Vietnam Cases Sharing

Lower and Upper Limb EVI – Case Report - Vascular Trauma

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Introduction

Endovascular Therapy of Vascular Trauma—Current Options and Review of the Literature

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Abstract

Objective:

To review the current use of endovascular techniques in trauma.

Summary Background Data:

Multiple studies have demonstrated that, despite current guidelines, endovascular therapies are used in instances of arterial trauma.

Methods:

The existing literature concerning arterial trauma was reviewed. Studies reviewed included case reports, single-center case series, large database studies, official industry publications and instructions for use, and society guidelines.

Results:

Endovascular therapies are used in arterial trauma in all systems. The use of thoracic endografts in blunt thoracic aortic trauma is accepted and endorsed by society guidelines. The use of endovascular therapies in other anatomic locations is largely limited to single-center studies. Advantages potentially include less morbidity due to smaller incisions as well as shorter operating room times. Many report using endovascular therapies even with hard signs of injury. Long-term results are limited by a lack of long-term follow-up but, in general, suggest that these techniques produce acceptable outcomes. The adoption of these techniques may be limited by resource and surgeon availability.

Conclusions:

The use of endovascular therapies in trauma has gained acceptance despite not yet having a place in official guidelines.

Causes of vascular trauma

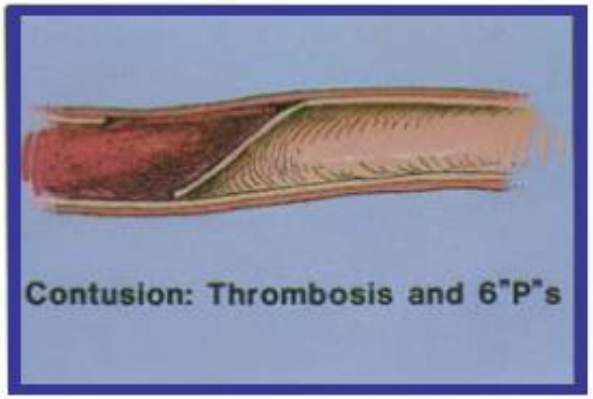
CAUSES

- Penetrating wounds
  - Gunshot, stab, or shotgun
  - IV drug abuse
- Blunt trauma
  - Joint displacement
  - Bone fracture
  - Contusion

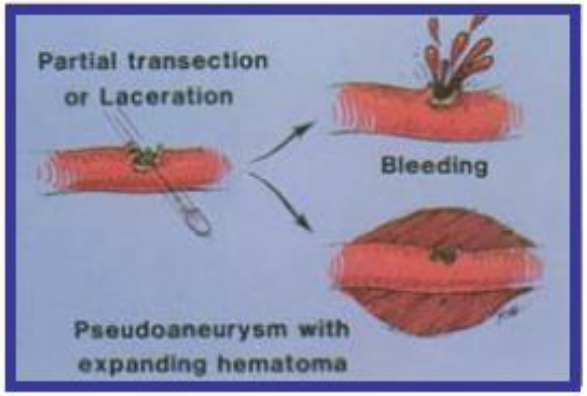
  } Adjacent to major artery
- Invasive procedures
  - Arteriography
  - Cardiac catheterization
  - Balloon angioplasty

American college of surgeons – Committee on trauma 2002

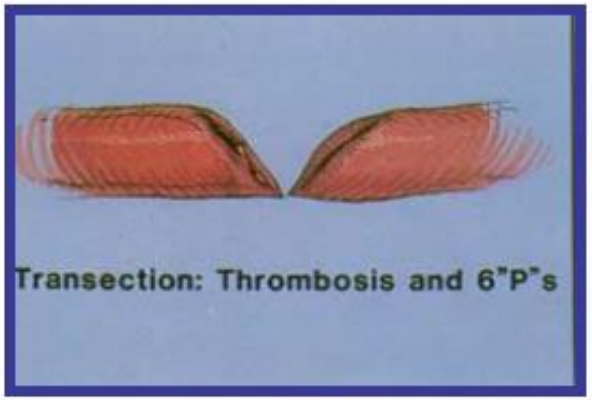
Classification of lesions



Contusion



Partial transection



Transection

Arteriovenous fistula

American college of surgeons – Committee on trauma 2002

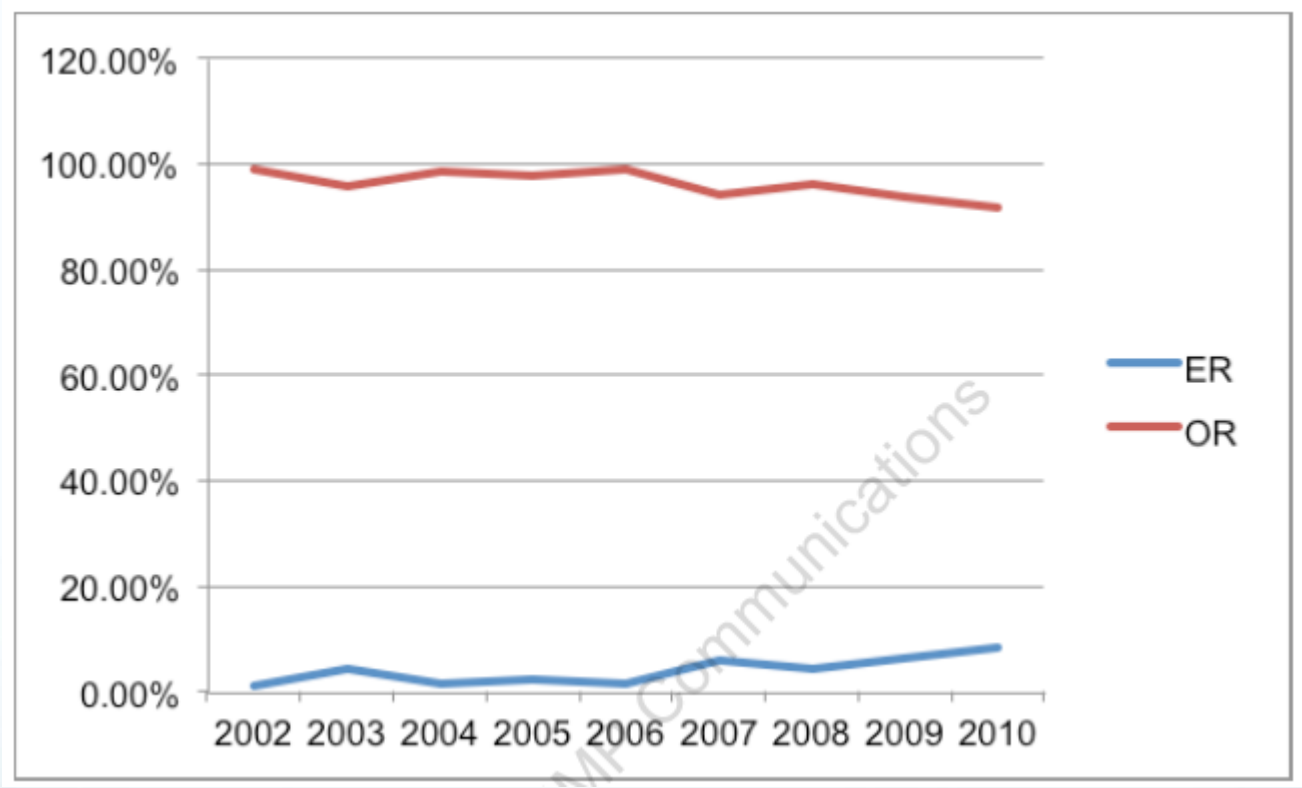
Review of Surgical Treatment of Popliteal Artery Injury: Outcomes of Open vs Endovascular Repair

Tze-Woei Tan, MD; Francesca D. Armstrong, MD; Wayne W. Zhang, MD
From Louisiana State University Health, Shreveport, Louisiana.

