Mycotic Pseudoaneurysms: An Interesting Case Series

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April 24th, 2026

Faculty Disclosure

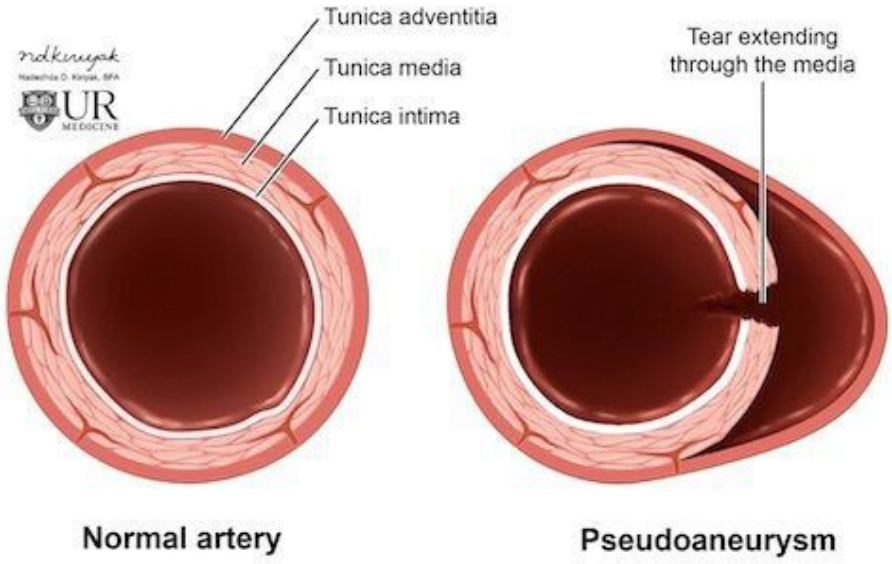
I have nothing to disclose

Background

- Mycotic pseudoaneurysms are rare but life−threatening vascular infections
- Infected arterial wall disruption → pseudoaneurysm formation
- Surgical disease with high rupture and mortality risk
- Increasing incidence with endovascular interventions

