Endovascular Management of Traumatic Vascular Injury in Lower Extremities

Chang Won Kim
Department of Radiology
Pusan National University Hospital
Busan, Korea
I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

☑️ I do not have any potential conflict of interest
Traumatic Vascular Injury

- 0.2% to 4% of all traumatic injuries
  - Peripheral vascular injury: 80%
    - Lower extremities
- Western countries
  - 75% secondary to gunshot
  - 15% secondary to stabbings
  - 10% secondary to blunt trauma
- Korea
  - Mainly due to blunt trauma
Extremity Arterial Injury

- The main mechanisms of vascular lesions
- Laceration or rupture of the vessel, hematoma development, dissection, pseudoaneurysm or arteriovenous fistula formation, and distal acute ischemia
Extremity Arterial Injury

- Patients with hard signs of arterial injury (pulse deficit, pulsatile bleeding, bruit, thrill, expanding hematoma) should be surgically explored. There is no need for arteriogram in this setting unless the patient has an associated skeletal or shotgun injury. Restoration of perfusion to an extremity with an arterial injury should be performed in less than 6 hours to maximize limb salvage (2002): Level 2
- There are no data to support the routine use of endovascular therapies following infrainguinal trauma.: Level 3

Penetrating Lower Extremity Arterial Trauma, Evaluation and Management of J Trauma 2012 73(5):S315-S320
M/47
Pedestrian TA
GCS 12
Hb 10.9 g/dL
Right thigh swelling, color change
CTA lower extremity

Arterial

5min delay
TC visit +2h

Direct venography

Isolated iliac vein injury
Stent-graft deployment

Balloon tamponade

12Fr 13mm-10cm GORE VIABAHN®
Completion venography

30th day follow up CT
Traumatic Iliac Vein Rupture

In spontaneous rupture of the iliac vein, open surgical procedures were associated with high mortality and morbidity. **Endovascular intervention** may help to improve follow-up outcomes.

**Surgical repair** for blunt iliac vein injury as a traditional treatment
- (after surgical repair) development of **deep vein thrombosis** and pulmonary emboli is possible
- use of anticoagulants is often contraindicated as a result of other injuries

**Endovascular approach** to life-threatening venous rupture
- immediate cessation of extravasation and restoration of venous patency
- **Stent-graft** could seal across the rupture and create a new intact lumen


Conclusions

• The endovascular approach can be a feasible, safe, and effective option to treat the vascular injuries, both arteries and veins, in the lower extremities.

• Large group study is needed for the evidence of endovascular treatment in traumatic vascular injury and for strong recommendation to clinicians.