Embolization Treatment For Splenic Artery Aneurysms: When, When Not, Technical Tips And Long-Term Results

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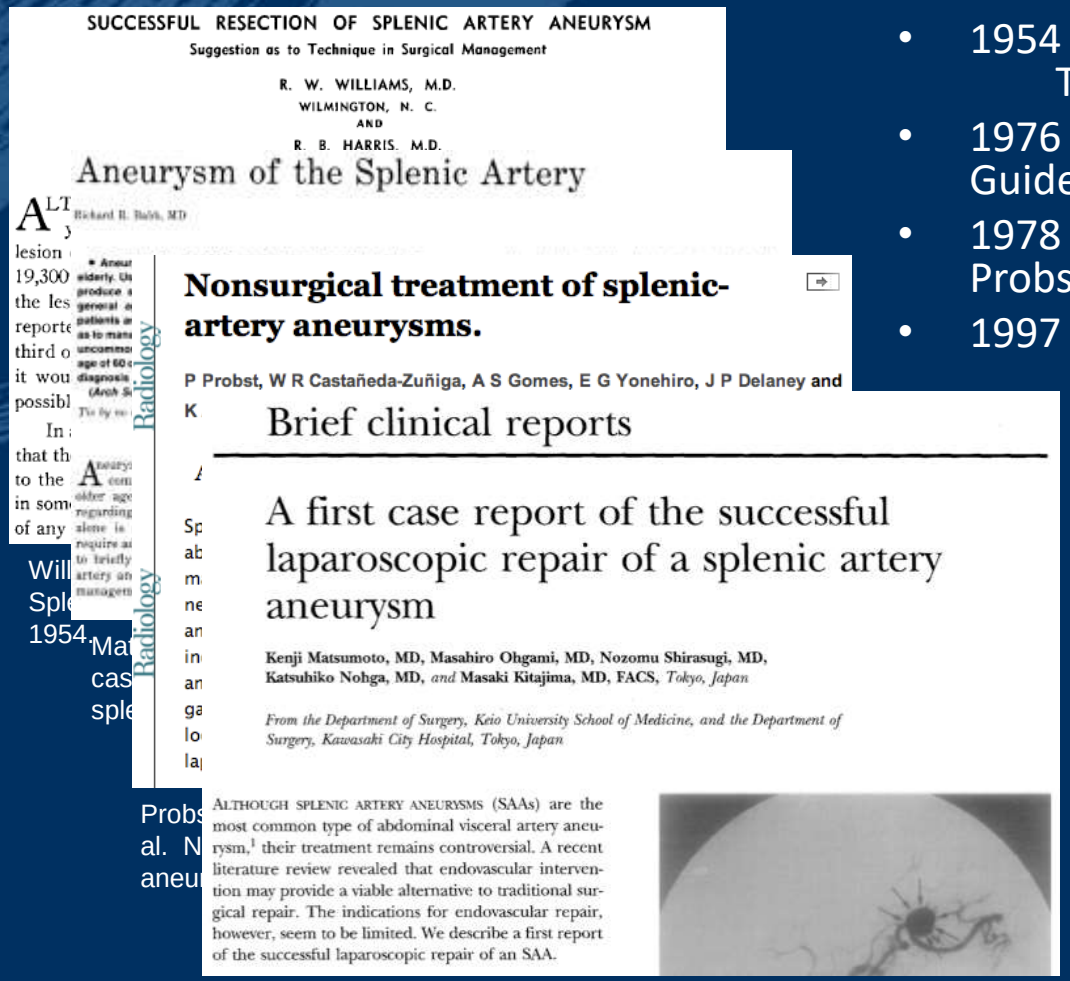
Disclosures:

In the past 12 months, my spouse or myself have engaged in financial relationships as follows:

- Consultant:
  - Boston Scientific, Medtronic, Abbott Vascular
- Advisory Board: Boston Scientific, Medtronic
- Clinical Events Committee: INTACT Vascular, Shockwave
- Speakers Bureau:
  - Boston Scientific, Penumbra, Medtronic, Cook, Endologix,
- Research Support
  - Philips Healthcare, Spectranetics, Terumo, BTG, Boston Scientific

Historical Perspective/ Background

- 1770 – First Described by Beaussier
- 1954 – First Description of Surgical Technique by Williams, et al
- 1976 – Babb Establishes Treatment Guidelines
- 1978 – First Report of Embolization by Probst, et al
- 1997 – First Successful Laparoscopic Repair



SUCCESSFUL RESECTION OF SPLENIC ARTERY ANEURYSM

Suggestion as to Technique in Surgical Management

R. W. WILLIAMS, M.D.
WILMINGTON, N. C.
AND
R. B. HARRIS, M.D.

Aneurysm of the Splenic Artery

Richard B. Babb, MD

Nonsurgical treatment of splenic-artery aneurysms.

P Probst, W R Castañeda-Zuñiga, A S Gomes, E G Yonehiro, J P Delaney and K

Radiology

Brief clinical reports

A first case report of the successful laparoscopic repair of a splenic artery aneurysm

Kenji Matsumoto, MD, Masahiro Ohgami, MD, Nozomu Shirasugi, MD, Katsuhiko Nohga, MD, and Masaki Kitajima, MD, FACS, *Tokyo, Japan*