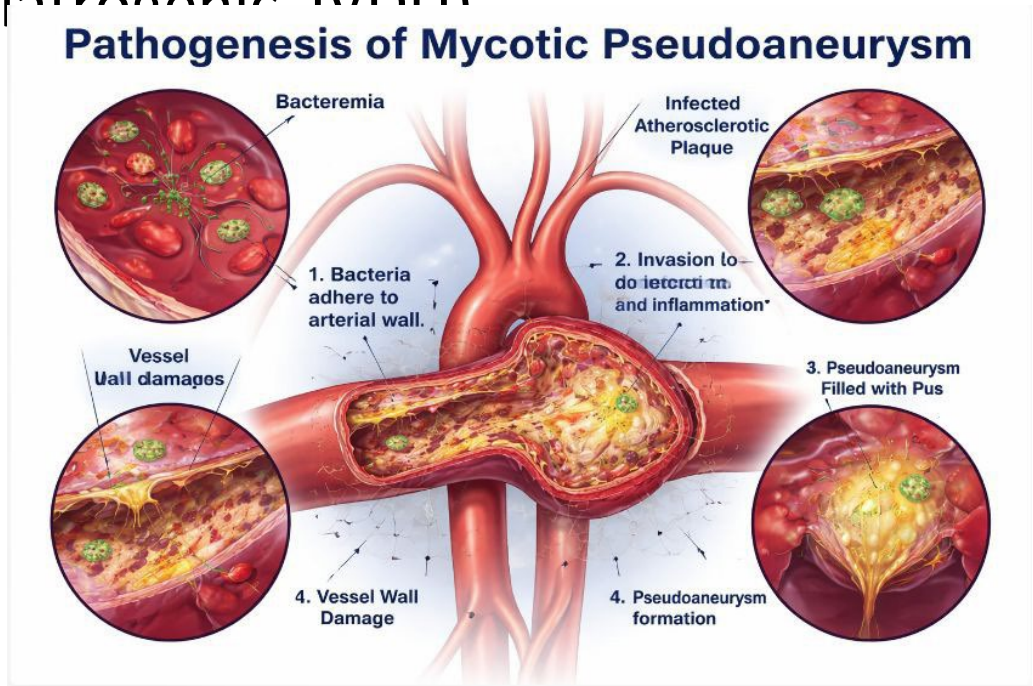
Terminology

- ‘Mycotic’= bacterial
- True aneurysm vs pseudoaneurysm distinction critical
  - Pseudoaneurysm= adventitia only
- Often represents contained rupture rather than dilation



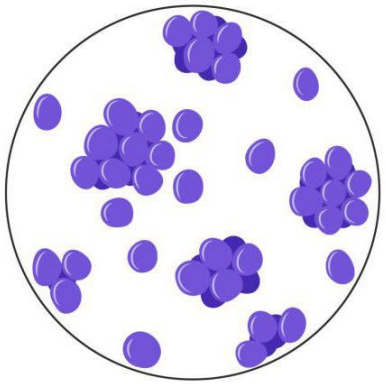
Pathogenesis

- Arterial wall infection → destruction of media/adventitia
- Mechanisms:
  - Hematogenous seeding (bacteremia)
  - Direct inoculation (iatrogenic, IVDU)
  - Contiguous spread (adjacent infection)
- Results in rapid expansion and instability of vessel wall



Microbiology

- Staphylococcus aureus (most common)
- Salmonella spp. (associated with aorta)
- Streptococcus spp.
- Gram-negative organisms in immunocompromised patients
- Fungal (candida, aspergillus) rare but severe



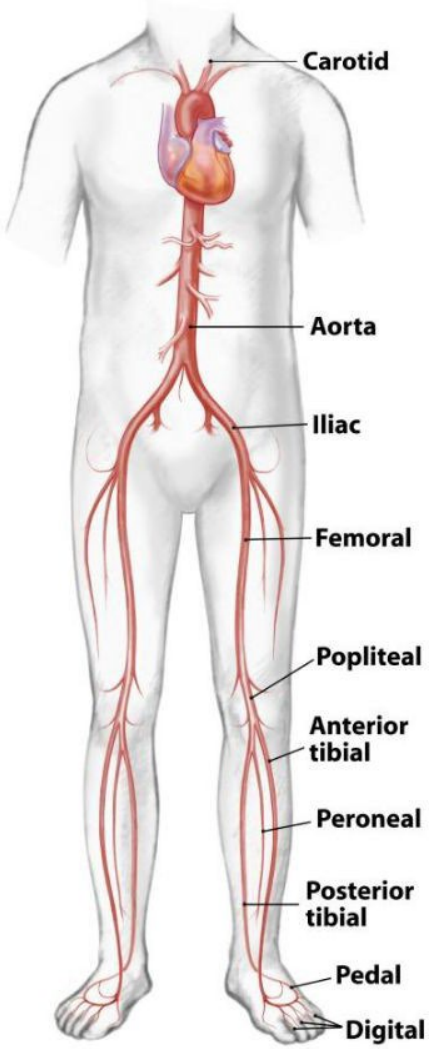
Staphylococcus Aureus

Risk Factors

- Prior endovascular intervention (stents, grafts)
- Indwelling catheters
- Access complications
- Immunosuppression (DM, malignancy, steroids)
- IV drug use
- Underlying atherosclerotic disease

Anatomic Distribution

- Aorta (especially infrarenal)
- Femoral artery (post-access)
- Visceral arteries (hepatic, splenic)
- Peripheral arteries
- Location often reflects mechanism

