



# Emergency Embolisation Case Collection



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Uncontrolled bleeding accounts for 30-40% of trauma mortality, so rapid, effective embolisation is vital. Explore these real-world cases where the prompt intervention and confident choice of embolic treatment strategy by Interventional Radiologists have been essential in delivering positive outcomes.



## Embolisation of traumatic renal laceration

Dr Mohammad Arabi, Riyadh, KSA



## Embolisation of bleeding AVM in the kidney

Dr Alessandro Valdata, Genoa, Italy



## Embolisation of pseudoaneurysm of renal artery branch

Dr Bader Al-Mutairi, Jeddah, KSA



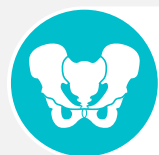
## Post-traumatic splenic embolisation

Dr Antonio Cicorelli, Pisa, Italy



## Embolisation of blunt hepatic trauma

Dr Erika Kashef, London, UK



## Embolisation of ruptured internal iliac artery

Dr Erika Kashef, London, UK



## Embolisation of gastro-duodenal and pancreatico-duodenal arteries

Dr Gianpaolo Santini, Naples, Italy







# Embolisation of traumatic renal laceration

**Dr Mohammad Arabi, FRCR, FPAIRS, FSIR**

Consultant Vascular Interventional Radiologist, National Guard Health Affairs, Riyadh, KSA



## Presentation

- 19-year-old male
- Multiple trauma following fall from the third floor of building:
  - Shattered right kidney
  - Liver laceration
  - Pelvic fracture
  - Hypovolemic shock with massive hematuria

## Treatment

- Selective right renal angiogram demonstrated:
  - No filling of the right lower-pole parenchyma
  - Suspected areas of extravasation from the lower- and mid-pole branches
- Super-selective catheterisation with Renegade™ HI-FLO microcatheter showed multiple areas of active extravasation from the mid- and lower-pole branches
- These branches were successfully embolised using Interlock™ detachable microcoils (two 2mm x 6mm x 8cm and two 2mm x 3mm x 2.3cm Interlock coils)
- Final renal angiogram demonstrated preserved parenchymal staining of the upper pole with no residual active extravasation

## Rationale for embolic usage

- Size of Interlock coils was suitable for this selective renal embolisation case in order to preserve the normal renal parenchyma

## Outcome

- CT scan four days post embolisation showed resolving perinephric hematoma with preservation of upper-pole enhancement
- Patient was discharged home two weeks later with normal renal function

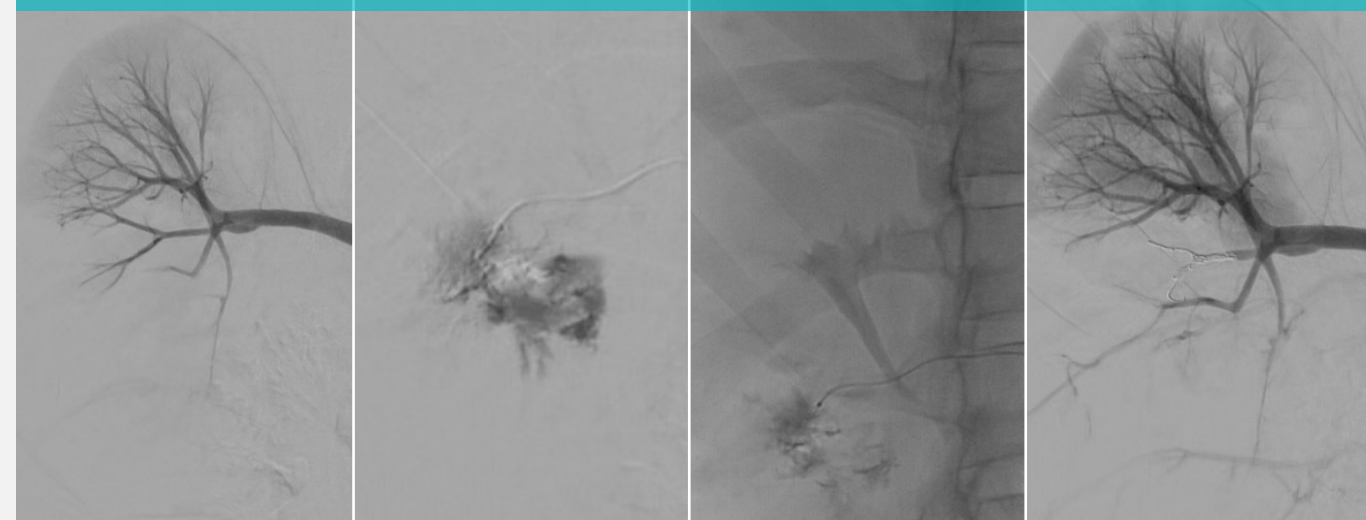
## Conclusion

This case illustrates successful non-surgical management of traumatic renal injuries with preservation of normal renal function.