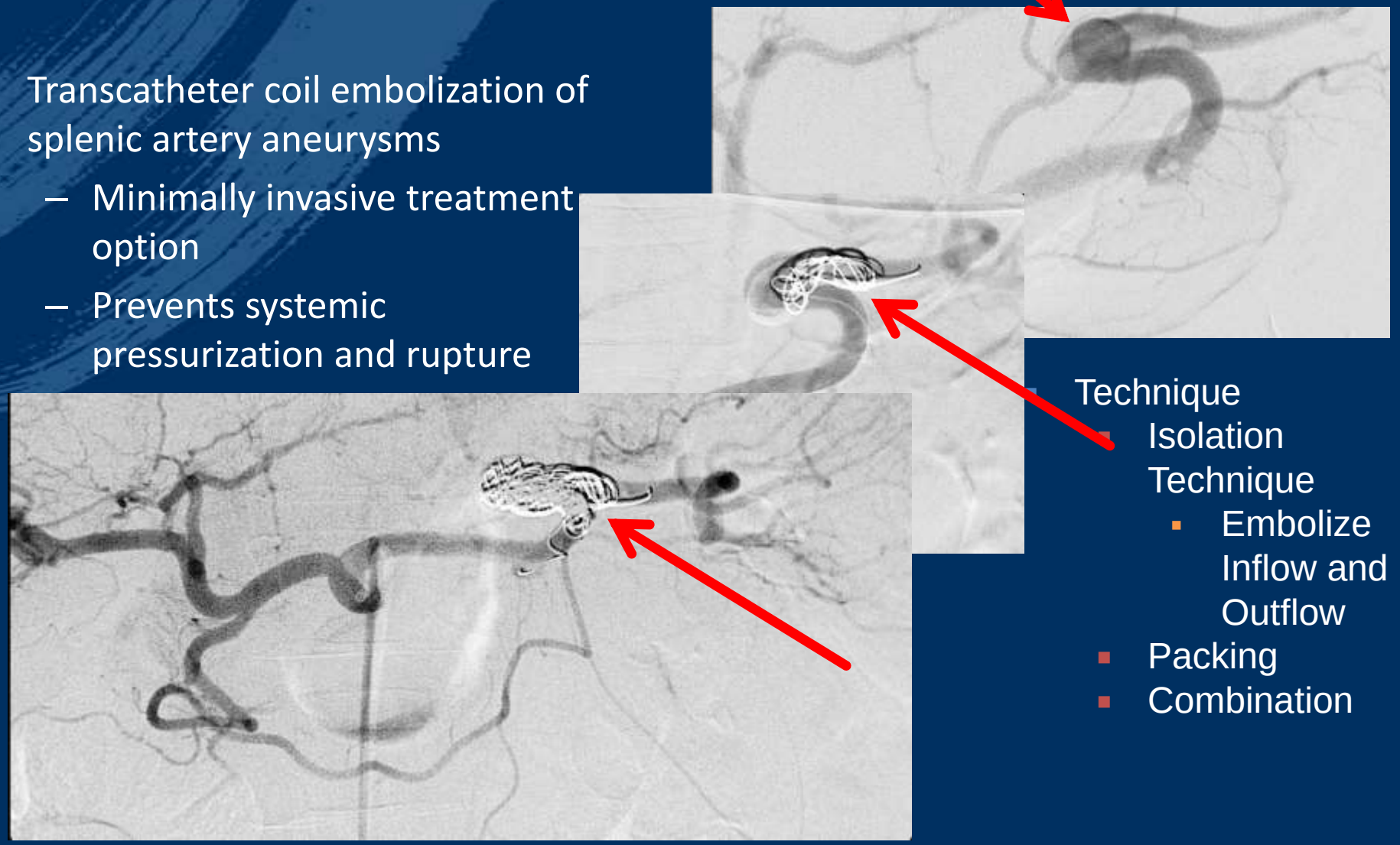
From the Department of Surgery, Keio University School of Medicine, and the Department of Surgery, Kawasaki City Hospital, Tokyo, Japan

ALTHOUGH SPLENIC ARTERY ANEURYSMS (SAAs) are the most common type of abdominal visceral artery aneurysm,[1] their treatment remains controversial. A recent literature review revealed that endovascular intervention may provide a viable alternative to traditional surgical repair. The indications for endovascular repair, however, seem to be limited. We describe a first report of the successful laparoscopic repair of an SAA.

Matsumoto K, Ohgami M, Shirasugi N , et al. A first case report of the successful laparoscopic repair of a splenic artery aneurysm. *Surgery. 1997;121:462–464.*

Purpose

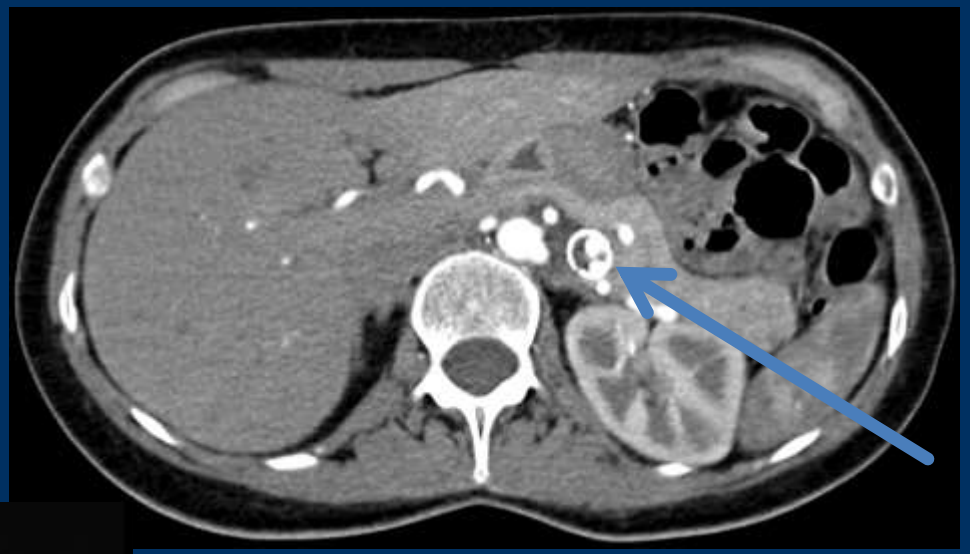
- Transcatheter coil embolization of splenic artery aneurysms
  - Minimally invasive treatment option
  - Prevents systemic pressurization and rupture

