How To Prevent Popliteal Artery Injuries During Orthopedic Knee Surgery

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Orthopedic popliteal artery (PA) injury
What we already know
• Orthopedic procedures, close to the popliteal artery are common
• Injury to the PA is uncommon, and thus difficult to investigate
• Previously published papers are case-reports or case-series
• The consequences of the injury can be very serious

Orthopedic popliteal artery (PA) injury
What we already know
• Injuries often affect relatively young patients, who were operated on with the aim to improve quality of life
• Can we learn more to prevent the injuries, and how to limit the consequences of an injury, when it occurs?

Study Design

Medivac = 1987-2011
1870 iatrogenic injuries
57 non-orthopaedic injuries
53 orthopaedic injuries
32 after arthroplasty
27 primary knee arthroplasties
Previous knee arthroplasties
395 others

Knee
Popliteal artery injury during knee replacement
A POPULATION-BASED NATIONWIDE STUDY

• Median age was 69 years (range 48-84)

Disclosures?
I have no financial disclosure to declare
Results (32 patients)

- 29 open, 3 with endovascular surgery
- Penetrating injuries were treated with direct anastomosis or a short interposition graft
- Blunt injuries were treated with a by-pass
- 12 (38%) underwent fasciotomy

Outcome depends on timely repair

- Seven patients (22%) had complete recovery
- Amputation (1), paraesthesia, motor dysfunction, pain and/or swelling, in 78%
- In 12 patients (38%) the vascular injury was recognized during surgery, six (50%) had a complete recovery
- Elective orthopedic surgery is decentralized and privatized in Sweden
- When the injury occurred in a hospital without vascular surgeon prognosis was poor

Study Design

- 1070 iatrogenic injuries
  - 115 popliteal artery injuries
  - Other vascular injuries
  - 32 after arthroplasty
  - 5 revision knee arthroplasties
  - 955 others

- CLINICAL
  - Iatrogenic popliteal artery injury in non arthroplasty knee surgery
  - Median age was 43 years, range 11-85 (versus 69 years after arthroplasty)
21 PA injuries after other procedures

- 13 after elective surgery for QoL improvement (such as arthroscopy, anterior cruciate ligament repairs, etc)
- 8 after emergency/life saving surgery (distal femur or proximal tibial fractures, and resections of sarcoma)
- One amputation, paraesthesia, motor dysfunction, pain and/or swelling, in 71%
- Six patients (29%) had complete recovery
- Outcome depended on early recognition

Conclusion: Results are poor!

- 4% amputations, 75% functional impairment
- Penetrating injuries dominate, but pseudoaneurysms were also common
- Most patients with complete recovery were recognized during the operation
- One was shunted and transported to a vascular unit
- Although uncommon complications, all orthopedic units should have a plan how to manage suspected PA injuries