## Presentation



## Treatment



## Outcome





# Embolisation of bleeding AVM in the kidney

Dr Alessandro Valdata

UO Radiologia Vascolare ed Interventistica, Ente Ospedaliero, "Ospedali Galliera", Genoa, Italy



## Presentation

- 34-year-old female
- Emergency presentation with right-side pain
- Previous renal colic and massive hematuria
- CT scan showed right renal and ureteral pelvis dilatation with presence of hyperdense material (likely blood clots)

## Treatment

- A Flexima™ ureteral stent was placed to manage renal colic while angiography performed
- Angiography showed the presence of a bilateral double renal artery and a mesorenal cirroid AVM supported by the superior renal artery
- Superselective studies of intraparenchymal vessels were performed (Direxion™ microcatheter)
- Embolisation was performed using eight VortX™ coils in order to reduce the flow rate supplying the AVM and to control the hematuria

## Rationale for embolic usage

- In this case, the use of a liquid embolic was not appropriate due to the location of the AVM. The limitations of liquid in terms of precise control of placement risk ischemia to healthy tissue that can be avoided with coils
- Pushable VortX coils were able to obtain a fast and effective occlusion, thanks to the thrombogenic effect of the PET fibers

## Outcome

- CT angiography at one month showed normal renal excretion with regular representation of the pelvis and ureter
- The fistula was significantly reduced with permanent absence of hematuria

### Presentation: CT scan with presence of renal clots and pelvis dilation



### Treatment: Selective angiography with AVM and venous reflux



### Coil placement



### Coil embolisation and final result







# Embolisation of pseudoaneurysm of renal artery branch

**Dr Bader Al-Mutairi**

Consultant and Section Head of Interventional Radiology, King Fahad Armed Forces Hospital, Jeddah, KSA



## Presentation

- 48-year-old male patient
- Developed flank pain and hematuria following PCNL for right kidney stones
- CT scan showed pseudoaneurysm in branch of right renal artery

## Treatment

- Selective catheterisation using Renegade™ 0.21 co-axial microcatheter
- Embolisation using one 2D shape 2mm x 6cm Interlock™ coil

## Rationale for embolic usage

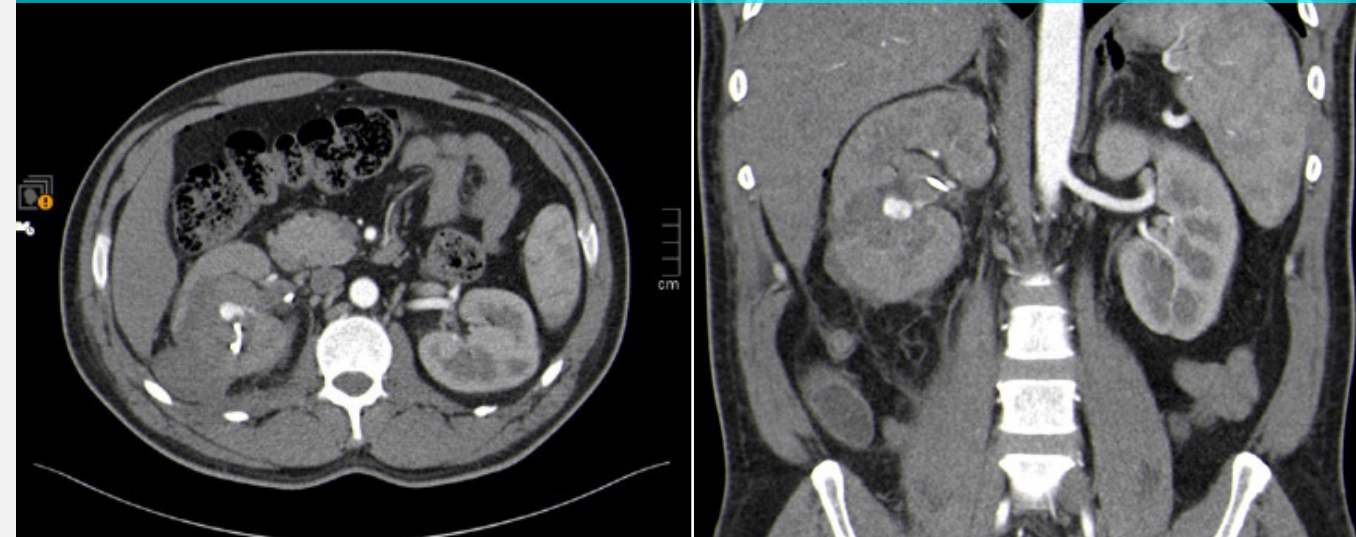
Interlock coils were chosen because:

- Precise size selection from a wide range allows selective embolisation, minimising impact on surrounding parenchyma
- High thrombogenicity stops bleeding fast

## Outcome

- This embolisation procedure effectively saved the patient's kidney, stopping the bleeding and the fall in hemoglobin levels
- The patient was discharged home two days later