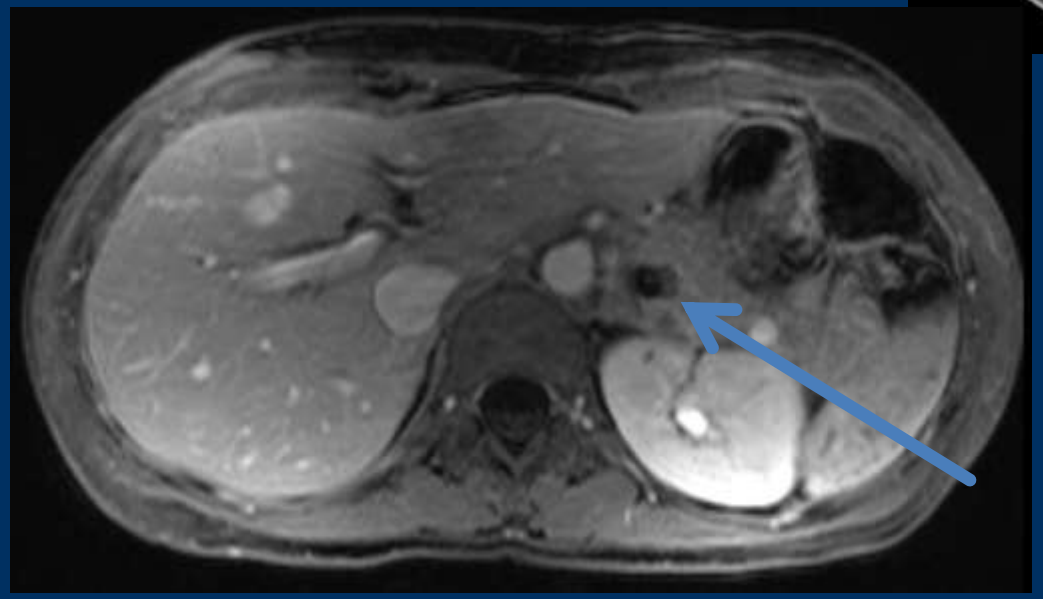


Technique
- Isolation Technique
  - Embolize Inflow and Outflow
- Packing
- Combination

Patients and Methods

- Patients
  - 17 yr experience (2002-2019)
  - n = 94 consecutive patients with true splenic aneurysms
    - 27 male, 67 female
    - Ages 24 – 89 years, mean 54 years