ABSTRACT: **Background:** Popliteal artery injury (PAI) is the second most common infrainguinal arterial injury and is being increasingly treated with an endovascular approach. **Objective:** We examined the outcomes of surgical repair of popliteal artery injury. **Methods:** Patients who underwent surgery for PAI were identified from National Trauma Database (NTDB) using ICD-9 and CPT codes. Patients with severe head injury (GCS <8), age ≤16 and >65 were excluded. Demographics, injury characteristics, and outcomes of endovascular repair (ER) of PAI were compared with open repair (OR). The trend of ER of PAI over time was also evaluated. **Results:** Between 2002 and 2010, 1,388 patients underwent surgery for PAI. The majority of PAI was treated with OR (95%) and 5% (67/1,388) was treated with ER. Endovascular repair of PAI was more commonly performed in whites (60% vs 38%, P<.001) whereas OR was performed more commonly in blacks (37% vs 10%, P<.001). Patients who underwent ER were more likely to have associated fracture (18% vs 8%, P<.001) but had a lower number of venous injury (4% vs 8%, P<.001). Overall mortality (ER: 3% vs OR: 2%), amputation rate (13% vs 19%), wound infection rate (2% vs 3%), and hospital length of stay (15 days vs 18 days) were similar between both groups. Patients who underwent ER had significantly lower rates of fasciotomy (33% vs 61%, P<.001) when compared to OR. Also, ER had been increasingly used for repair of PAI (2008: 4%, 2009: 6%, 2010: 8%, P<.001). **Conclusions:** Endovascular approach has been increasingly used for repair of popliteal artery injury. Patients who underwent endovascular treatment for popliteal artery injury had comparable short-term outcomes and similar hospital length of stay to OR. Endovascular approach appears to be a safe alternative to traditional OR in selected patients.

VASCULAR DISEASE MANAGEMENT 2016;13(8):E176-E182

Review of Surgical Treatment of Popliteal Artery Injury: Outcomes of Open vs Endovascular Repair



Trend of endovascular repair (ER) and open repair (OR) for popliteal artery injury.

Endovascular approach in patients with PAI (2002: 1%, 2003: 4%, 2004: 2%, 2005: 2%, 2006: 1%, 2007: 6%, 2008: 4%, 2009: 6%, 2010: 8%)

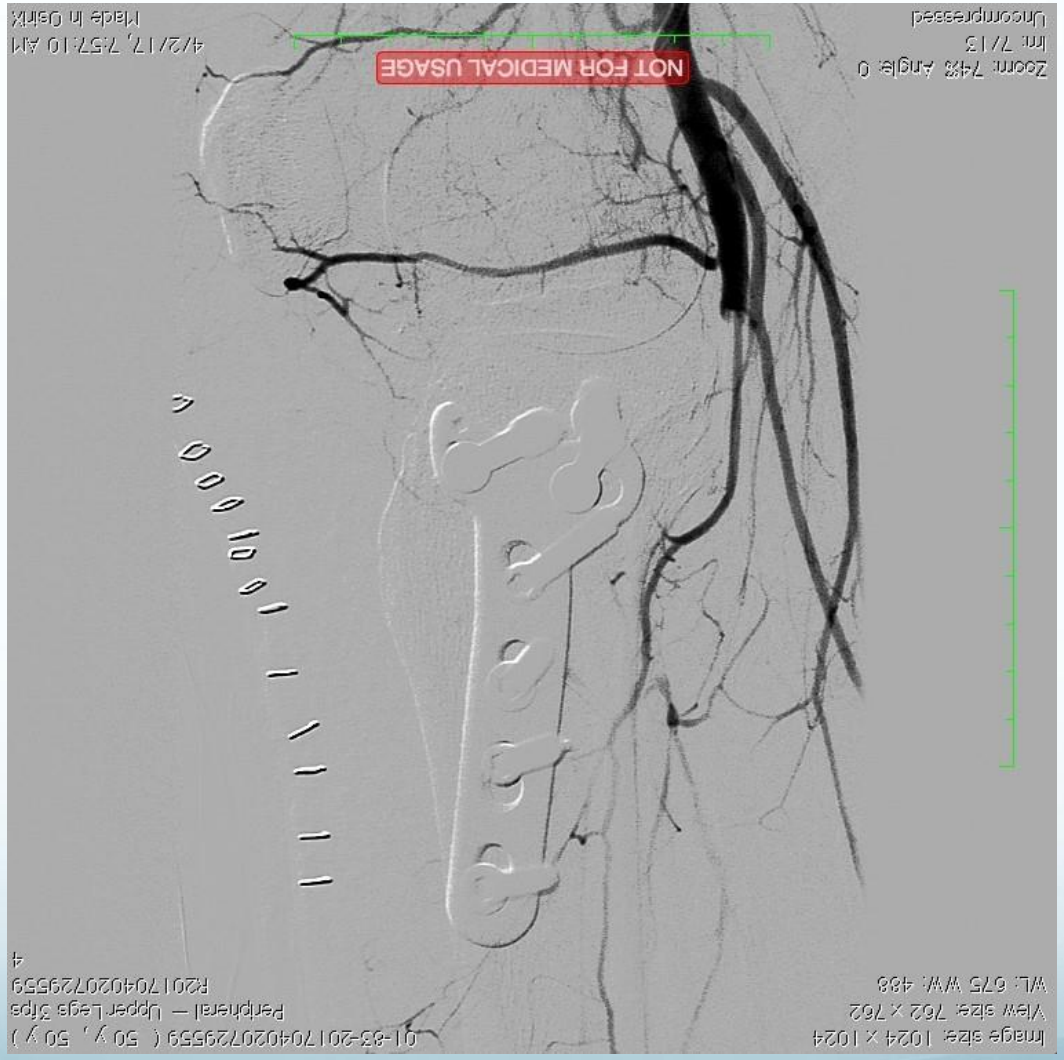
Case No 1

The picture only is not enough

CASE SUMMARY

- Female patient 50 years old had motobike accident and knee trauma.
- Her upper head of tibia bone was fractured and was fixed by surgery.
- The vascular ultrasound checked the lower limb arteries because no pulse was on the knee and ankle. The result showed left popliteal artery occluded.
- Angiography and intervention was indicated.