## Presentation



## Treatment





# Post-traumatic splenic embolisation

Dr Antonio Cicorelli

UO Radiologia Interventistica. Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy



## Presentation

- 64-year-old male
- Admitted to the ER after a road-traffic accident with bruising on his left side and knee
- CT examination with contrast medium revealed two small pseudoaneurysmatic formations in the splenic parenchyma

## Treatment

- Selective angiographic examination of the splenic artery confirmed the presence of two pseudoaneurysmatic formations supplied by the upper polar branch
- Direxion™ torqueable microcatheter (0.021") was used to reach the branch supplying the traumatic lesions
- The branch was superselectively embolised with Interlock™ coils. One 2mm x 4cm, one 3mm x 6cm and one 4mm x 8cm

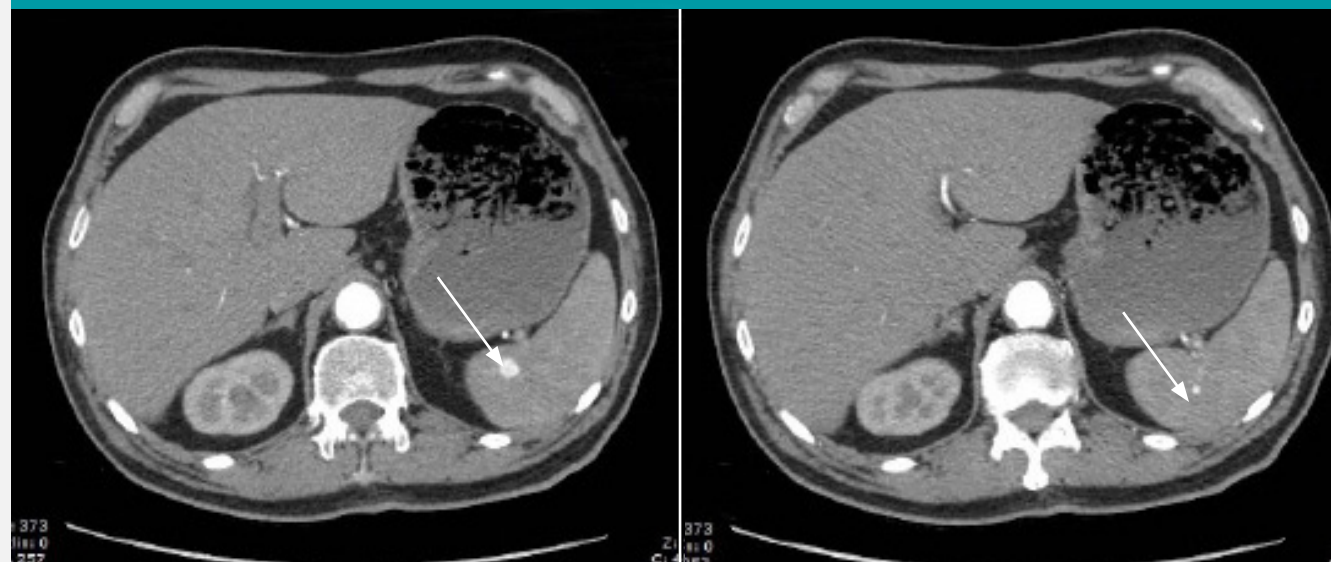
## Rationale for embolic usage

- The Interlock-18 Fibered IDC Occlusion System was chosen for this case since it offers:
  - Precision and control during release, with the ability to advance or retract the coil as required
  - Rapid thrombogenic action
  - Excellent flexibility