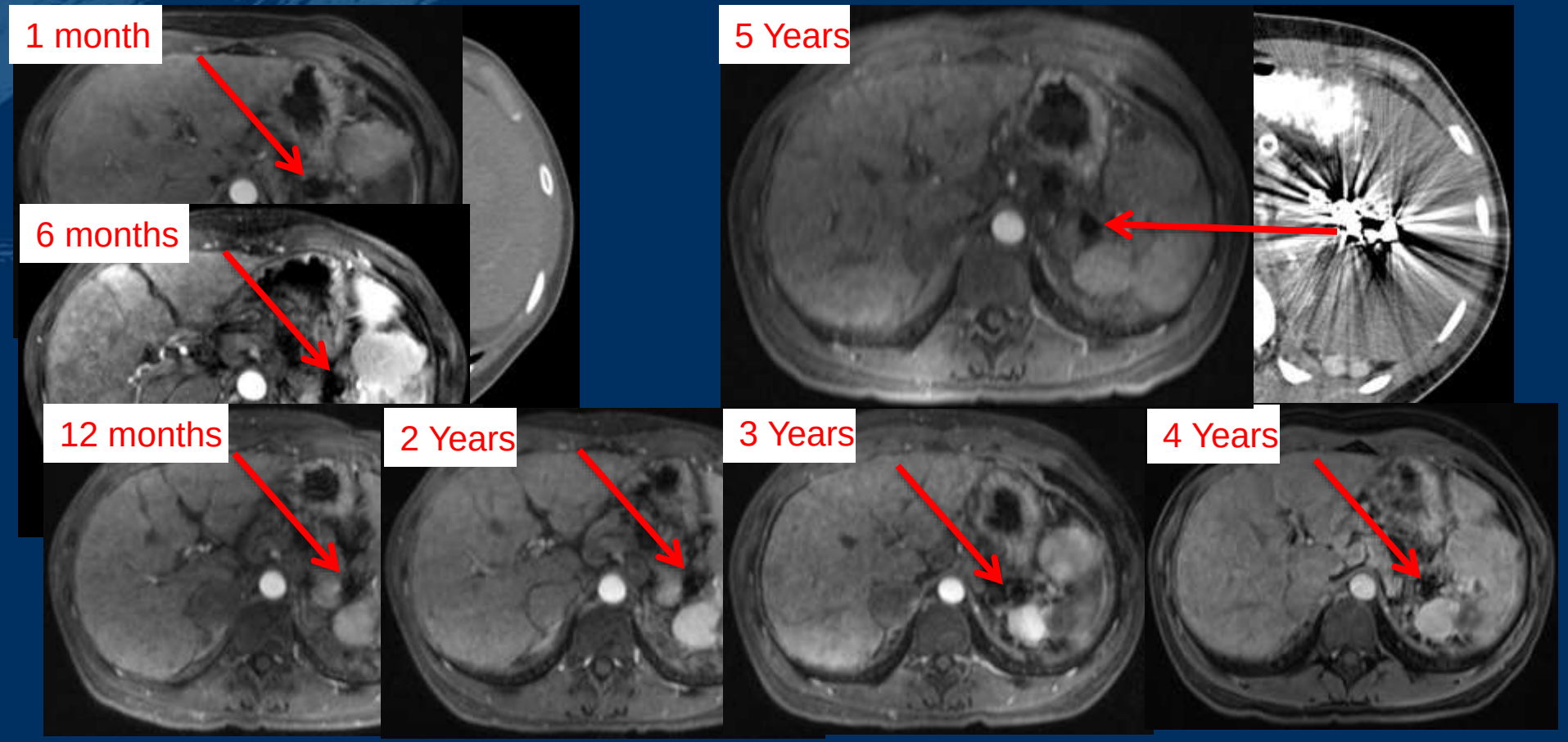




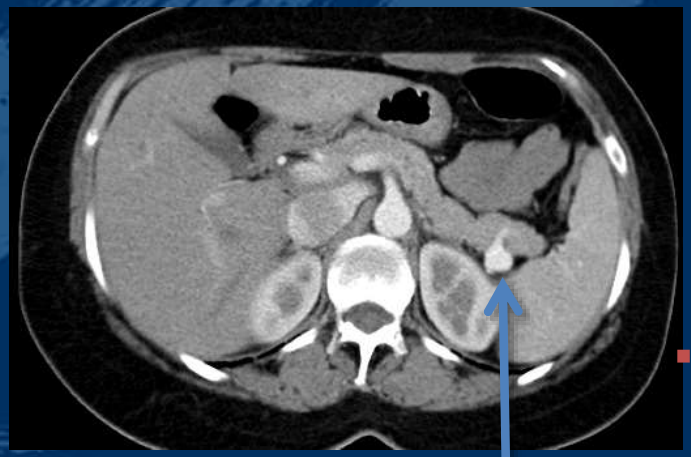
- Data
  - Imaging
  - Radiology reports
  - EMR
  - Office visits

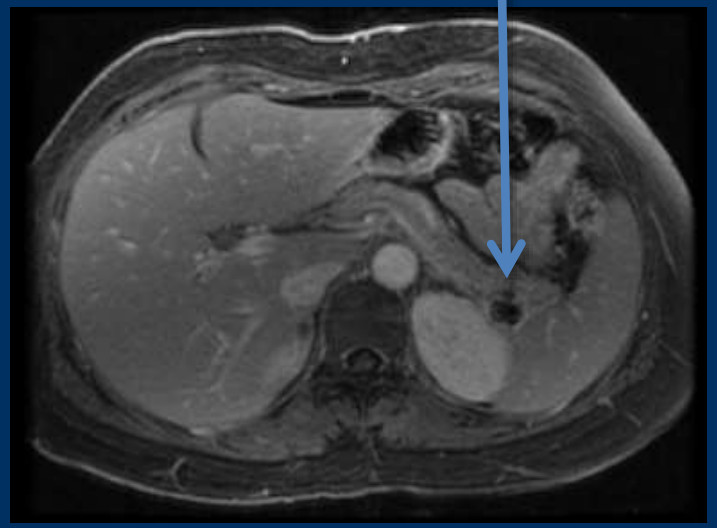
Patients and Methods

- Surveillance Methods
  - CT Unacceptable – Artifact
  - 1 month, 6 months, 12 months, then annually
- MR Preferred
  - Platinum Coils Virtually Transparent
  - No susceptibility Artifact

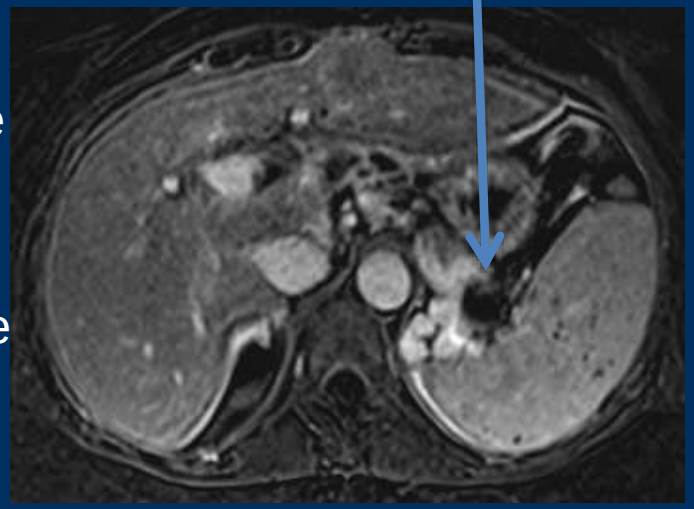


Patients and Methods





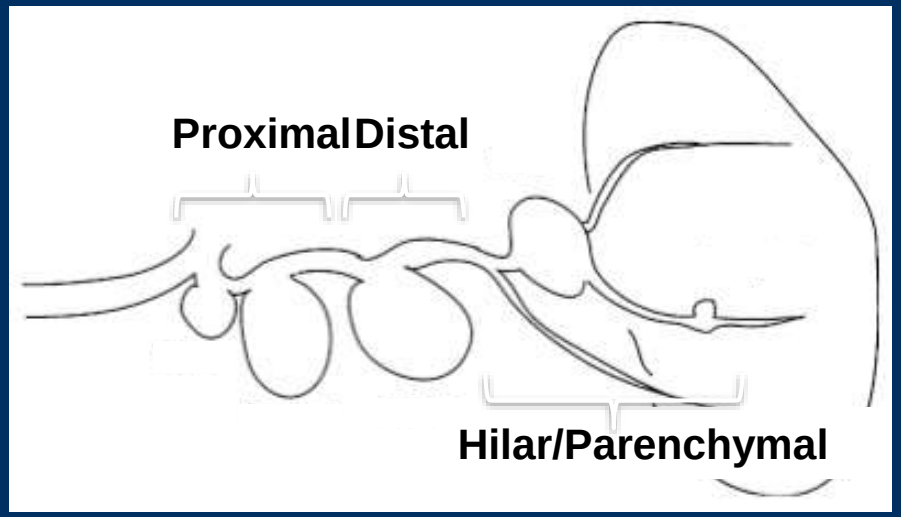
- Retrospective review
  - Patient history
  - Aneurysm characteristics
  - Technical success
  - Re-intervention rate
  - Complications
    - Splenic infarct
    - Aneurysm rupture



