Purse-String Temporary Closure Of Femoral Access Sites During Complex EVARs (B/FEVAR) To Decrease Limb And Spinal Cord Ischemia

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Disclosures

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None

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Lower Limb Ischemia in EVAR

Lower Limb Ischemia in EVAR

Limb Ischemia After EVAR: An Effect of the Obstructing Introducer?

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Conclusion: Interoperatively, ischaemia was slightly increased after 90 min; however, it was not suggestive of ischaemic necrosis. No findings reflected a more extensive ischaemia than expected. Further studies that may be related to the introducer’s impact on blood flow to the limb during the intervention. Although no clinical consequences were recorded, the finding suggests some benefit of minimizing as much as possible the time of reduced perfusion to the limb.

“Duration of limb ischemia in EVAR 2x vs Open”

Lower Limb Ischemia in EVAR

- Benign in simple EVARs
- Dangerous in Complex EVARs
Lower Limb Ischemia in Complex EVARs

Serious Clinical Consequences

Limb Ischemia → Spinal Cord Ischemia (SCI)?

- Collateral Network Concept
  - Iliac arteries
  - provide a great proportion of the direct spinal cord blood supply in humans

Review Article
Development and Treatments of Inflammatory Cells and Cytokines in Spinal Cord Ischemia-Reperfusion Injury

- Spinal cord blood flow interruption causes:
  - 1. Immediate spinal cord injury due to ischemia
  - 2. Delayed spinal cord injury due to IRI
  - Inflammatory processes → cellular death

Meditators Inflamm 2013
Rapid Iliac Reperfusion to Reduce SCI

- ↓ Iliac occlusion time
  - ↓ Immediate SCI time (collaterals)
    - but also...
  - ↓ Delayed spinal cord IRI
  - ↓ Risk for paraplegia (?)

Rapid Iliac Reperfusion to Reduce SCI

The Impact of Early Pelvic and Lower Limb Reperfusion and Attenuate Peri-operative Management on the Incidence of Spinal Cord Ischemia During Thoracoabdominal Aortic Aneurysm Endovascular Repair

Rapid Iliac Reperfusion

How to do it?

- Surgical Access

Rapid Iliac Reperfusion

How to do it?

- Double Purse String Sutures

Rapid Iliac Reperfusion

How to do it?

- Puncture in the middle of purse string sutures

Rapid Iliac Reperfusion

How to do it?

- Insert the large sheaths
Rapid Iliac Reperfusion

How to do it?

• Remove large sheath
• Pull & Clamp...

Rapid Iliac Reperfusion

How to do it?

• Limb reperfusion
• Maintain access
• Hemostasis

Take Home Message

• Purse string sutures
  – Remove sheaths as soon as they are not needed
  • Minimize lower limb ischemia time
  • Lower reperfusion injury
  • Re-open Collateral Circulation to the Spine with lower risk of SCI

Spinal cord ischemia after endovascular repair of thoracoabdominal aortic aneurysms with fenestrated and branched stent grafts

• 201 patients BEVAR/FEVAR for TAAA
  – Transient lower limb weakness: 6.5%
  – Persistent lower limb weakness: 2.5%
  – Persistent paraplegia: 1.5%

76% of SCI events: Late onset (up to 72 hours)