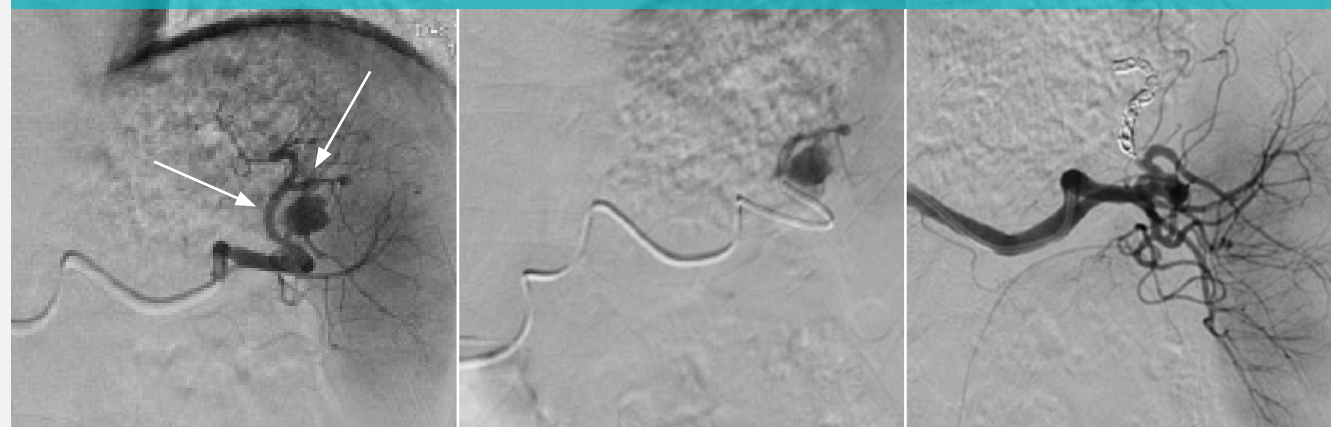
## Conclusion

- Selective embolisation treatment avoids splenectomy in selected cases and allows for rapid functional recovery of the spleen
- Conservative treatment offers faster recovery for the patient and discharge from hospital

**Presentation:** Pre-treatment CT with contrast medium detects the presence of two splenic pseudoaneurysms (arrows)



**Treatment:** Angiography shows two splenic lesions in selective (left) and superselective (middle) acquisition with complete embolisation of the pseudoaneurysmatic lesions (right)



**Outcome:** CT at discharge of the patient demonstrates the absence of arterial feeders to the two treated lesions







# Embolisation of blunt hepatic trauma

**Dr Erika Kashef**

Consultant Interventional Radiologist and Trauma Lead for Trauma Imaging, Imperial College NHS Trust, London, UK



## Presentation

- 35-year-old road-traffic accident victim
- Blunt traumatic injury
  - Code Red
  - Explorative laparotomy
- Follow-up CT at 24 hours
  - Routine trauma follow-up imaging shows an arteriovenous malformation (AVM)

## Treatment

- Angiography of hepatic artery
- AV fistula occluded with Interlock™ 0.018" embolisation

## Rationale for embolic usage

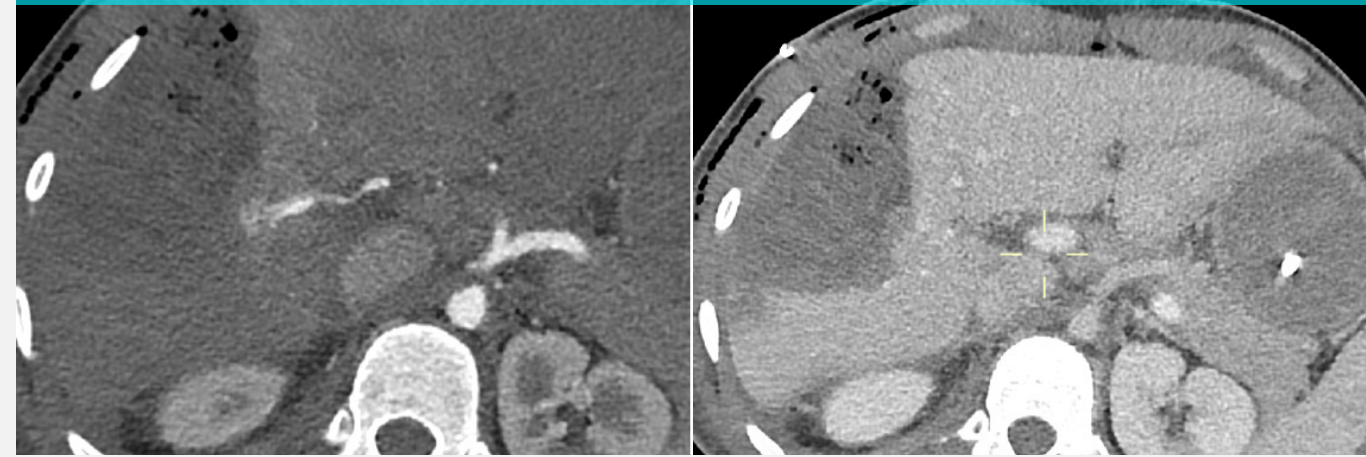
- This case was not suitable for PVA particles due to risk of distant emboli
- A pushable coil was not used as the size of the fistula was uncertain – it was important to be able to control the deployment of the coil in case of migration
- These patients are under-filled (hypovolemic), so when you measure them on CT, the vessels are smaller than in IR (by the time they come to IR, they have more intravascular volume and the vessel is larger). The choice of Interlock allows for this, ensuring the size chosen still fits the vessel

## Outcome

No further bleeding

AV: Arteriovenous  
CT: Computed tomography  
IR: Interventional radiology  
PVA: Polyvinyl alcohol