The occluded left popliteal – P2



Balloon 2.5x20

After ballooning

Balloon 4.0x30

Final result

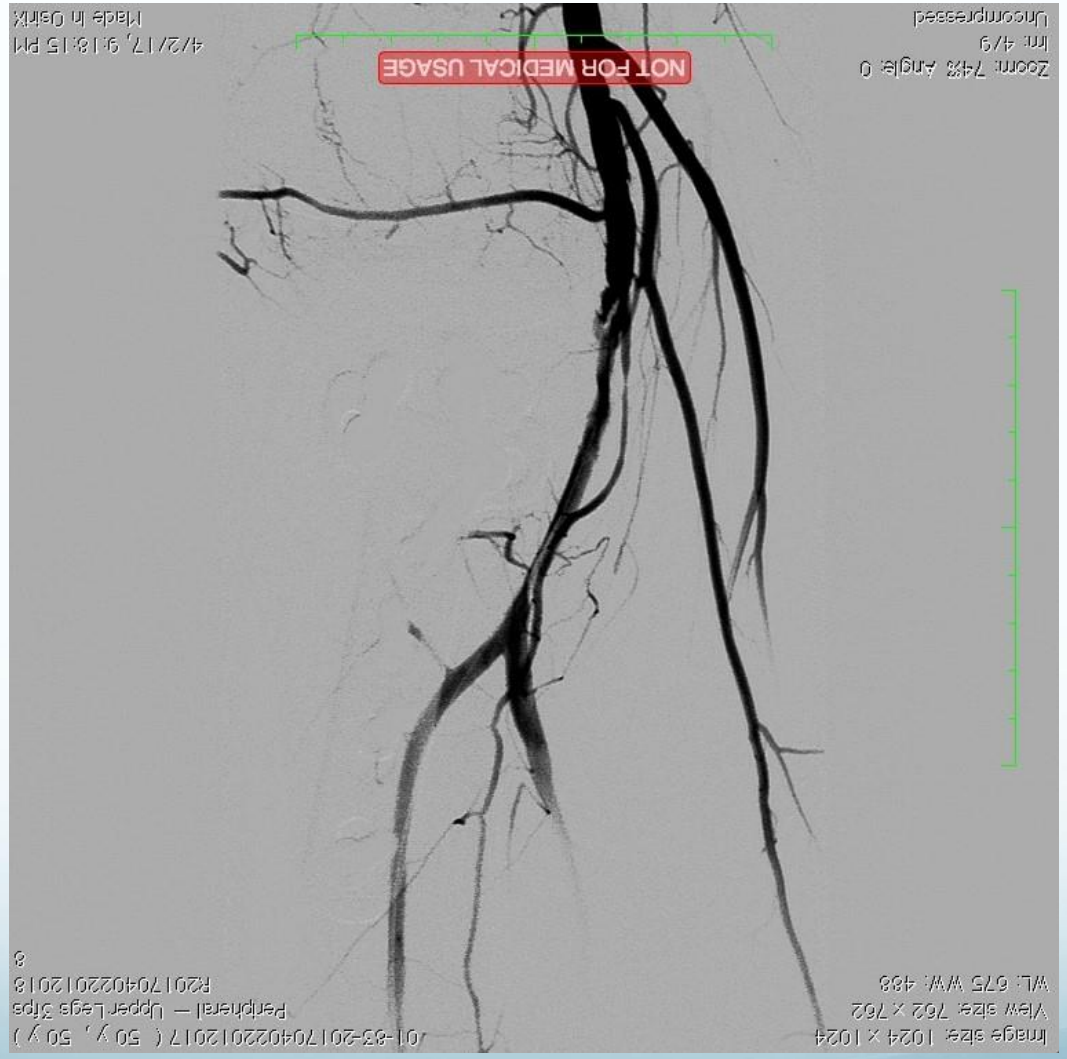
Happy and Finish

Restenosis after 12h

Restenosis after 12h

Balloon 2.5x20

After ballooning



Nitinol stent 6.0x60 mm

Final result

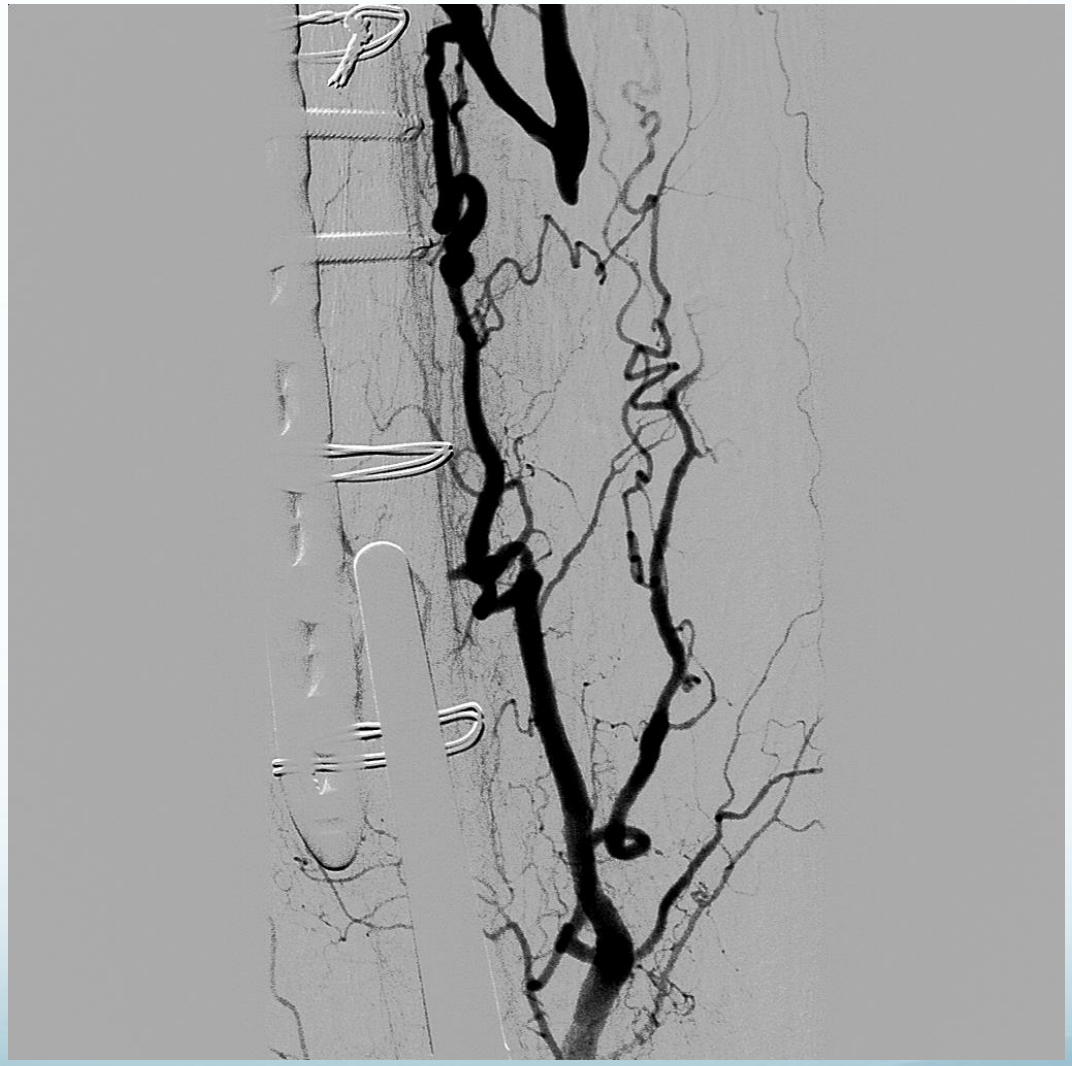
Case No 2

No More Options

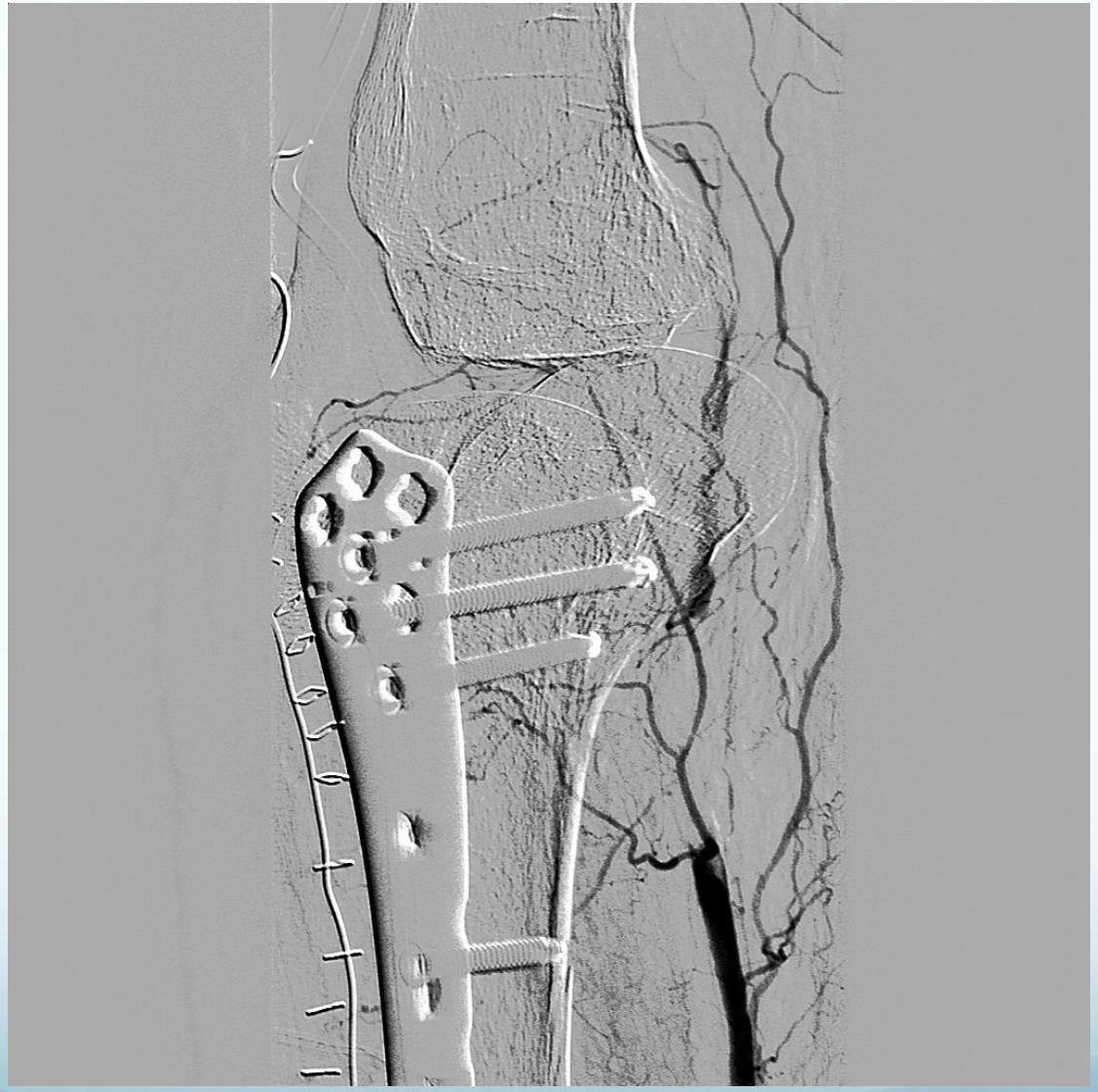
CASE SUMMARY

- The old female patient (88 years old) was hit by motobike and her left lower head of femoral bone was fractured.
- She had operation to fix her femoral bone.
- After surgery, no pulse was deteted on the left knee and ankle. The vascular echo's result showed occlusion lessions of left popliteal and mid SFA.
- Endovascular intervention was indicated.