Results

- 110 SPLENIC ARTERY ANEURYSMS

Location	#	%
Proximal	47	42
Distal	38	34
Hilar/Parenchymal	25	24

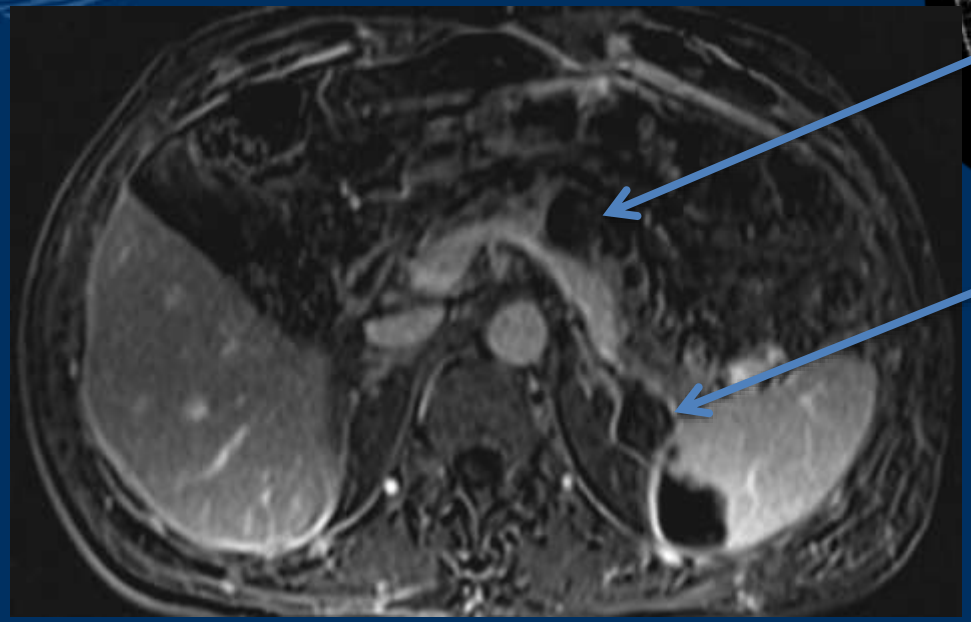


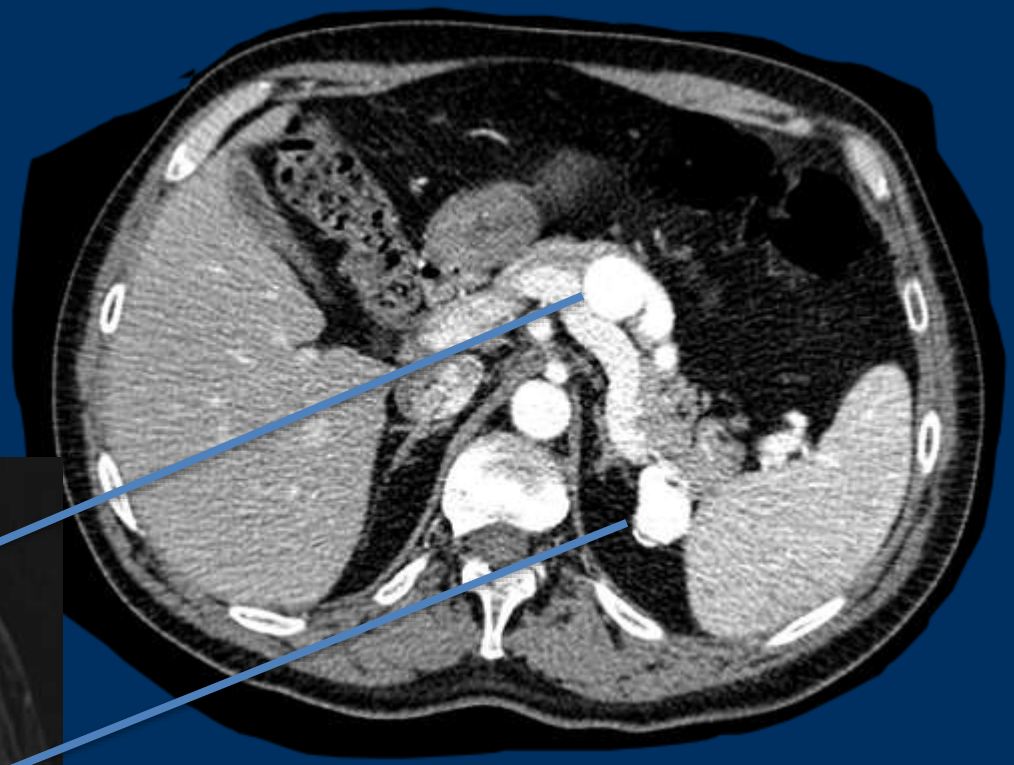
Yamamoto et al. Transcatheter coil embolization of splenic artery aneurysm. Cardiovasc Intervent Radiol (2008) vol. 31 (3) pp. 527-34

- Size: 9 –80mm, mean 24 mm
- 107 aneurysms coils alone
- 3 with coils and glue or gelfoam

Results

- Outcome
  - 100% technically successful
  - Follow-up imaging available in 92/94 (98%) patients.

