Interventional CV Pathology
Case 2
(No Disclosures; No Conflicts of Interest)

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Presentation of Case
Review of Literature
Diagnosis of Case 2
Variation of Theme
Summary of Cases

Case 2
Right Wrist Lesion

• 51, M with vascular disease
  Old: carotid endarterectomy for stenosis
  Recent: coronary angiogram (2 wks ago)
• Current medical history (2003)
  Right wrist lesion: swollen, tender, & red
  Clinically: infection or pseudoaneurysm
• Post-operative results
  Culture: no bacteria, fungi, mycobacteria
  Microscopy: negative GMS & AFB stains

Right Radial Artery (H&E & VVG Stains)
Case 2
Right Wrist Lesion

Foreign-Body Giant Cell Response

Case 2
Right Wrist Lesion

FB’s, Giant Cells, & Eosinophils

Case 2
Right Wrist Lesion

Parasite or Polymer? Critter or Crud?

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Case 2
Lecture Outline

• Presentation of Case
• Review of Literature
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Additional clinical information
Arterial access for angio: R radial artery
Arterial sheath used: hydrophilic-coated
Case 2
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Case 2
Review of Literature

- Case, 72M (Subramanian et al, 2003)
  Cor angio via radial art; hydrophilic sheath
  1 mo later, 0.5 cm mass at his access site
  Surgical excision of firm inflamed tissue
- Surgical pathology findings
  Intense foreign-body giant cell response
  FB: blue-gray, granular, & non-refractile, consistent with hydrophilic coating
  Same in several patients; stopped using coated sheaths; no more FB reactions

Case 2
Review of Literature

- Series of 33 cases (Kozak et al, 2003)
  1.6% of 2038 radial artery cardiac caths
  2.7% of 1224 hydrophilic-coated sheaths
  Only one brand produced wrist lesions
  Most lesions in 2-3 wks (range 3d - 3mo)
- Surgical pathology findings
  Abscesses & granulomas, some with FB’s
  Amorphous blue-gray extravascular FB’s, consistent with hydrophilic sheath coat
  (polyacrylamide & polyvinylpyrrolidone)

Hydrophilic-Coated Radial Artery Sheath

Contents of Catheter Kit
Guide Wire
Dilator
Sheath
Needle
Obturator

From Mayo Clinic
From Internet

Surgical pathology findings

Cathet CV Intervent 2003;59:207

SAFETY ACTION NOTICE
Case 2
Lecture Outline

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Case 2
Diagnosis of Right Wrist Lesion

• Right radial artery, segmental resection:
  Prominent peri-arterial giant cell reaction, with numerous foreign bodies, consistent with hydrophilic polymer, with a history of trans-radial cardiac catheterization 2 wks ago using a hydrophilic-coated sheath

Comparison of Case 2 and Sheath Coat

Another Case (H&E and VVG Stains)
Case 2 Lecture Outline

- Presentation of Case
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- Summary of Cases

Variation of Theme
Recurrent CNS Disease

- 58,F with subarachnoid hem (Mar 2005)
  Where: in Guatemala; flown to Houston
  Angio: aneurysm, distal R int carotid art
  Procedure: coil emb of ruptured aneur
  Rapid-onset hemiparesis (Dec 2005)
  MRI: R frontoparietal ring-enhancing (3)
  Brain bx: granulomas & microabscesses
  History: trips to Central & South America
  Treatment: for presumed fungal infection

Variation of Theme
Recurrent CNS Disease

- New MRI lesions (Summer 2006)
  Right temporal lobe gray matter (Jun)
  Right paraventricular white matter (Aug)
- Right carotid angiography (Oct 2006)
  Stable coil in right carotid aneurysm, just
distal to origin of right ophthalmic artery
- Infection and/or coil-related? (Nov 2006)
  No fever, chills, night sweats (pre/post-op)
  Request for review of slides from brain bx

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Variation of Theme
Recurrent CNS Disease

Cerebral Granulomas (Brain Biopsy)

Variation of Theme
Recurrent CNS Disease

Granuloma with Foreign Bodies

Variation of Theme
Recurrent CNS Disease

Granulomas with Foreign Body

Variation of Theme
Recurrent CNS Disease

Micro-Abscess (Brain Biopsy)

Variation of Theme
Recurrent CNS Disease

Micro-Abscess with Foreign Body
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Case 2
Summary of Cases

• Vascular sheaths & metallic coils
  May have a hydrophilic coat which can dislodge & cause intense foreign-body giant cell reaction

• For vascular introducer sheaths
  Coating may shear off & produce a perivascular nodule within weeks & be mistaken for infection

• For vascular metallic coils
  Pieces of coating may break loose, embolize, & cause micro-abscesses, granulomas, & infarcts

Case 2
Summary of Cases

• Microscopic features (H&E)
  Hydrophilic polymers appear filamentous, finely granular, pale blue (by H&E), & non-polarizable, and may be found between or within giant cells

• Be a vigilant medical detective
  If giant cell inflammation occurs in peri-arterial tissues or within micro-absscesses or areas of necrosis, look for organisms and foreign bodies, and also check medical history for exposure to hydrophilic-coated sheaths or metallic coils

Case 2
Summary of Cases

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Case 2
Intense Foreign Body Reaction to Hydrophilic-Coated Sheaths & Coils

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Timing Is Everything

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