Mid left SFA CTO with good collateral



The left P1 popliteal occluded



Retrograde approach from posterior Tibia artery

Wire 0.0014 crossing with 4F sheath

Nitinol stent 6.0x60

Post dilation with balloon 5.0x20

Final result

Final result

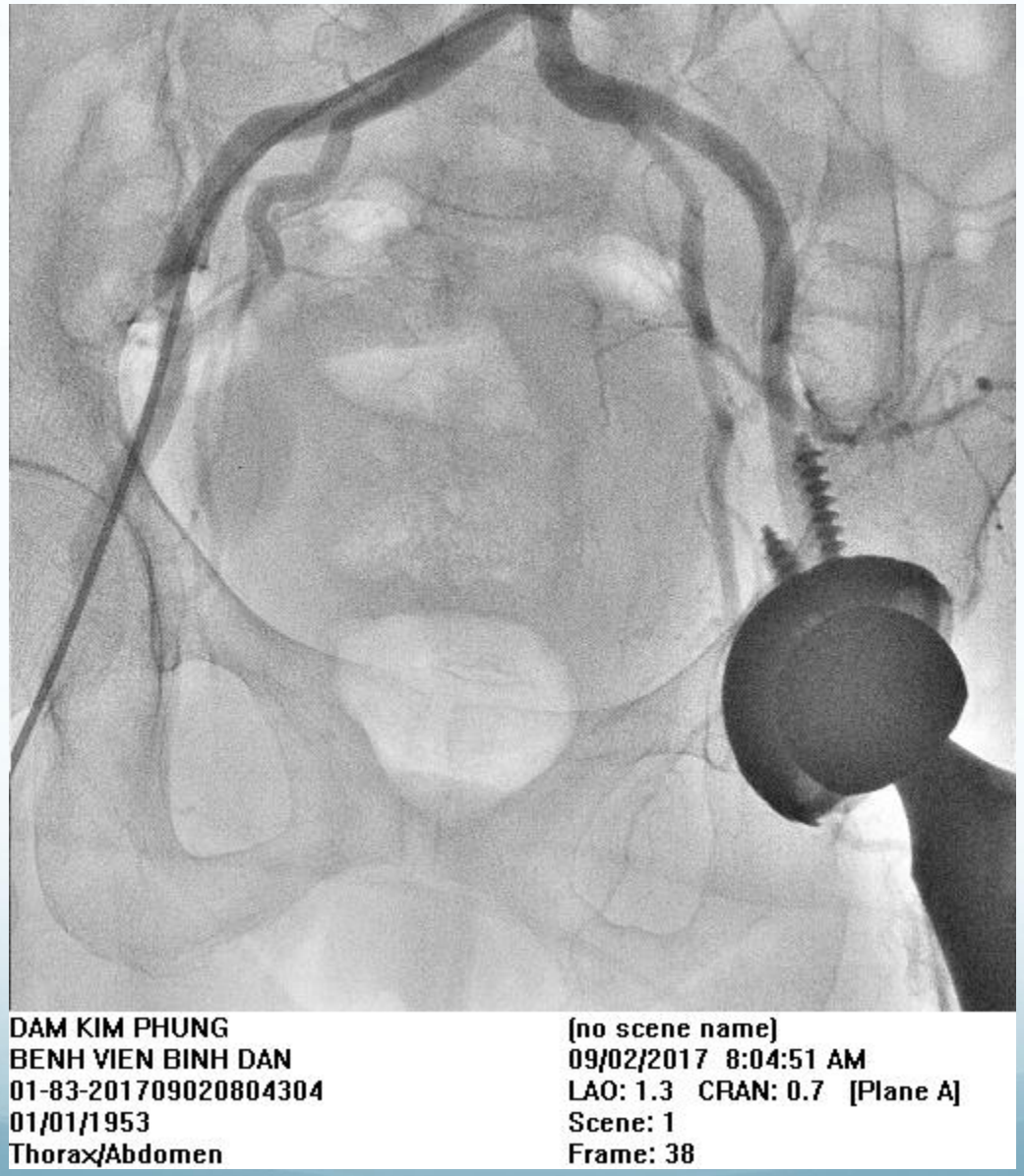
Case No 3

Many Options

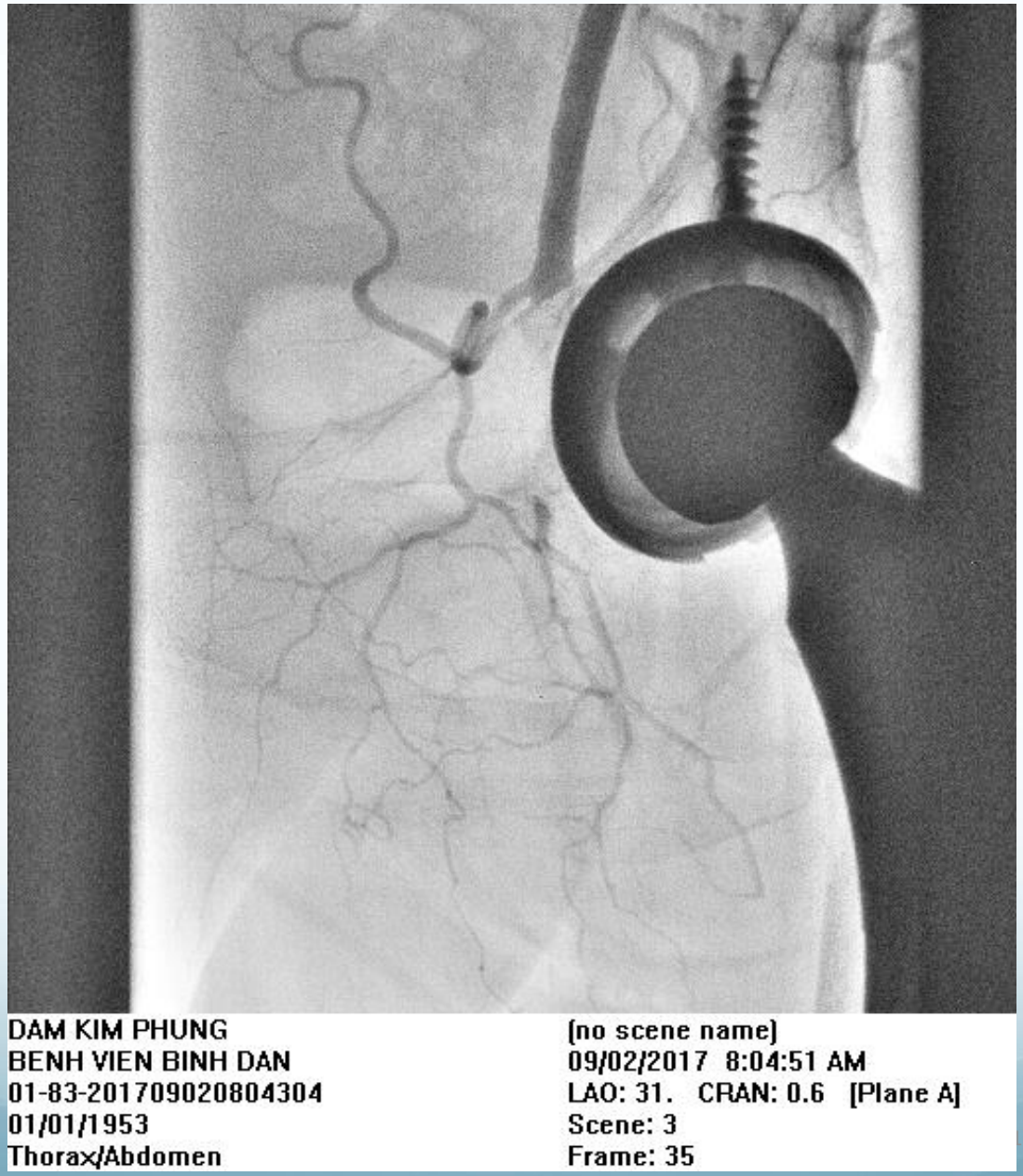
CASE SUMMARY

- This is a female patient 64 years old who had a left hip joint replacement surgery.
- After surgery, she complained that her left leg painful, numdness and cold.
- The vascular ultrasound was performed and detected the left common femoral artery was occluded.
- Angiography and intervention was indicated.

