REAL BLEED™ ADVANCED SUTURING WORKSHOP

Ureteral Injury Repair and Reconstruction

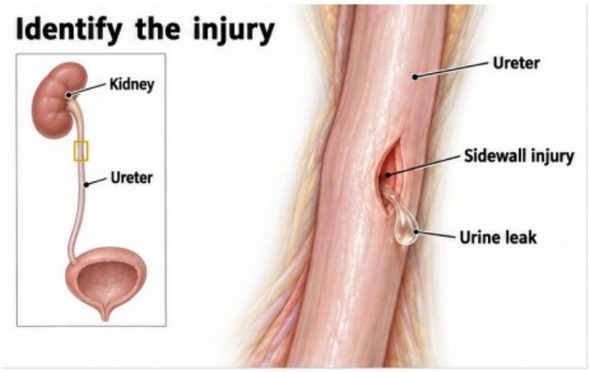
Urology | 120-minute faculty-led lab | Selected proximal / mid-ureter repair concepts using a carotid surrogate

PREPARE / 15 MIN One connected aorta + one short, narrow carotid loop, with both ends sewn end-to-side into the aorta. Preserve the original two tubing connections. Faculty select a removable internal training stent and two separate working sites. Stop flow during open-tissue work.

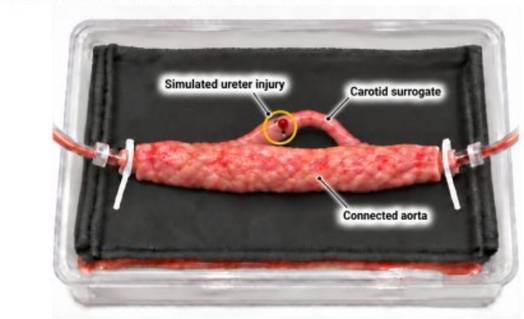
READ THE IMAGES Blue stents are shown through illustrative cutaways, not additional incisions.

01 Identify the injury

LOCATION AND TISSUE / 20 MIN



CONNECTED AORTA / SHORT CAROTID LOOP

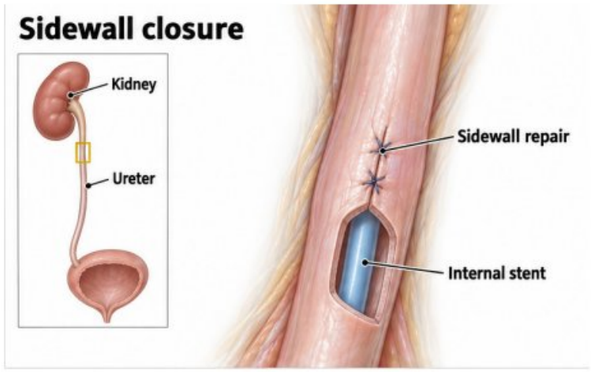


Compact working sites / previous repairs retained

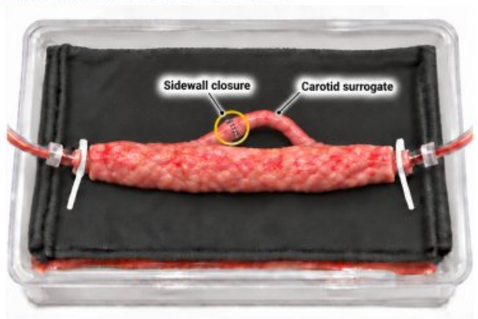
Clinical: Assess injury location, extent and tissue viability.
Rehearse: Identify a small sidewall opening on the carotid loop and observe simulated leakage.
Check: Map the two working sites. The loop represents a ureter; the aorta supplies test fluid.

