIONS

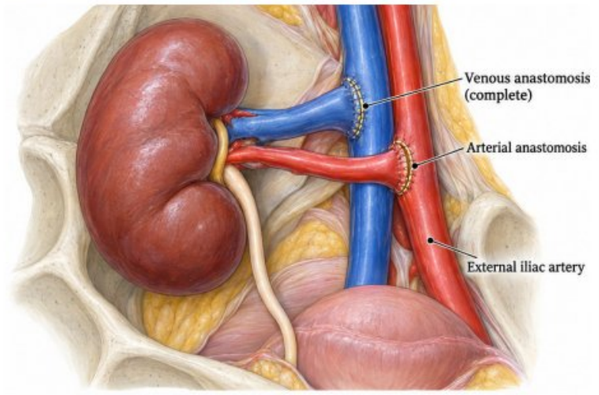


Left join: arterial task | Right join: venous task

Connect: Donor renal vein end-to-side to recipient external iliac vein.
Rehearse: Sew the right carotid end into the right aortic opening; complete the posterior and anterior walls.
Check: Open lumen; no back-wall capture. Left end remains free; pump stays off.

03 Renal artery

ARTERIAL ANASTOMOSIS / 25 MIN



ONE AORTA + ONE CAROTID / SAME CONNECTIONS

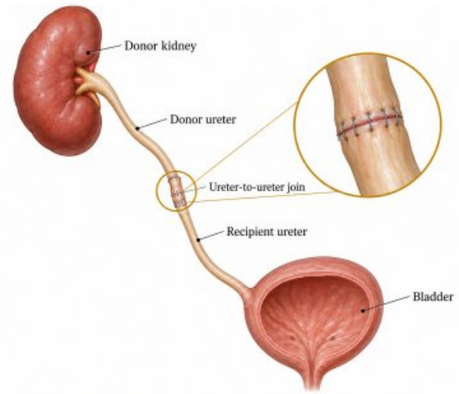


Left join: arterial task | Right join: venous task

Connect: Donor renal artery end-to-side to recipient external iliac artery.
Rehearse: Sew the remaining left carotid end into the left aortic opening, completing the loop.
Check: Even bites, secure heel and toe, no narrowing. Both learner joins now share the connected aorta.

04 Ureteric suturing

URETER-TO-URETER EXERCISE / 20 MIN

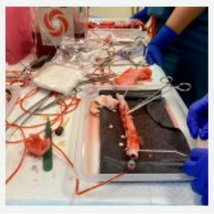


SAME CAROTID / NEW URETERIC SUTURING TASK



Divide midpoint, then rejoin end-to-end

Connect: Donor ureter to recipient ureter.
Rehearse: Assess vascular joins, then stop the pump. Divide and rejoin the carotid midpoint end-to-end; keep the aorta connected.
Check: Alignment and an open lumen. Carotid serves as a ureter-to-ureter suturing surrogate.



05 FLOW. FIND. REPAIR.

FINAL CHALLENGE / 20 MIN

Find leakage, stop flow, repair and retest. Record completion time, leak sites and repairs; inspect lumens after testing. **Target:** two open end-to-side joins with no visible leakage at the agreed setting. Through-flow testing needs a bench-validated method because the main aorta can bypass the loop.

YOUR REAL BLEED™ SETUP

Photo at left: your connected station. The aorta remains intact and cannulated throughout. One carotid supplies both end-to-side tasks; no extra graft is required. Select enough length for an untwisted loop, clamp access and repair reserve.

WHAT THE MODEL REPRESENTS

Clinically, artery and vein are separate vessels. Here, two sites on one aorta represent those recipient targets. The carotid loop is a suturing and leak-test surrogate, not kidney microcirculation or venous physiology. Ureteric implantation is outside this vascular lab.

Educational concept for faculty review. Clinical and bench illustrations are AI-generated from anatomical descriptions and your equipment photographs; not operative photos. Follow the Real Bleed IFU. Proposed bench setup requires validation. Ureter shown for orientation only.

Sources: EAU guideline Real Bleed™
One page / 17 × 11 in / Kidney / Revision 01

REAL BLEED™ SYSTEM | PATENT PENDING

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