Retroperitoneal hemorrhage is life-threatening: Vascular surgeons should never cause it. How to prevent it: How to diagnose and treat it
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Incidence
- 0.47%
- But underreported in the era of the outpatient cathlab
- One of the commonest causes of litigation following catheterization
- Fatalities not uncommon

How does it happen – High stick
- The puncture is below the inguinal ligament
- The puncture is in the low common femoral artery

No Disclosures

A never occurrence!

It will not happen if:
The Inguinal Crease is **NOT** the Inguinal Ligament

**How to prevent it**

**First**
- Feel for the pulse. If absent look for evidence of vascular calcification.
- Image the femur and place an instrument over the artery and below the upper third of the femoral head.
  - Assure the image intensifier is vertical.

**Next**
- As an adjunct mark the inguinal ligament using bony landmarks.
- Using the X-ray image mark the outline of the top of the femoral head.
- Mark the point of entry into the artery as the tip of the instrument that was placed over the femoral head.
- Do not stick any higher than this point.

**Use ultrasound to localize common femoral above bifurcation**

Femoral head
Correct vertical  Incorrect angled

With micropuncture wire inserted, push to deflect. The point of the bend will be the entry point into the artery.

Confirm position of entry

Assure wire is not in a branch

Only place the sheath after all this has been completed safely
How to diagnose it

- Hypotension unresponsive to rapid fluid
- Tachycardia
- Abdominal or back pain
- Absent bleeding at puncture site
- Falling Hct
- Ultrasound
- CAT scan
- Flank bruise

How to treat it?

- Minimal literature guidance
- One surgical manuscript from 1994!
  - "Most will respond to conservative management with fluid resuscitation plus blood products"
  - Prior to all the modern antiplatelet agents

BUT some don't and they will die unless promptly treated

- Large sheaths
- Anticoagulants and antiplatelet agents
- High risk patients
  - Recent MI
  - CHF
  - Renal failure
  - COPD

BUT some don’t and they will die unless promptly treated

- Large retroperitoneal bleed
- Recurrent hypotension after original stabilization
- Ongoing evidence of bleed

They can die late!

- The retroperitoneum can tamponade a bleed for a while
- Secondary bleeding results from disruption of retroperitoneal vessels
- The peritoneum breaks allowing sudden free intraperitoneal rupture
- Abdominal compartment syndrome
- Don’t be complacent

Definitive treatment

- Endovascular with contralateral approach, balloon tamponade and possible covered stent
- Surgical repair
  - Often can be repaired from the groin with wide elevation of the inguinal ligament
  - Its usually just one stitch
  - The retroperitoneal hematoma should not be evacuated
No one is too sick, or too anticoagulated to be repaired!

Do not rely on the cardiologist or interventionalist to run the show

- They will wait until the patient is about to succumb before they call you
- They will try massive transfusions and pressors rather than call you
- And then they will say you wouldn’t come in to see the patient
- And then blame you for killing the patient
- And you will be the one sued

You Have Been Warned