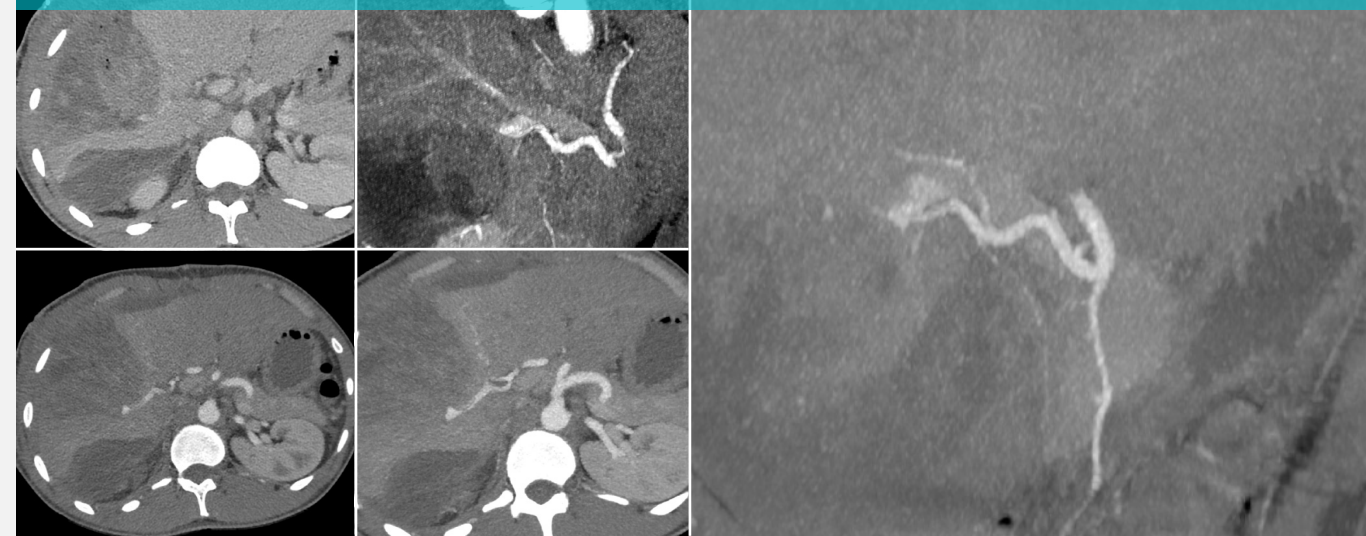
## Presentation



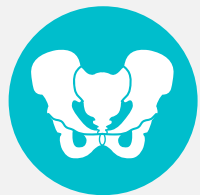
## Treatment



## Outcome







# Embolisation of ruptured internal iliac artery

**Dr Erika Kashef**

Consultant Interventional Radiologist and Trauma Lead for Trauma Imaging, Imperial College NHS Trust, London, UK



## Presentation

- 74-year-old man
- Sudden onset abdominal pain
- Hypotensive
- CTA: Ruptured right internal iliac artery (IIA)
- Transferred to vascular tertiary centre

## Treatment options & selection

- Open repair
- Amplatzer Plug
- Liquid embolic agent
- Stent and coil embolisation
- ✓ **COIL EMBOLISATION**

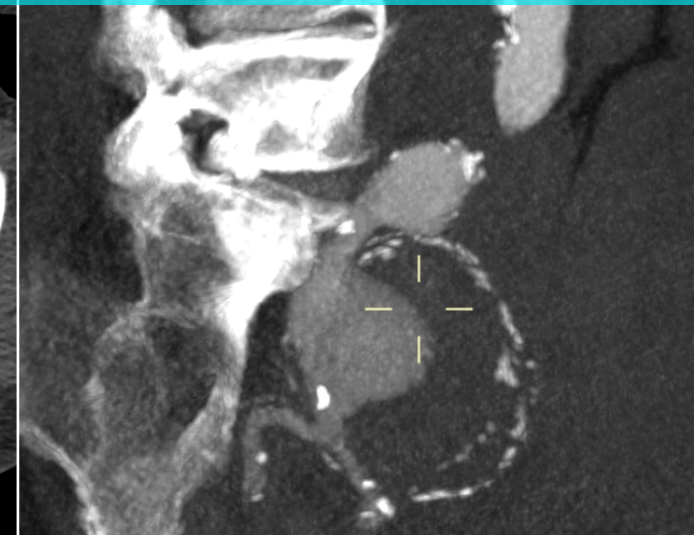
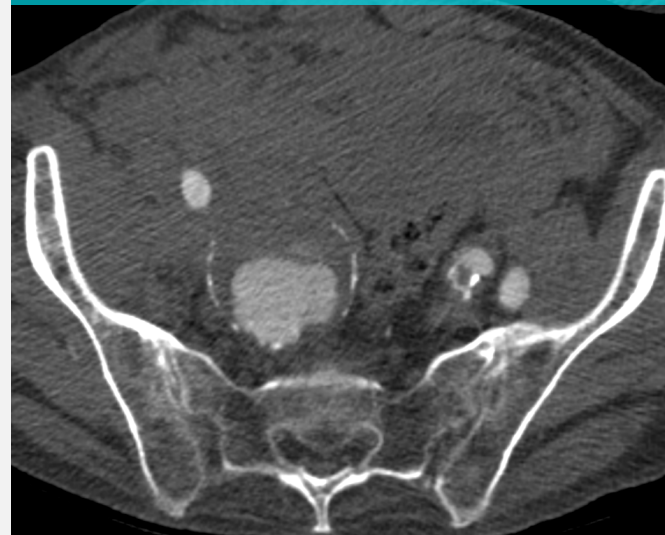
## Procedural considerations