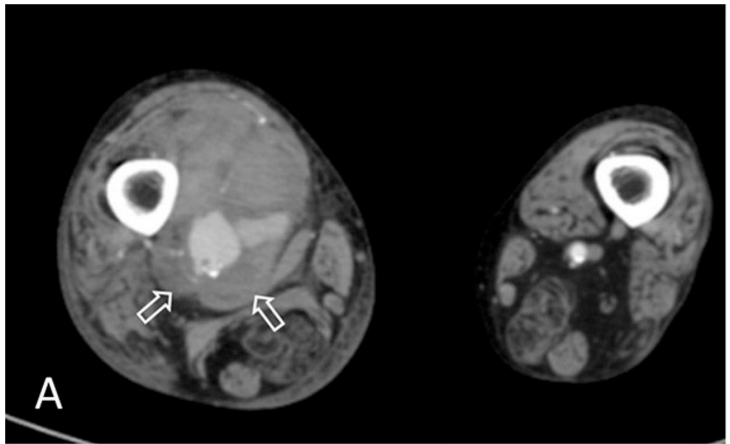


Clinical Presentation

- Variable, often subtle early
- Pain + systemic infection (fever, leukocytosis)
- Pulsatile mass (less common in deep vessels)
- Sentinel bleed or acute rupture

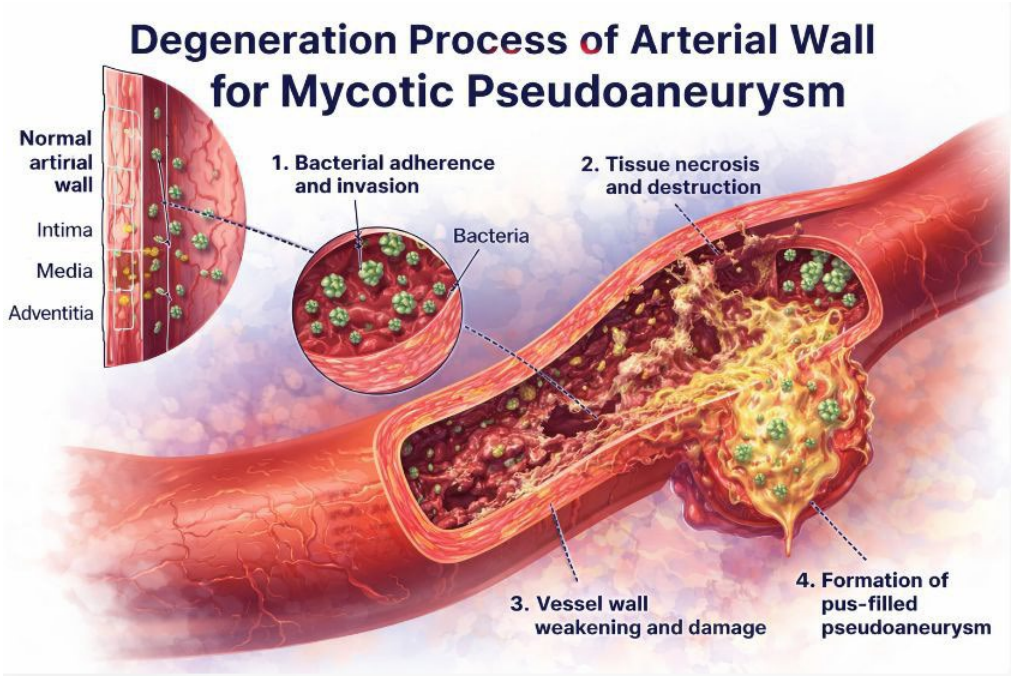
Imaging

- CTA= gold standard
- Findings:
  - Saccular outpouching
  - Perivascular stranding/gas
  - Rapid interval growth
- Duplex useful for access-site lesions
- PET-CT emerging for graft infection



Natural History

- Rapid progression compared to degenerative aneurysms
- High rupture risk even at small size
- Untreated mortality extremely high



