REAL BLEED™ ADVANCED SUTURING WORKSHOP

Liver transplant. Every connection counts.

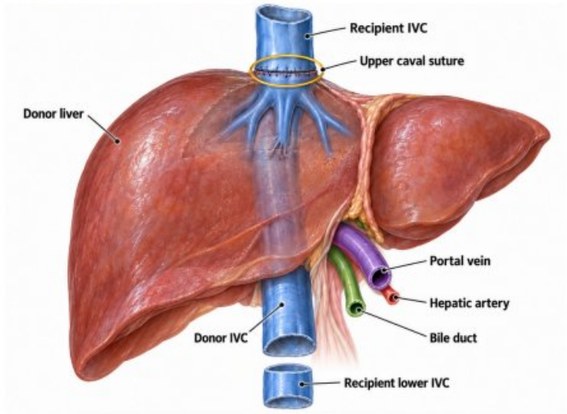
Conventional bicaval reconstruction | 120-minute faculty-led lab | Experienced residents, fellows and surgeons

PREPARE / 15 MIN Keep the aorta connected at both ends. Before the lab, prepare two carotid loops with end-to-side attachments to the aorta. Use one aorta + two carotids, or divide one sufficiently long carotid into two loops. Mark the four reconstruction sites.

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

01 Suprahepatic cava

UPPER CAVAL ANASTOMOSIS / 20 MIN



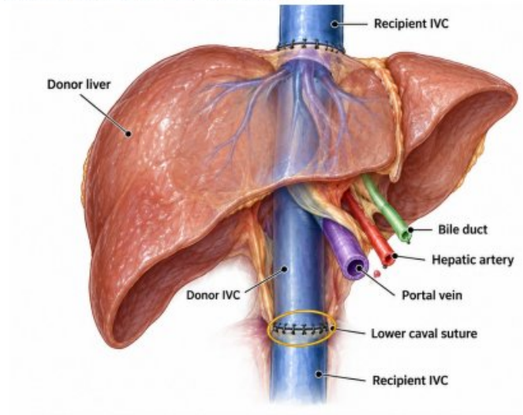
Upper loop: portal task

Lower loop: hepatic-artery task

Connect: Recipient upper IVC to donor upper IVC.
Rehearse: Join the right end of the central aortic donor segment to the recipient end. Both original cannulas stay attached.
Check: Complete the back and front walls; avoid back-wall capture. Pump off while cuts remain open.

02 Infrahepatic cava

LOWER CAVAL ANASTOMOSIS / 20 MIN



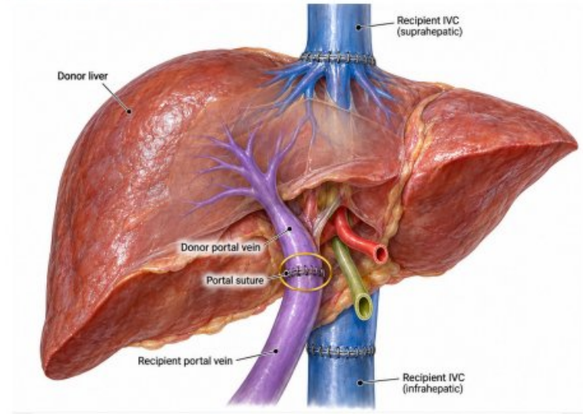
Upper loop: portal task

Lower loop: hepatic-artery task

Connect: Donor lower IVC to recipient lower IVC.
Rehearse: Join the left end of the same donor segment. Both caval joins are now complete; the carotid loops remain attached.
Check: Before testing the aorta, control both limbs of each unfinished loop to prevent forward and back bleeding.

03 Portal vein

PORTAL INFLOW / 20 MIN



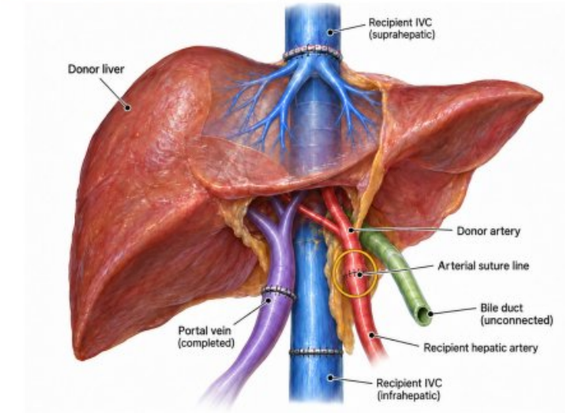
Upper loop: portal task

Lower loop: hepatic-artery task

Connect: Recipient portal vein to donor portal vein.
Rehearse: Join the divided upper carotid loop end-to-end. Its end-to-side attachments supply the portal-task vessel from the connected aorta.
Check: Preserve the lumen and alignment. Keep both limbs of the unfinished lower loop controlled.

04 Hepatic artery

ARTERIAL INFLOW / 25 MIN



Upper loop: portal task

Lower loop: hepatic-artery task

Connect: Recipient hepatic artery to donor arterial inflow.
Rehearse: Join the divided lower carotid loop end-to-end, with magnification as needed. All four learner joins are now complete.
Check: Fine suture control, no twist or narrowing. Test each completed route separately.



05 FLOW. FIND. REPAIR.

FINAL CHALLENGE / 20 MIN

Test the completed assembly using a faculty-validated, device-compatible setup. Assess each branch separately: filling alone does not prove through-flow. Find leaks, stop flow, repair and retest. **Target:** open, aligned joins with no visible leakage. Both aortic cannulas remain attached throughout.

YOUR REAL BLEED™ SETUP

Photo at left: your actual connected station. Four end-to-side anchors prepare the two loops; four end-to-end joins are the learner tasks. Two carotids preserve working length and clamp access. Faculty preparation is additional to the 120-minute lab.

WHAT THE MODEL REPRESENTS

Aorta represents cava; carotid loops represent portal and arterial suturing tasks. Their side-to-aorta anchors are bench supply/return connections, not transplant anatomy. This model does not reproduce venous compliance or liver microcirculation. Bench validation is required.

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. IVC = inferior vena cava. Bile duct shown for orientation only.

Sources: Transplant technique Real Bleed™
One page / 17 × 11 in / Connected-vessel revision

REAL BLEED™ SYSTEM | PATENT PENDING
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