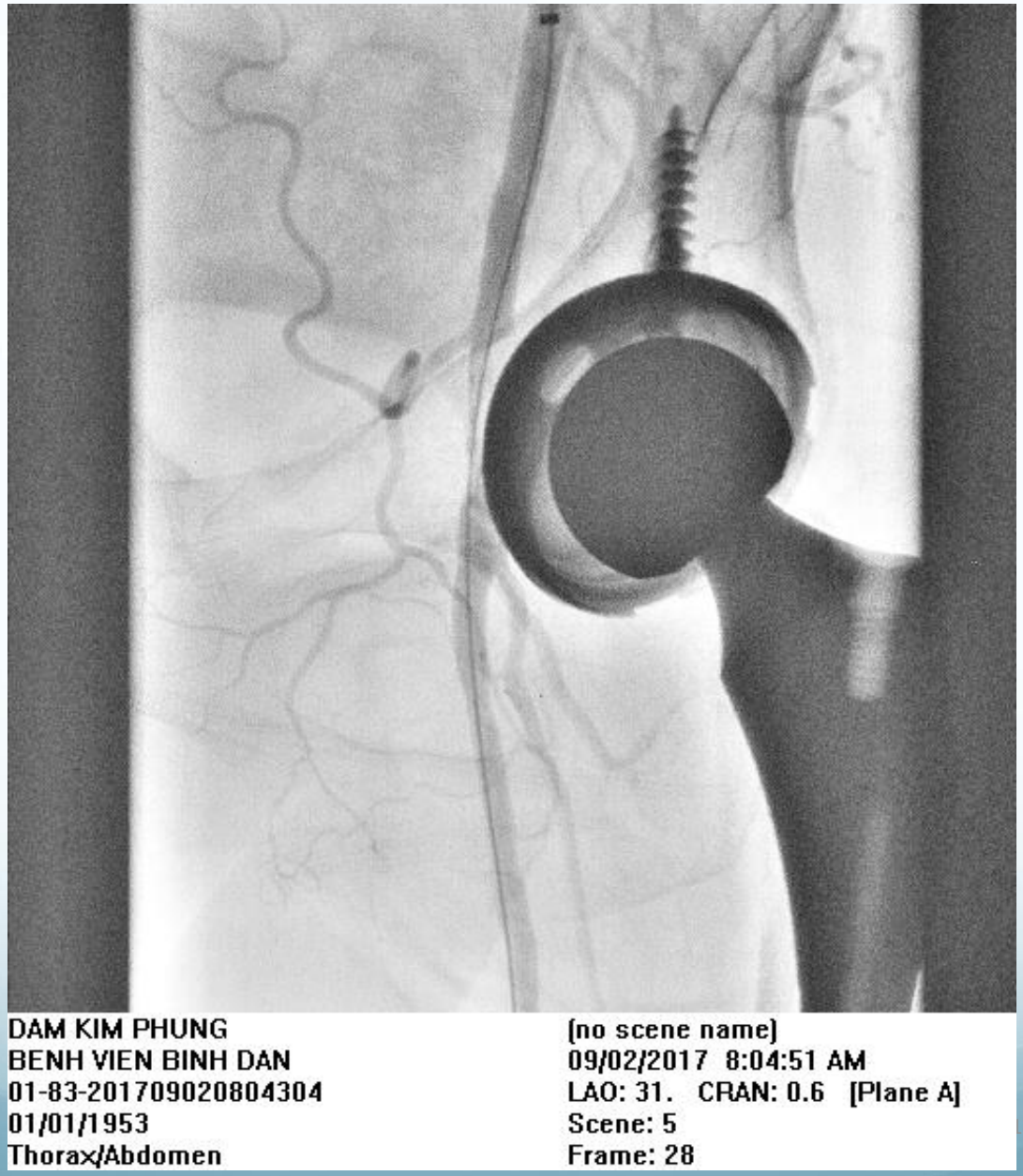
Crossover approach



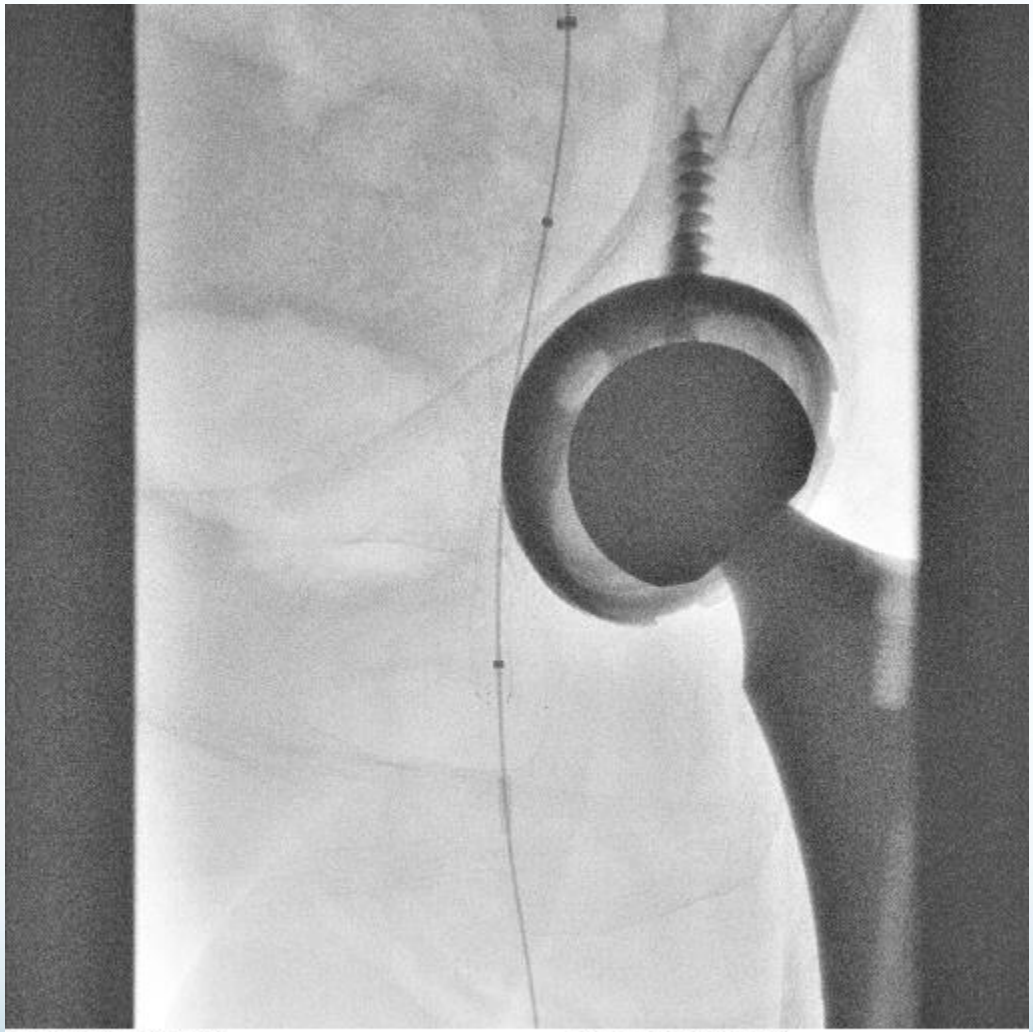
The occluded left common femoral artery



