Pediatric Peripheral Vascular Injury

Demographics
- Rare and less common than adults
- Age and geographically determined
  - Urban US – 70% penetrating, 6% firearm
  - Scandinavia – 40% penetrating
- Upper extremities in children – adults are lower

Diagnosis and work up
- Hard and soft signs
- Exam is most helpful
  - Motor & Sensation
  - nerve injury is Very common
- Palpable pulse, ABI
- Doppler Signal
Diagnosis and work up

- CT angio is most common
- Duplex
- Catheter angio is rare
  - Timeliness of angio
  - Inability to use endovascular techniques.

Significant Challenge

- Lack of the tools used in adult vascular centers
  - Rapid deployment of IR
  - Techs trained in imaging
  - Endovascular suites and stents
  - Surgeons
    - Pediatric training and Vascular training

Significant Challenges

- Plan ahead and have the contingencies worked out
- ASSETT Course

Pediatric vascular injuries: are we preparing trainees appropriately to meet our needs?

- Argyle® Shunts available
  - Heparin is preferable 50u/kg but not mandatory
- Operative Microscope is helpful
- Interrupt the anastomosis

Operative Repair

- Ligation is common
- Direct repair with patch
- Proximal saphenous, Internal iliac artery and deep vein
  - If saphenous and profunda vein is intact.
- PTFE – long term patency
**Supracondylar humerus fracture**

**Pink Warm Hand**
- No pulse with adequate reduction
  - Pink and warm – may watch
    - 87% have a brachial injury
    - Long term outcome is unknown
- No pulse with adequate reduction
  - Cool and pale - explore
    - Proximal Saphenous fits well
    - Often need a microscope

**Three year old on a lawnmower**

**What do I have to do**
- Restore perfusion

**What do I have to do**
- Stabilize the skeleton

**What do I have to do**
- Decrease the infectious risk
  - Assess the nerves
Compartments of the lower leg

Following repair

- Vasospasm is the **RULE**
  - Rare to get a Pulse back immediately
  - Strip adventitia
  - Apply lidocaine & papaverine
  - Is + Doppler signal, warm and pink
  - Wait, close, warm the extremity. The pulse should return within a few hours. I don’t do a completion arteriogram.

Recovery & Long term follow up

- Anti-platelet therapy – 3 months
  - ASA 10 mg/kg up to a baby aspirin (81mg) daily.
  - TEG with > 85% platelet inhibition
- Vascular lab and vascular surgeon

Summary

- Work up is similar and operative decision is the same as adult
- Plan needed coverage
- Be prepared, tourniquets & shunts
- Conduit options
- Follow up relationship.

Thanks