- Important to create a “nest” and then pack with coils
- Long 0.035” Interlock™ coils are good for creating nests
  - 10mm x 25cm, 15mm x 40cm
- Pack with shorter (but still long) coils
  - 8mm x 20cm, 10mm x 20cm
- Pack until no more bleeding can be seen
- Covered stent seals the “front door” of the aneurysm
  - Branch embolisation is less important if the aneurysm is packed well
  - Less likely to have buttock claudication and other complications

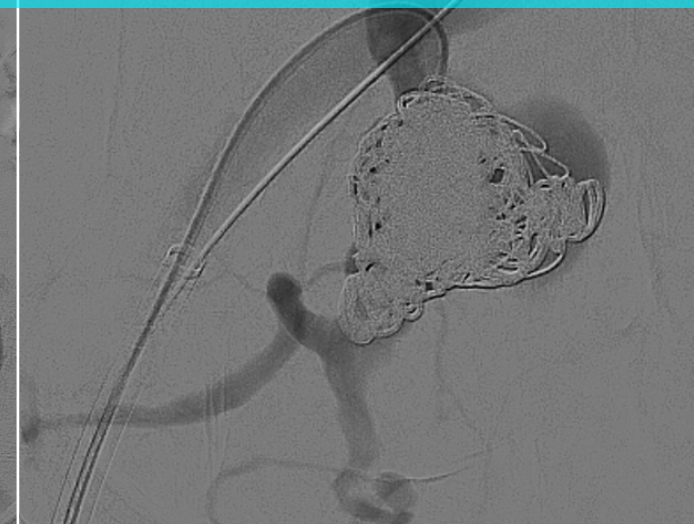
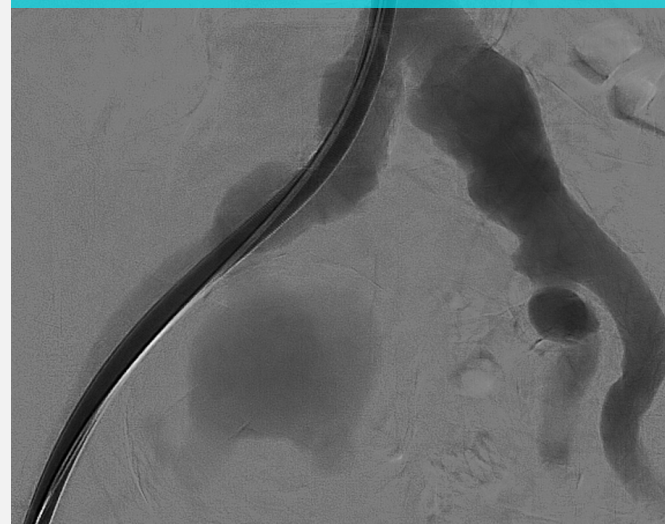
## Rationale for embolic usage

- Coil embolisation and stent are the correct combination for treating a ruptured internal iliac artery
- Interlock coils are long, making them very suitable (a lot of 20cm and 40cm lengths were used!)

## Presentation



## Treatment







# Embolisation of gastro-duodenal and pancreaticoduodenal arteries

**Dr Gianpaolo Santini**

Ospedale del Mare, Naples, Italy



## Presentation

- 70-year-old patient
- On anticoagulation therapy
- Came to ER with bleeding in the upper GI vessels

## Treatment

- Truselect™ microcatheter (Bern 155cm) used to selectively catheterise the superior mesenteric artery and pancreaticoduodenal artery
- Embolisation was achieved using several pushable coils (4mm and 5mm diameter)