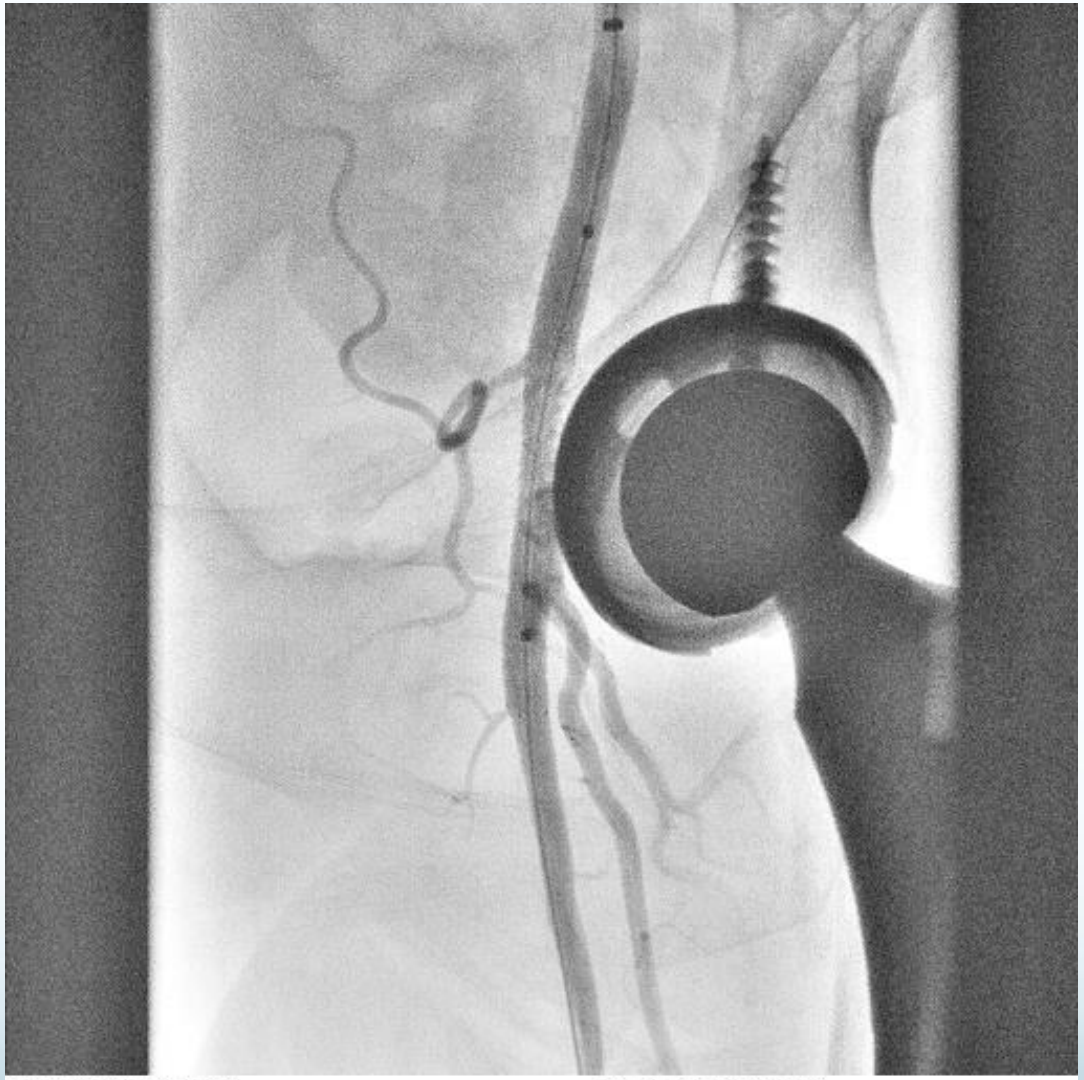
Wire 0.0035 Crossing



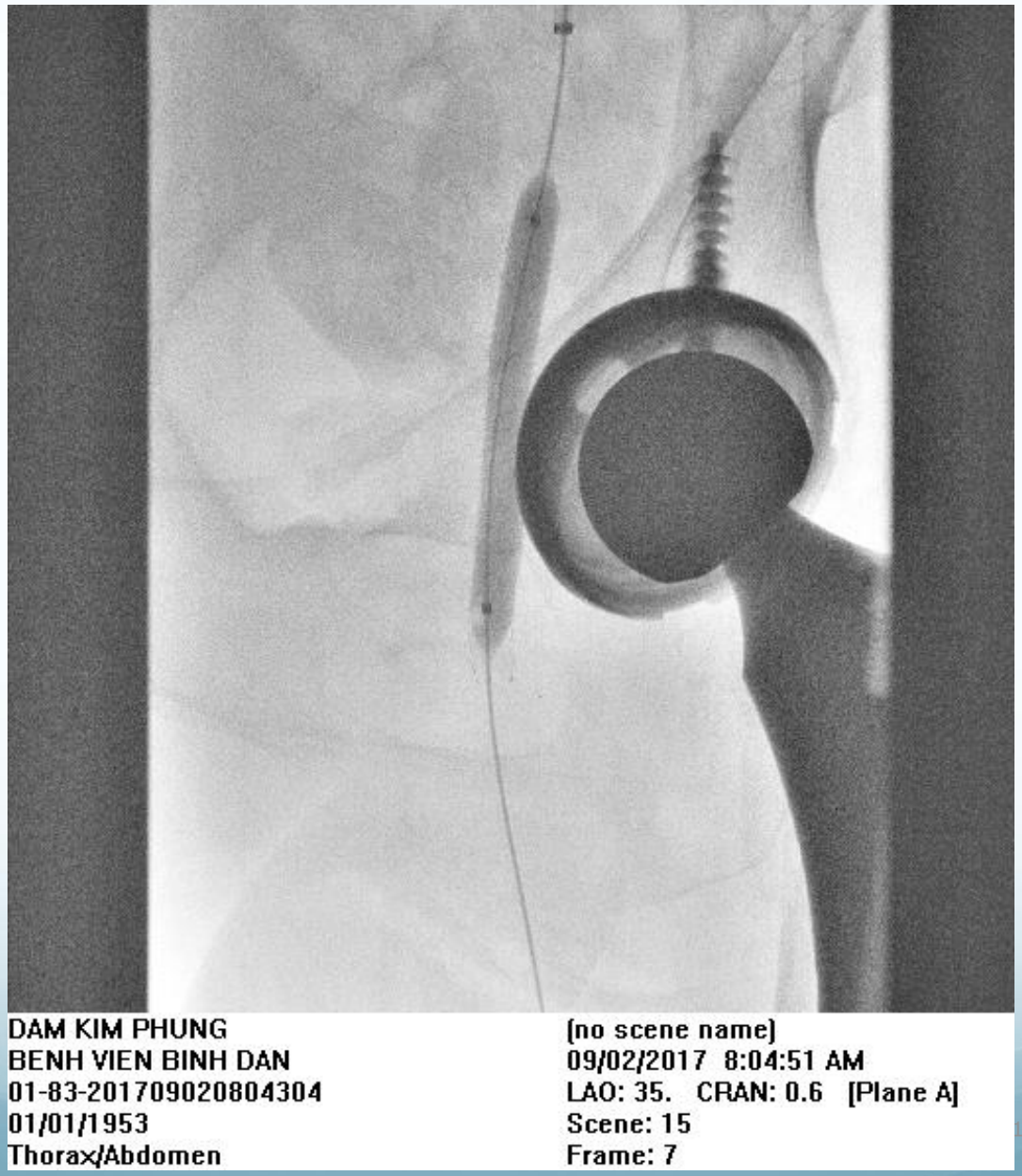
Nitinol stent 8.0x60



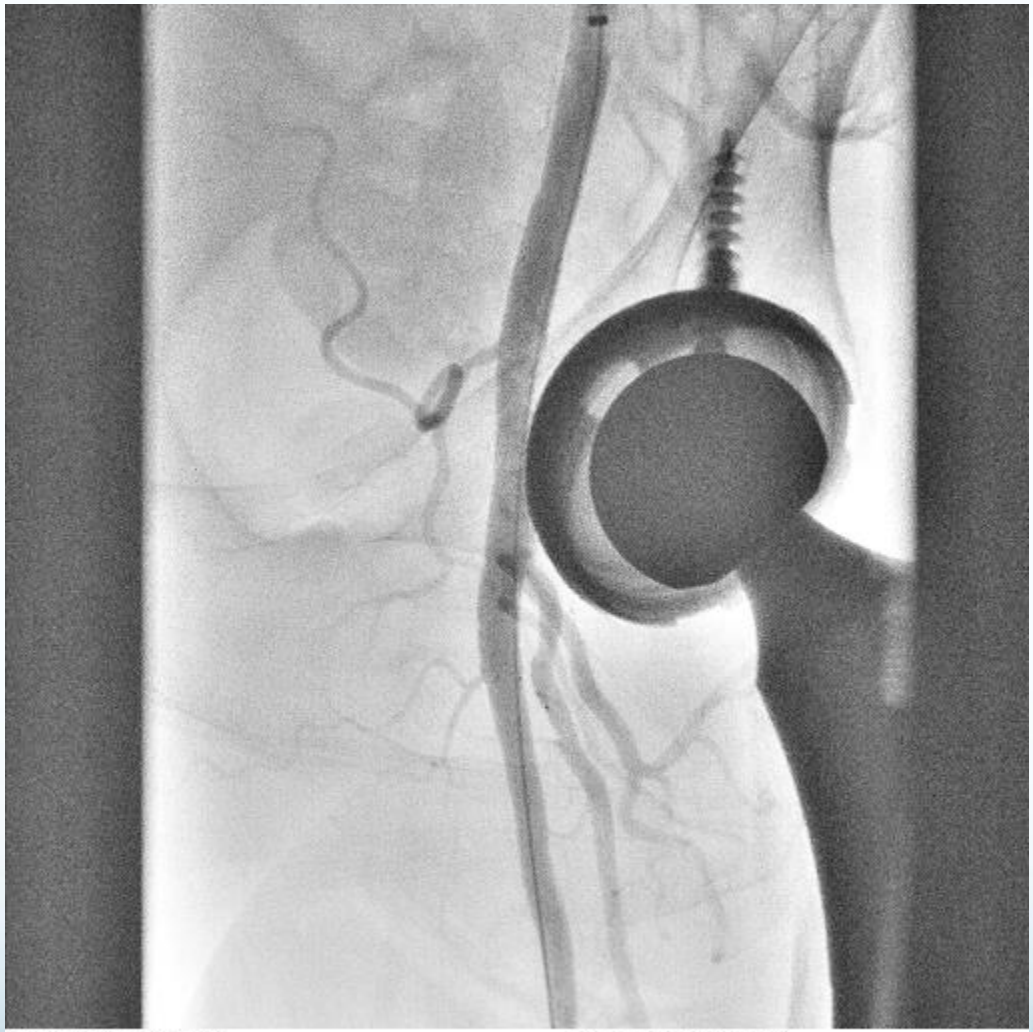