02 Sidewall closure

PARTIAL-INJURY REPAIR DRILL / 25 MIN



CONNECTED AORTA / SHORT CAROTID LOOP

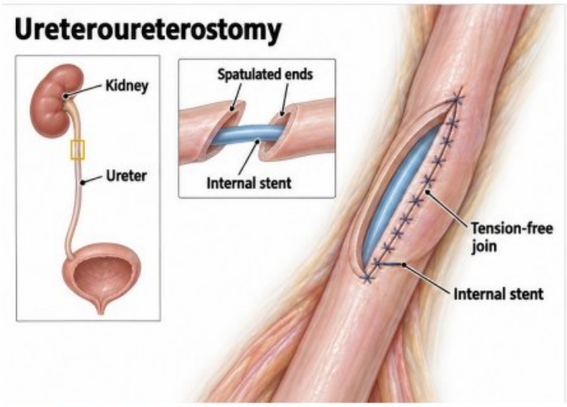


Compact working sites / previous repairs retained

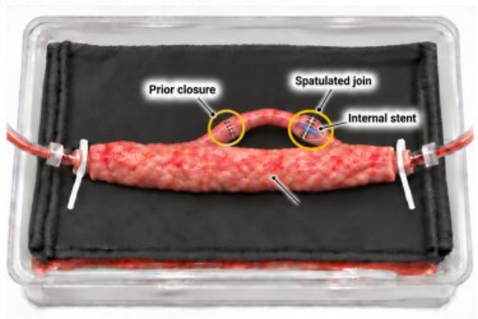
Clinical: Review selected partial-injury repair and drainage options.
Rehearse: Close the small loop sidewall defect with the faculty-selected technique.
Check: Inspect edge alignment and lumen narrowing. Discuss internal stenting; treatment depends on injury type.

03 Spatulated join

END-TO-END RECONSTRUCTION / 25 MIN



CONNECTED AORTA / SHORT CAROTID LOOP

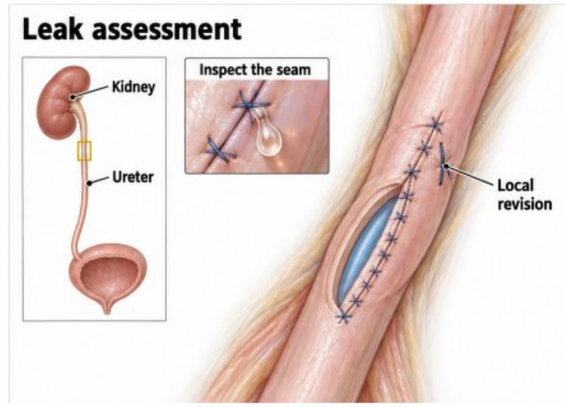


Compact working sites / previous repairs retained

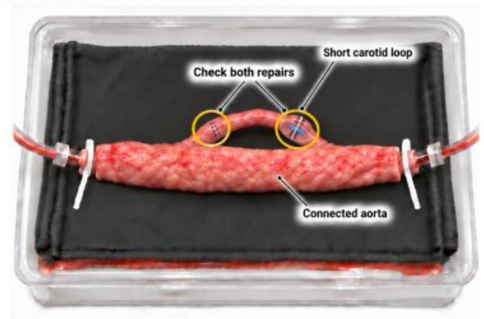
Clinical: Selected proximal or mid-ureter reconstruction over a stent.
Rehearse: Divide a separate loop site, spatulate the ends and join over a removable training stent.
Check: Preserve the first repair; avoid tension, twist and catching the stent in a stitch.

04 Test and revise

TWO-SITE LEAK ASSESSMENT / 15 MIN



CONNECTED AORTA / SHORT CAROTID LOOP



Compact working sites / previous repairs retained

Clinical: Assess the repair and urinary drainage plan.
Rehearse: Test both sites at a faculty-validated setting. Locate leakage, stop flow, revise and retest.
Check: Loop filling alone does not prove patency. Account for and remove the training stent after the exercise.



05 FLOW. FIND. REPAIR.

FINAL CHALLENGE / 20 MIN

Inspect the sidewall closure and spatulated join. Find a local leak, stop flow, repair and retest. Record tissue handling, alignment, stent handling and revisions. **Target:** both repairs intact at the agreed bench setting. Assess lumen integrity separately; a leak-free, fluid-filled loop does not prove urinary drainage or healing.

YOUR REAL BLEED™ SETUP

Photo at left: your original station. One short carotid loop supplies two repair sites while the aorta stays connected at both ends. Faculty prepare the two loop attachments. The small training stent stays inside the lumen. The original tray and two external tubing connections are retained.

WHAT THE MODEL REPRESENTS

Carotid represents ureter for suturing practice; it lacks ureteral wall behavior and peristalsis. Test fluid represents urinary leakage, not ureteral blood flow. The loop is a bench circuit, not urinary anatomy. Distal injuries may require bladder reimplantation; this lab focuses on selected primary repair concepts.

Educational concept for faculty review. AI-generated illustrations are schematic, not operative photos or calibrated drawings. Cutaways expose internal stents for teaching only. Faculty validate tissue, stent fit and test settings; follow the Real Bleed IFU. This is a suturing lab, not a complete ureteral injury management protocol.

Sources: AUA Urotrauma Real Bleed™
One page / 17 x 11 in / Ureter / Version 01

REAL BLEED™ SYSTEM | PATENT PENDING

© 2026 Real Bleed™. All rights reserved. This material is the property of Real Bleed™.