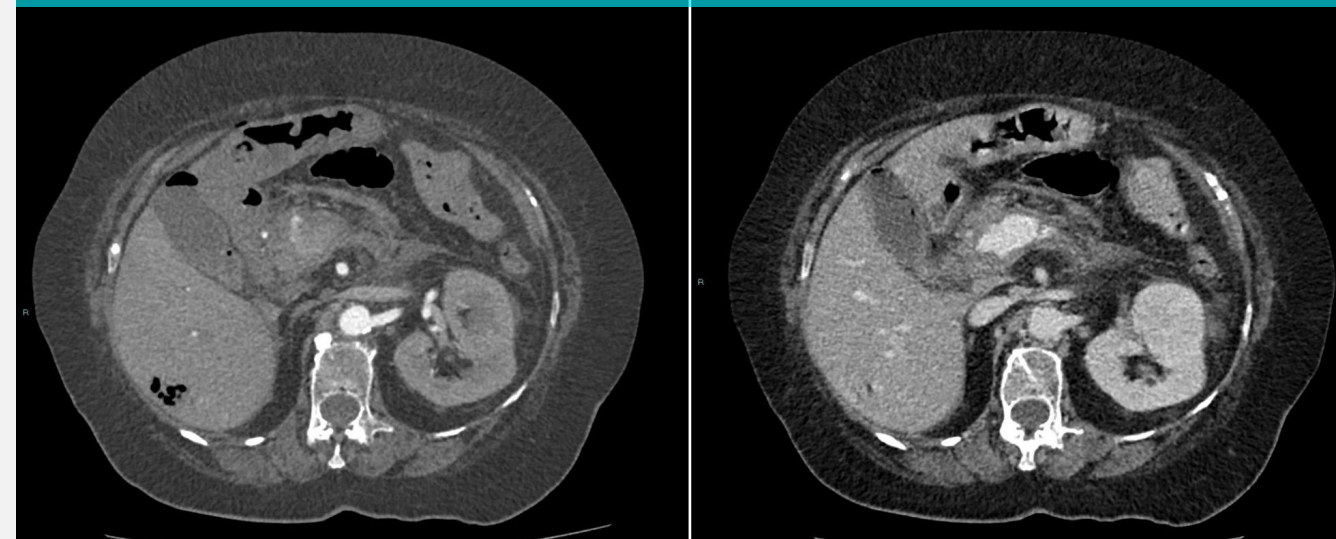
## Rationale for choice of embolic and microcatheter

- Bleeding recurrence can be an issue in the upper GI tract. With pushable coils, we were able to achieve a fast, precise and lasting embolisation
- The performance of the Truselect 2.0F microcatheter was very beneficial in this case as it offered excellent navigation and tip-shape retention. The hydrophilic coating allowed it to pass smoothly over the wire and the integrity of the Bern tip shape (essential for engaging vessels originating around the bowel) was retained throughout the procedure