After Stenting



Postdilation with Balloon 7.0x60



Final result



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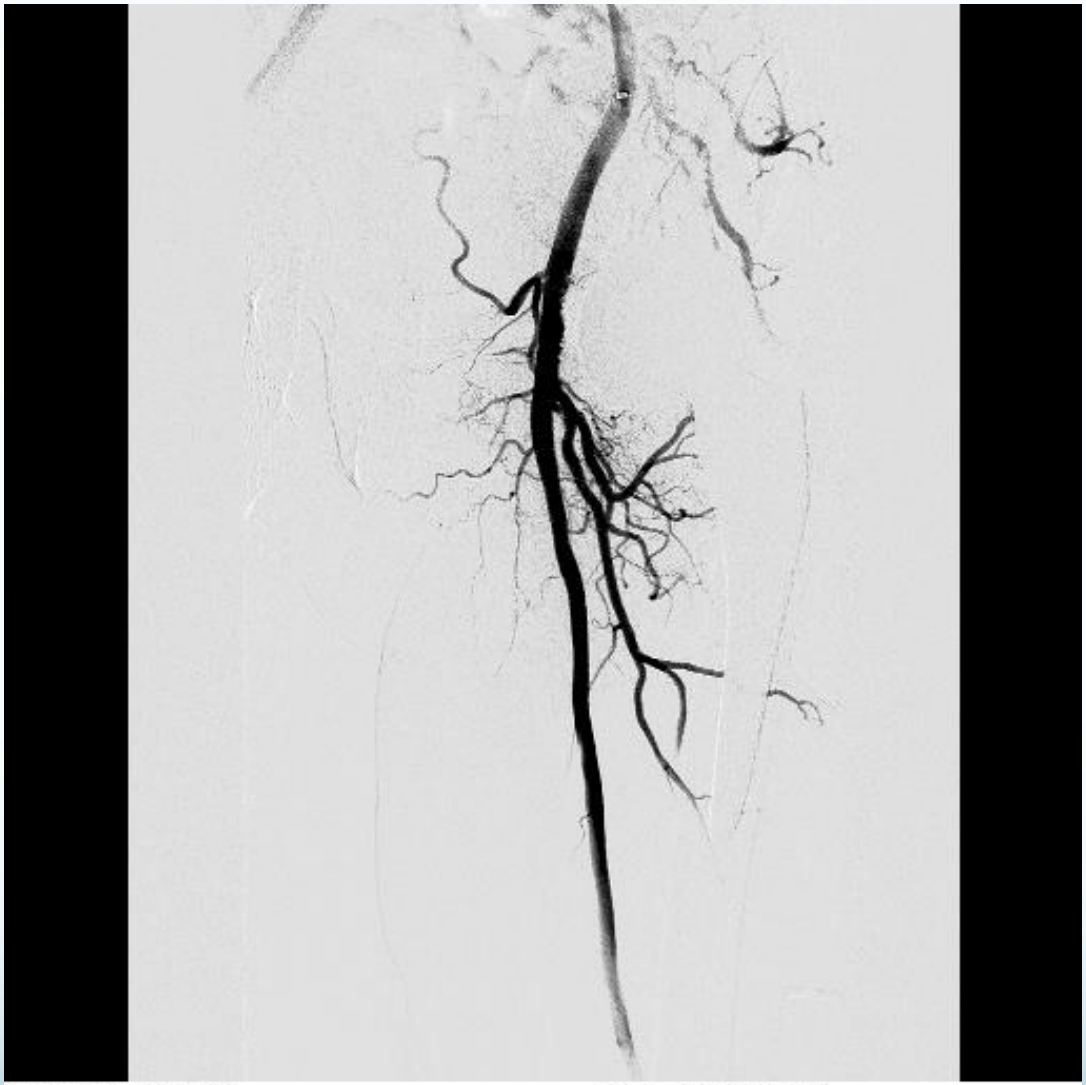