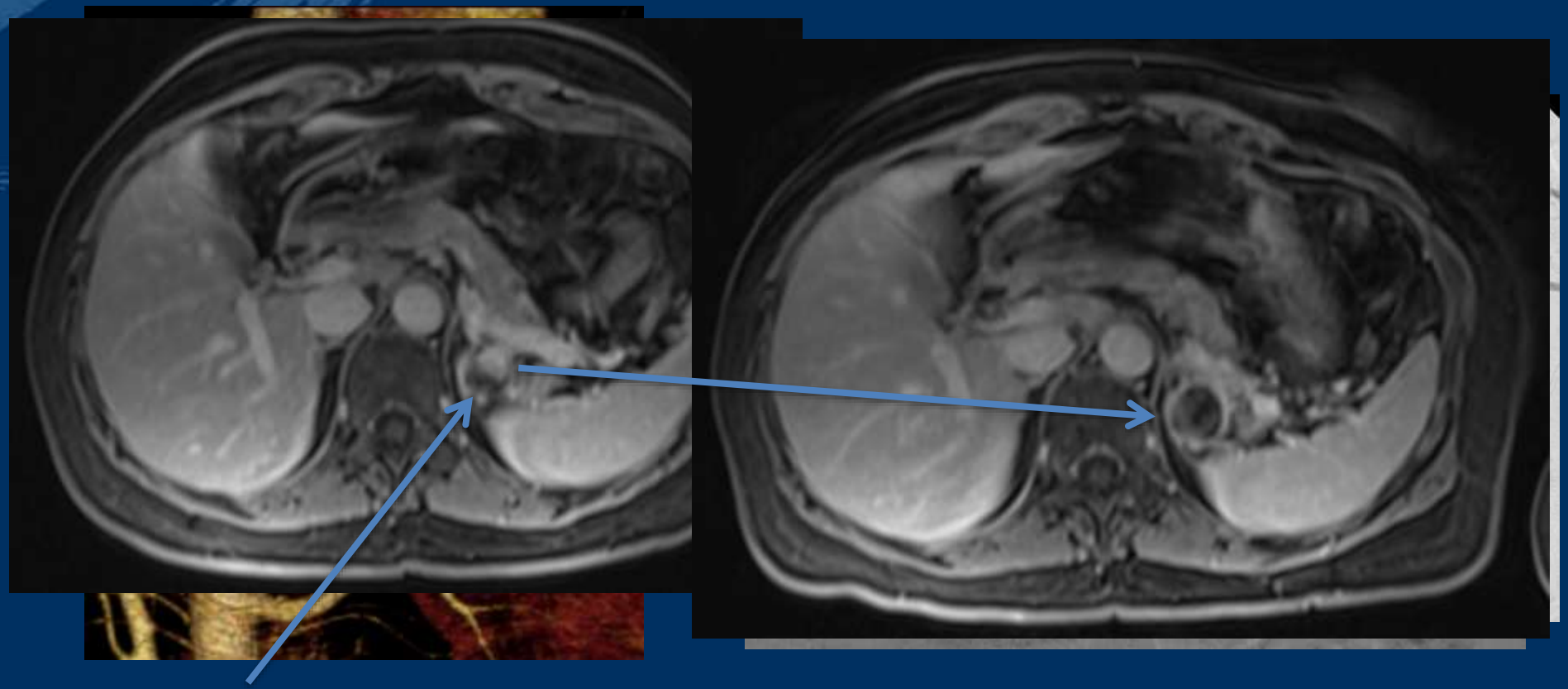




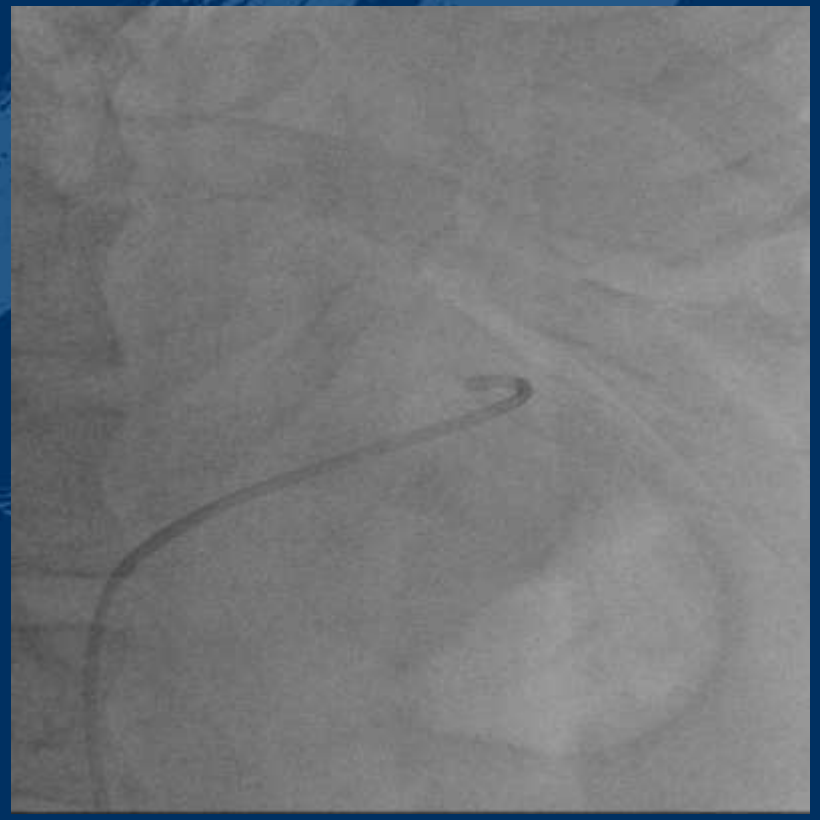
Results

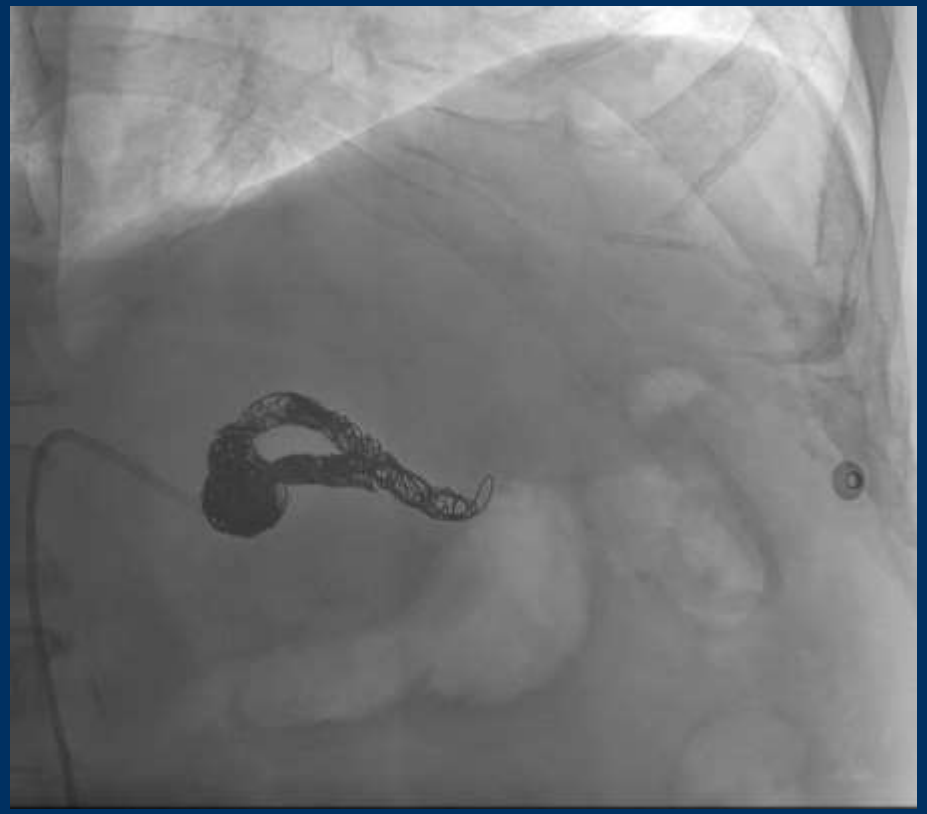
- Outcome
  - Reintervention was necessary in 4 (4%)
    - Persistent aneurysmal perfusion
    - No re-interventions since 2009

- All re-interventions were successful
  - 1 with glue
  - 3 with additional coiling