Complications

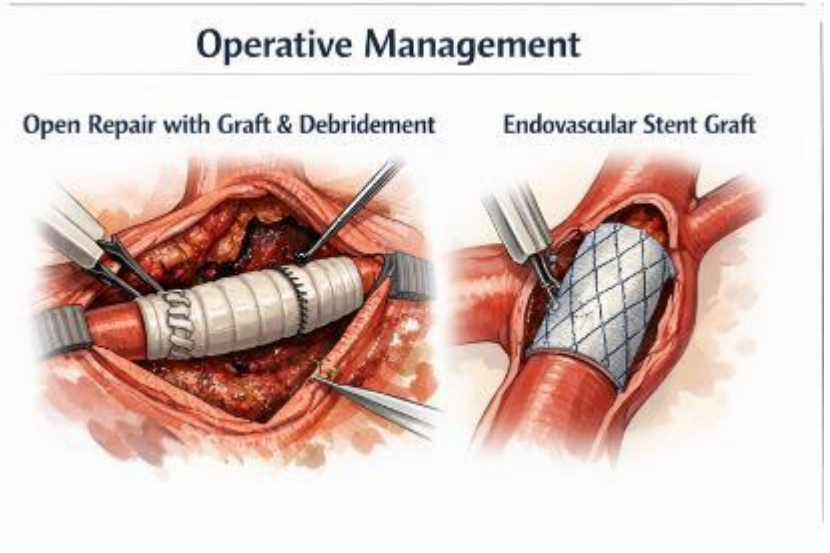
- Rupture
- Sepsis
- Limb loss
- Death

Management Principles

- Early broad-spectrum IV antibiotics → tailored therapy
- Definitive management is source control
- Open vs Endovascular depends on anatomy + patient status
- Multidisciplinary: vascular surgery + infectious disease

Operative Strategies

- Open resection + debridement (gold standard)
  - In situ reconstruction vs extra-anatomic bypass
  - Autologous vein preferred in infected fields
- Endovascular= bridge or definitive in select cases



Study Objective

- Describe three cases of mycotic pseudoaneurysms including:
  - Clinical presentation
  - Imaging findings
  - Management strategy
  - Patient outcomes

Case Series Overview

- Case 1 – Superficial femoral artery pseudoaneurysm after prior stent
- Case 2 – Right axillary artery pseudoaneurysm after IV drug use
- Case 3 – Superficial femoral artery pseudoaneurysm following PCI

Case 1: Presentation

- 74 yo M with history of peripheral arterial disease and prior SFA stent placed in December 2023