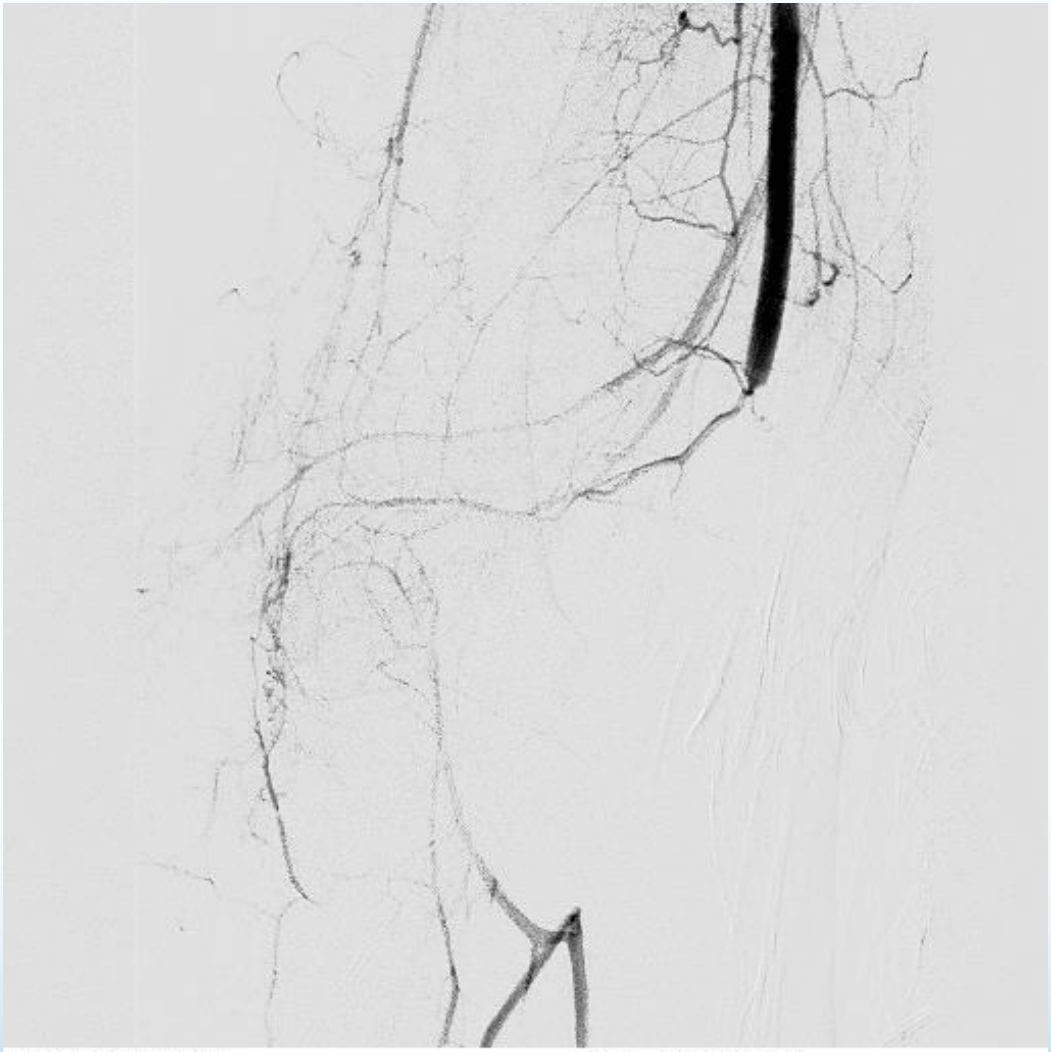
Case No 4

Not forget the artery

CASE SUMMARY

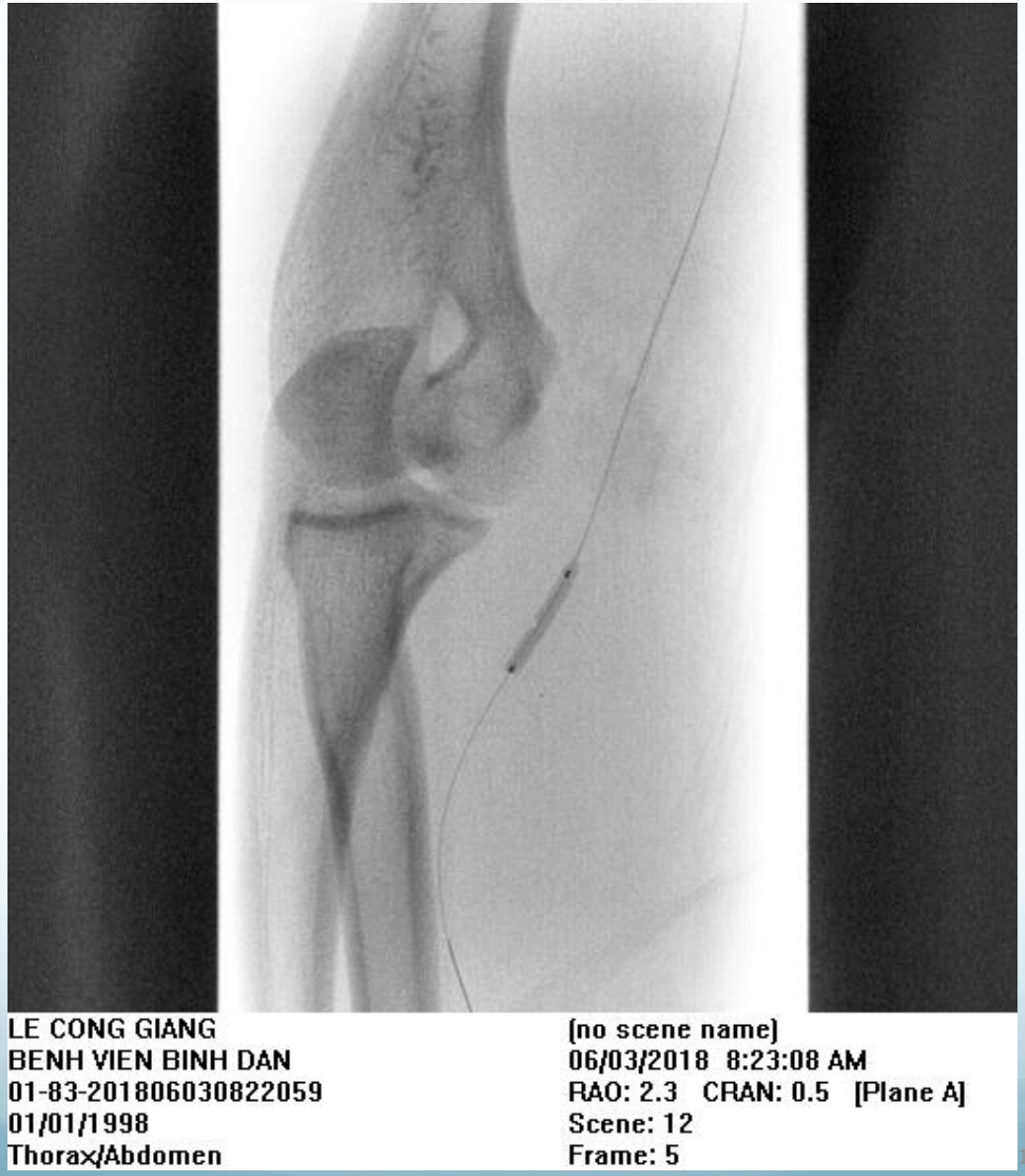
- Male patient 20 years old, the mechanic had accident in working. A big rod of iron droped and hit his right arm and made his arm swelled big and very painful after that.
- He was hospitalized and checked up. No dislocation or bone fracture, but no pulse was on the right arm.
- The angiography and intervention was indicated.

The right distal arm artery was occluded



Balloon 1.5x15

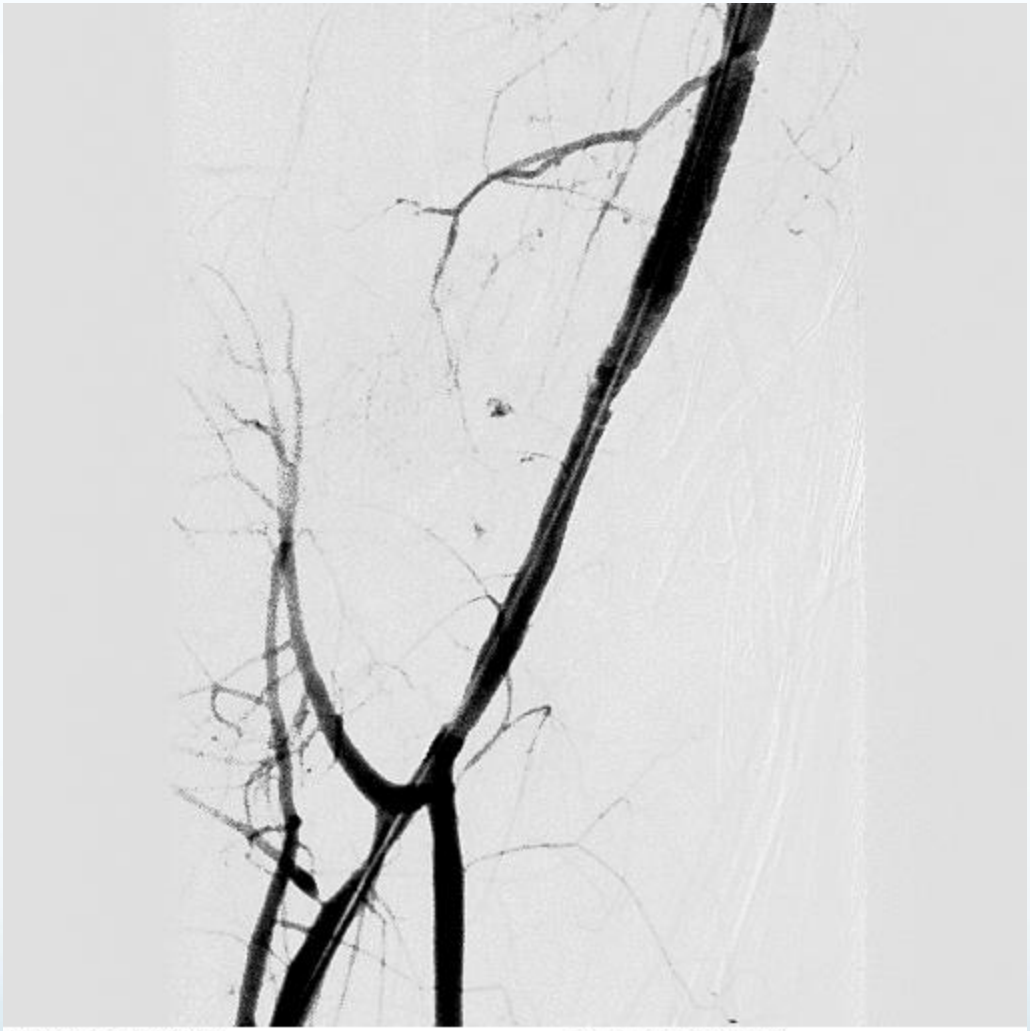
Balloon 2.0x15



After ballooning

Nitinol stent 7.0x80 mm

Final result



Summary

- This is a difficult procedure.
- The operator should be a experienced specialist.
- There are always vascular surgeons for backup.
- The short term result is good.
- The functional recovery progresses faster.

THANK YOU