Preservation of collateral circulation

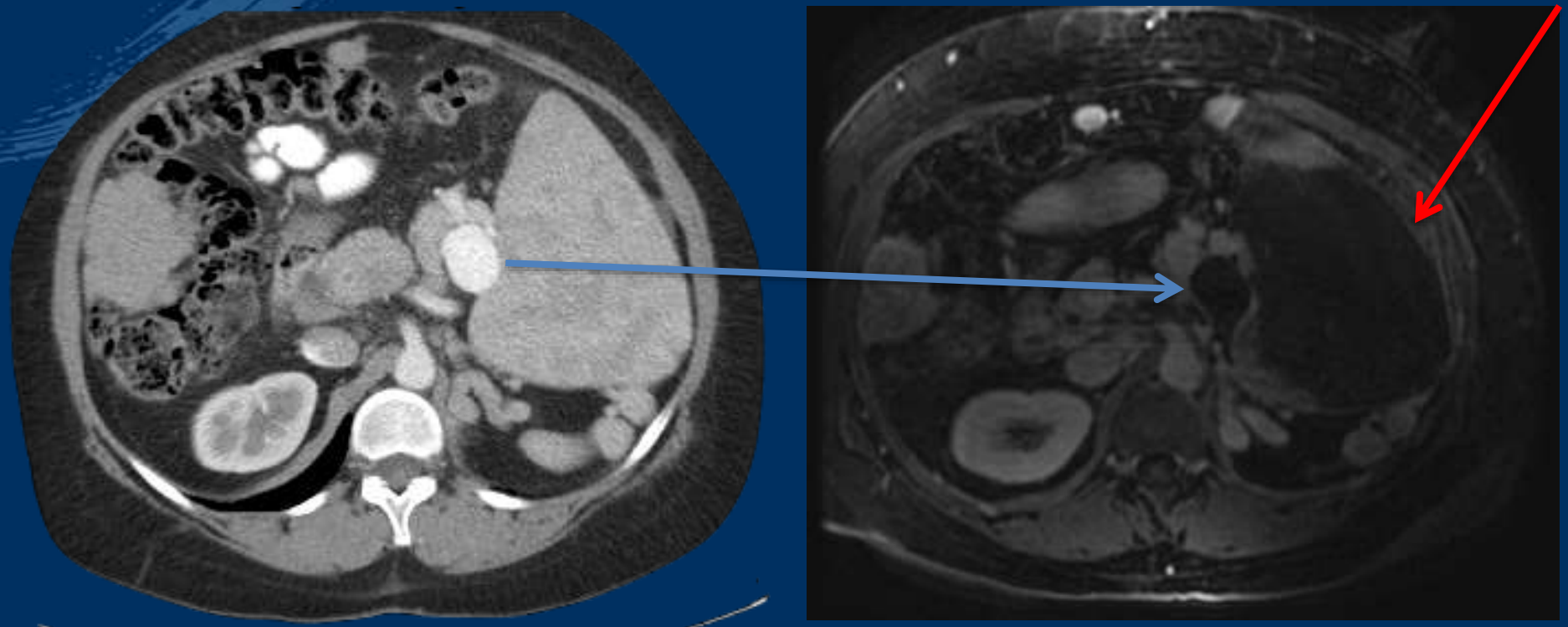




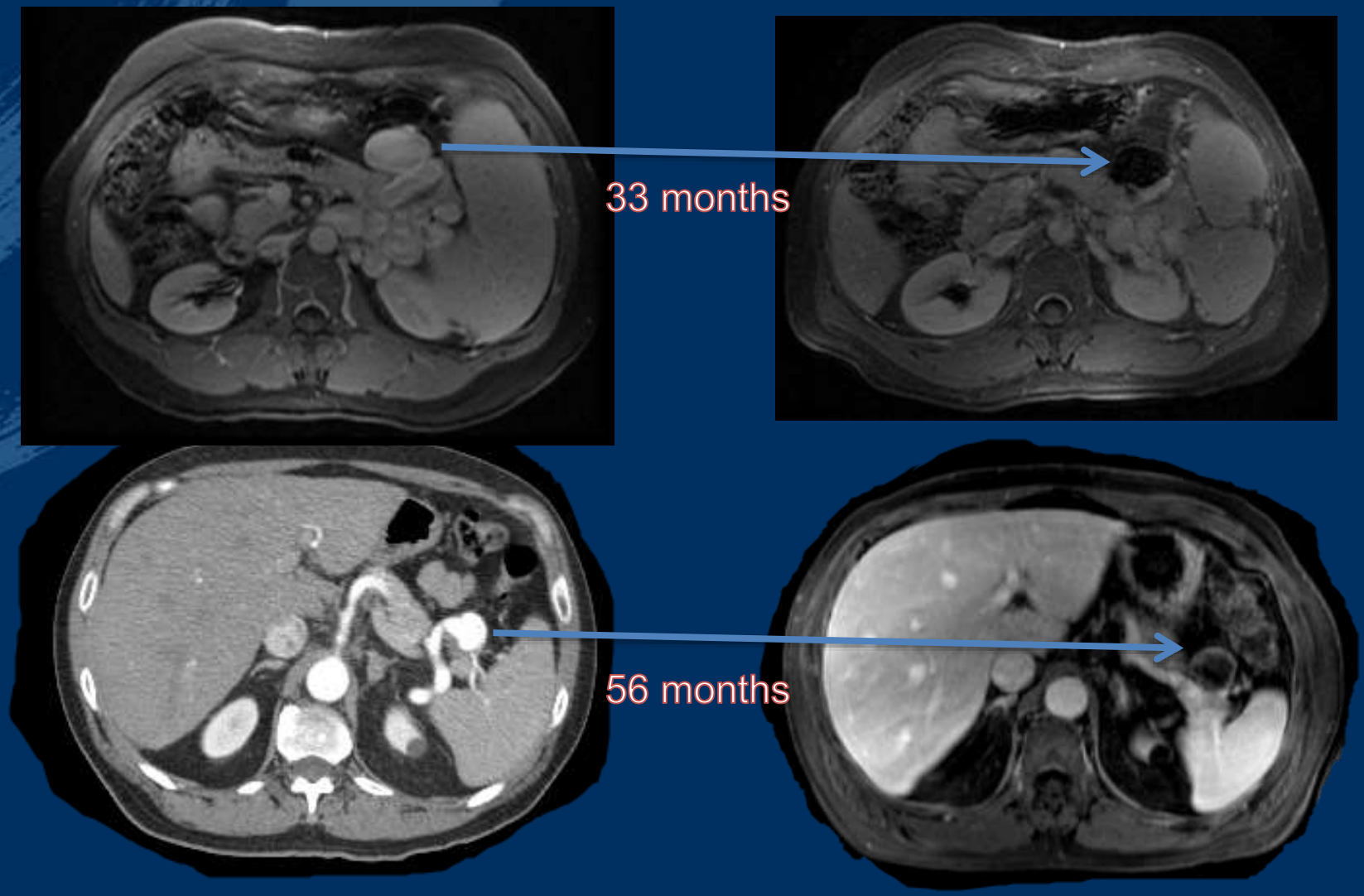
Results

- Complications
  - 47 (50%) patients had any splenic infarcts
  - 3/92 had >50% splenic infarct

- 16/22 patients with severe portal hypertension with marked splenomegaly ($p<0.05$)



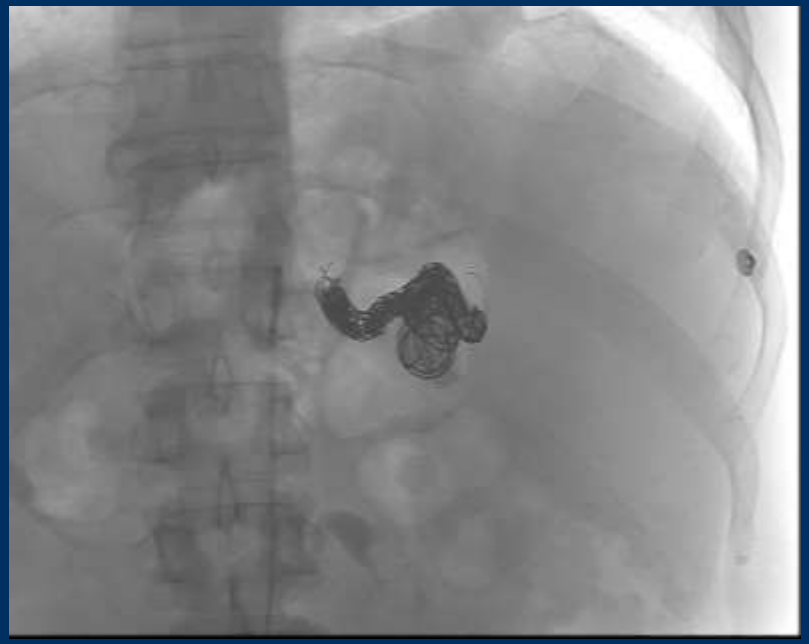
Results



- 100% freedom from aneurysm rupture at follow up
- (1-120 months, mean 28 months)

Conclusions

- Percutaneous transcatheter coil embolization of splenic artery aneurysms
  - Non-invasive
  - High technical success
  - Freedom from aneurysm rupture
- Major splenic infarcts rare
  - More often with portal hypertension



Thank You

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