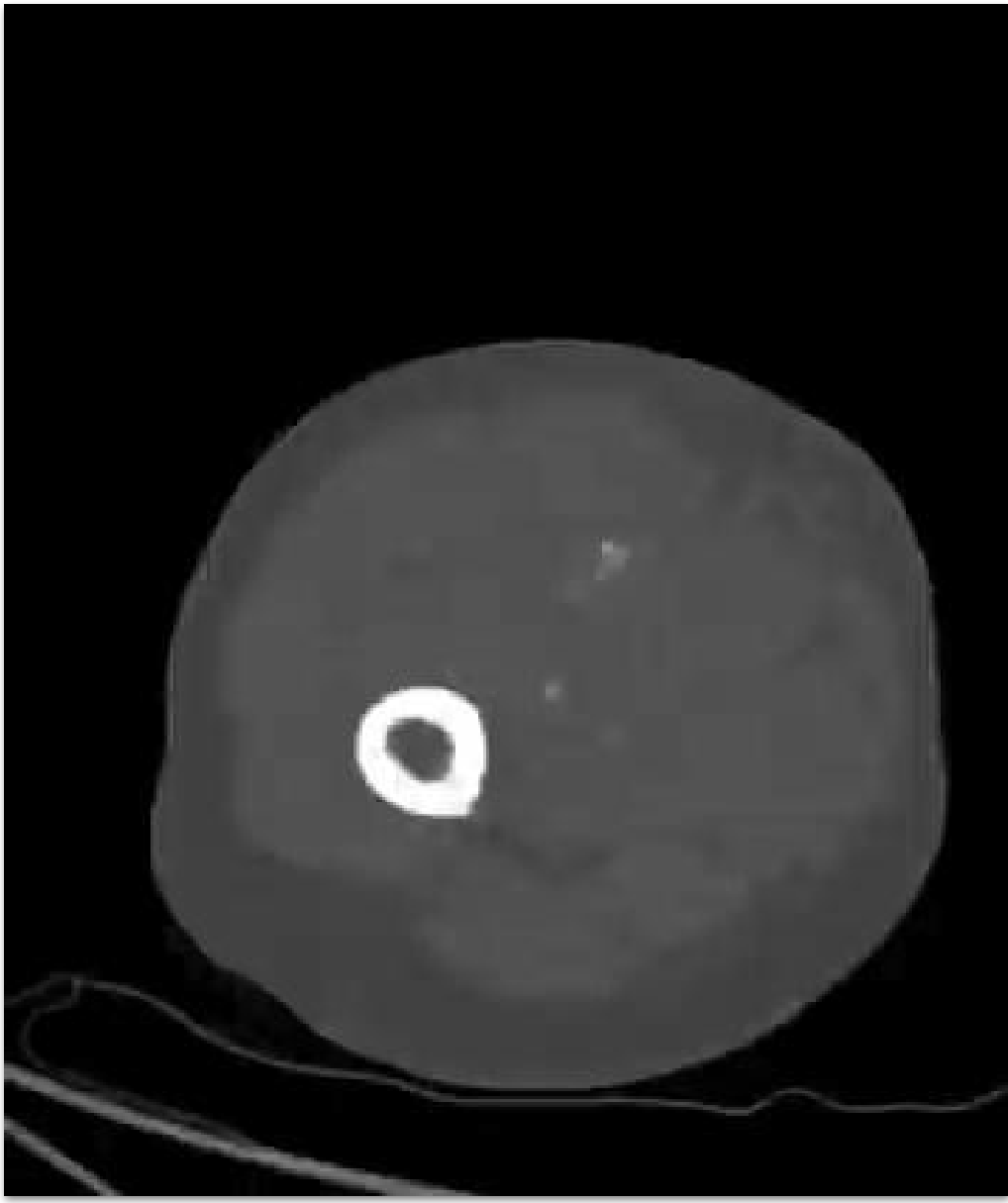
- Presentation:
  - Local pain and swelling for 5 days
  - Nonpulsatile medial thigh mass
  - Leukocytosis 20.9
  - Blood cultures positive for staphylococcus aureus x2

Case 1: History

- PMH: alcohol use disorder, seizures, HTN, marijuana use, CVA, PAD, CAD
- PSH: Appendectomy
- Non compliant with ASA, brilinta, statin

Case 1: Imaging

- CTA aorta with runoff: 6cm pseudoaneurysm arising from the superficial femoral artery near previous stent with surrounding inflammatory changes



Case 1: Management

Management included:

- Broad spectrum IV antibiotics
  - Cefazolin 2g q8h x 6 weeks followed by chronic Cefadroxil 1 gm BID
- Superficial femoral artery to above knee popliteal bypass with 6mm artegraft
- Explantation of SFA stents
- Resection of pseudoaneurysm
- Application of wound VAC system

Case 1: Outcome

- Prolonged antibiotic treatment
- Continued wound care
- Resolution of infection and good closure of wound

Case 2: Presentation

31 yo M with history of IVDU and recent drug injection into right axilla

- Presentation:
- Cellulitis, worsening swelling and pain over 10 days
- Weakness and numbness of 4th and 5th digits consistent with ulnar nerve palsy
- Blood cultures positive for staphylococcus aureus x2