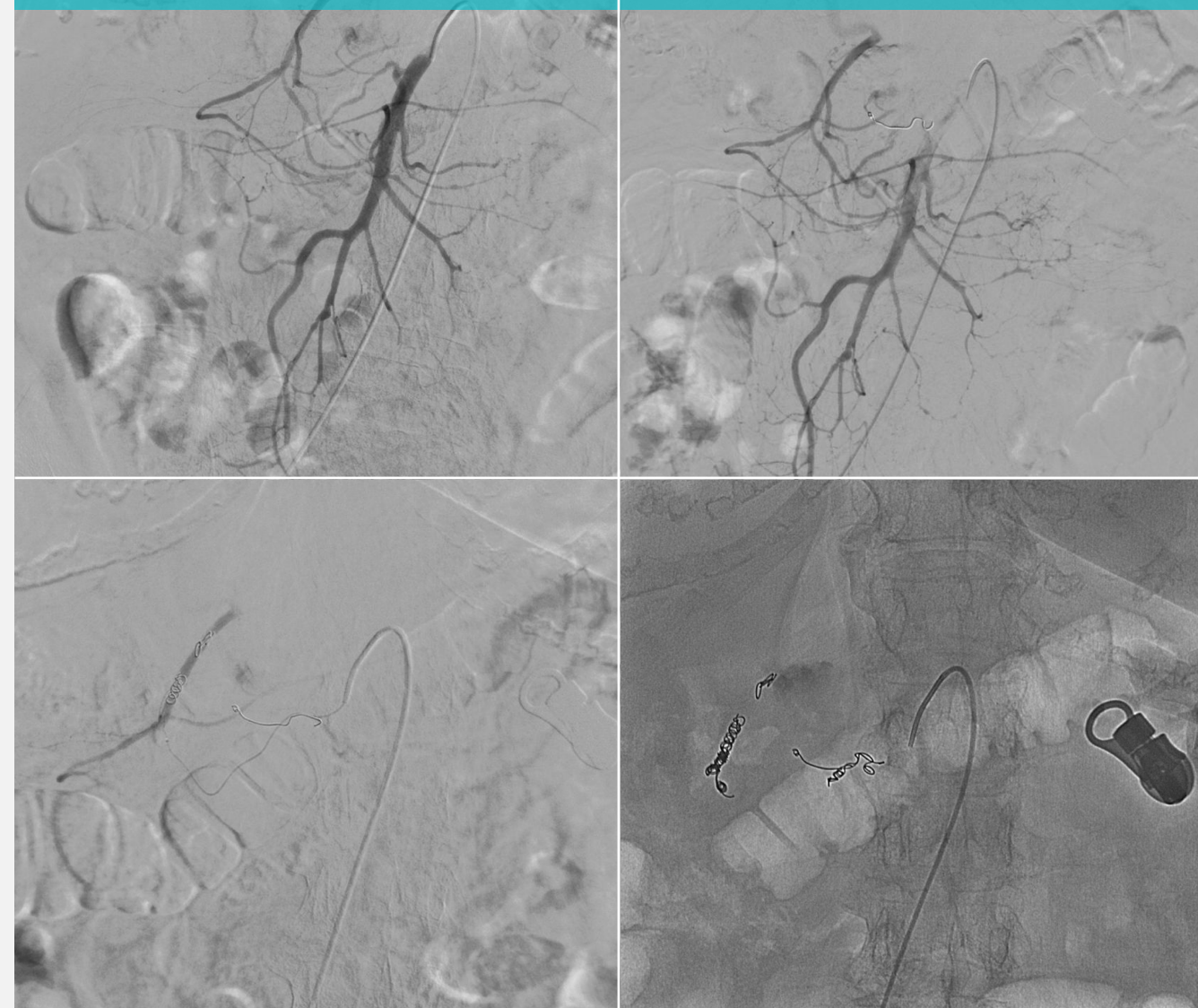
## Outcome

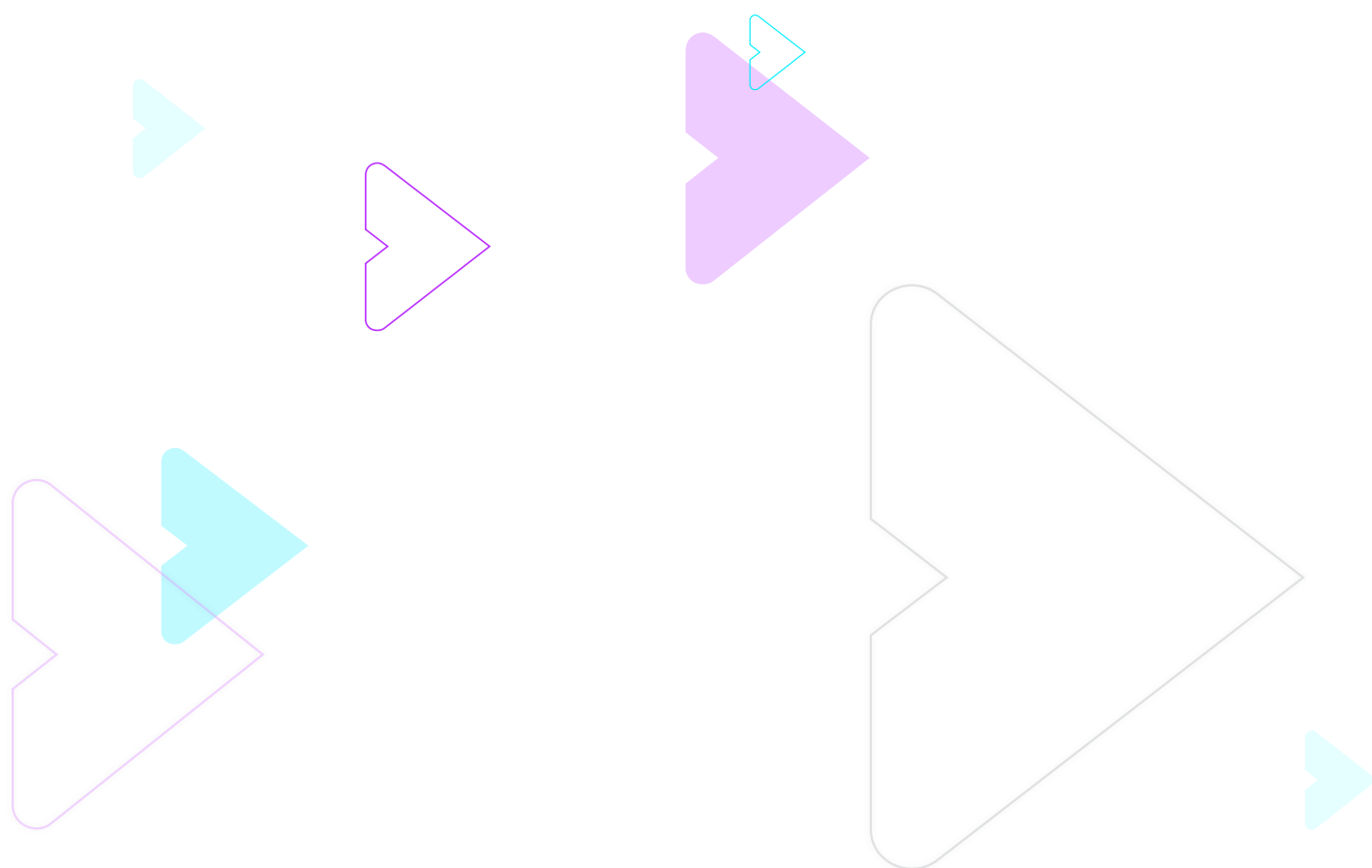
Good result with cessation of bleeding

## Presentation



## Treatment





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