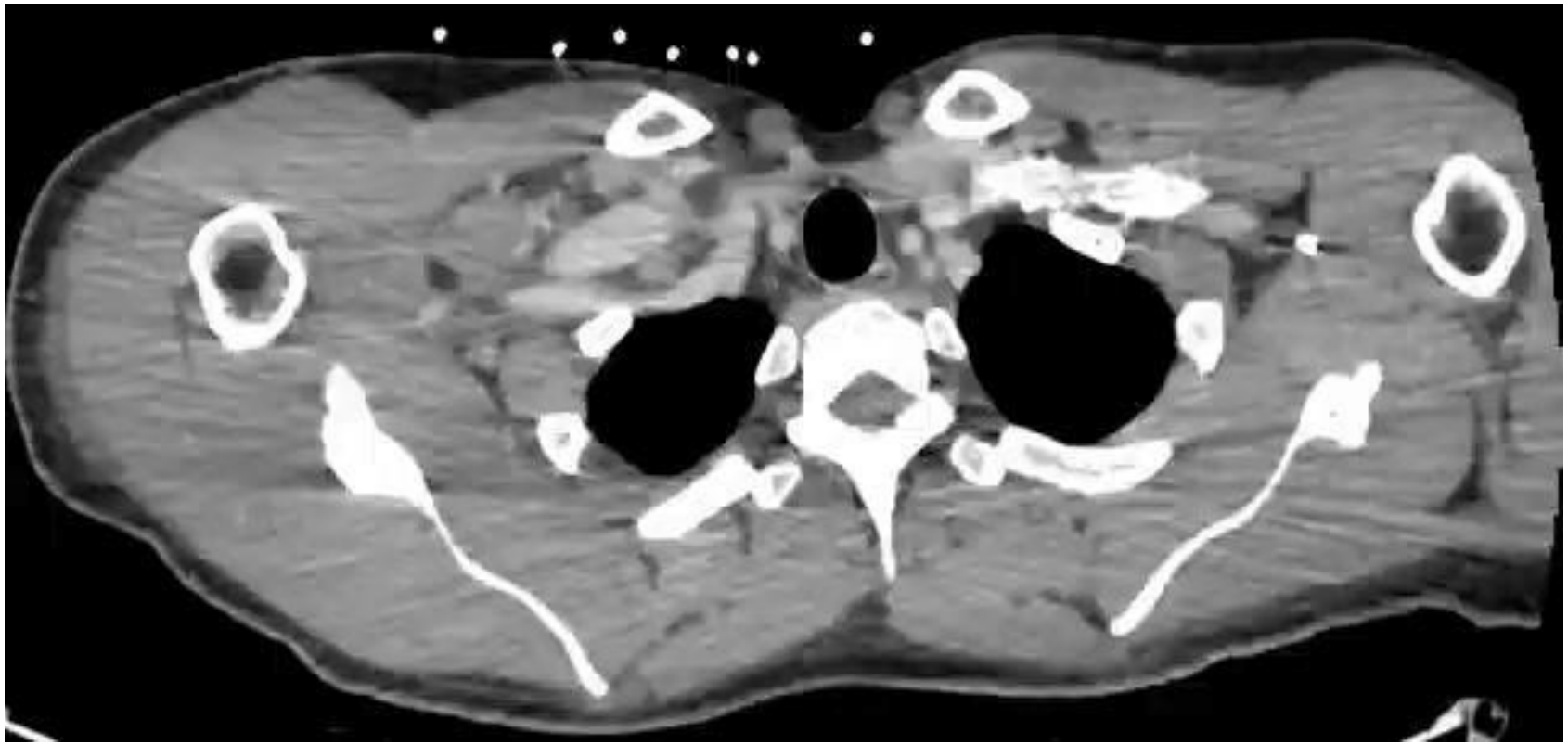
Case 2: History

PMH: Substance use disorder, tobacco use disorder, anxiety, chronic hepatitis C

PSH: left foot and right knee surgeries

Case 2: Imaging

CT right upper extremity with contrast: 3.5 cm axillary-subclavian artery pseudoaneurysm with generalized soft tissue swelling from axilla to elbow



Case 2: Management

- Treatment included:
- Prolonged IV antibiotics
  - Cefazolin 2g IV q8h x 8 weeks
- Right axillary to brachial artery bypass with reversed saphenous vein graft

Case 2: Outcome

- Prolonged IV antibiotic treatment
- Forearm splint and occupational therapy with continued weakness of medial fingers in right hand

Case 3: Presentation

- 82 yo M with PCI 2 months prior with right femoral artery access (4Fr)

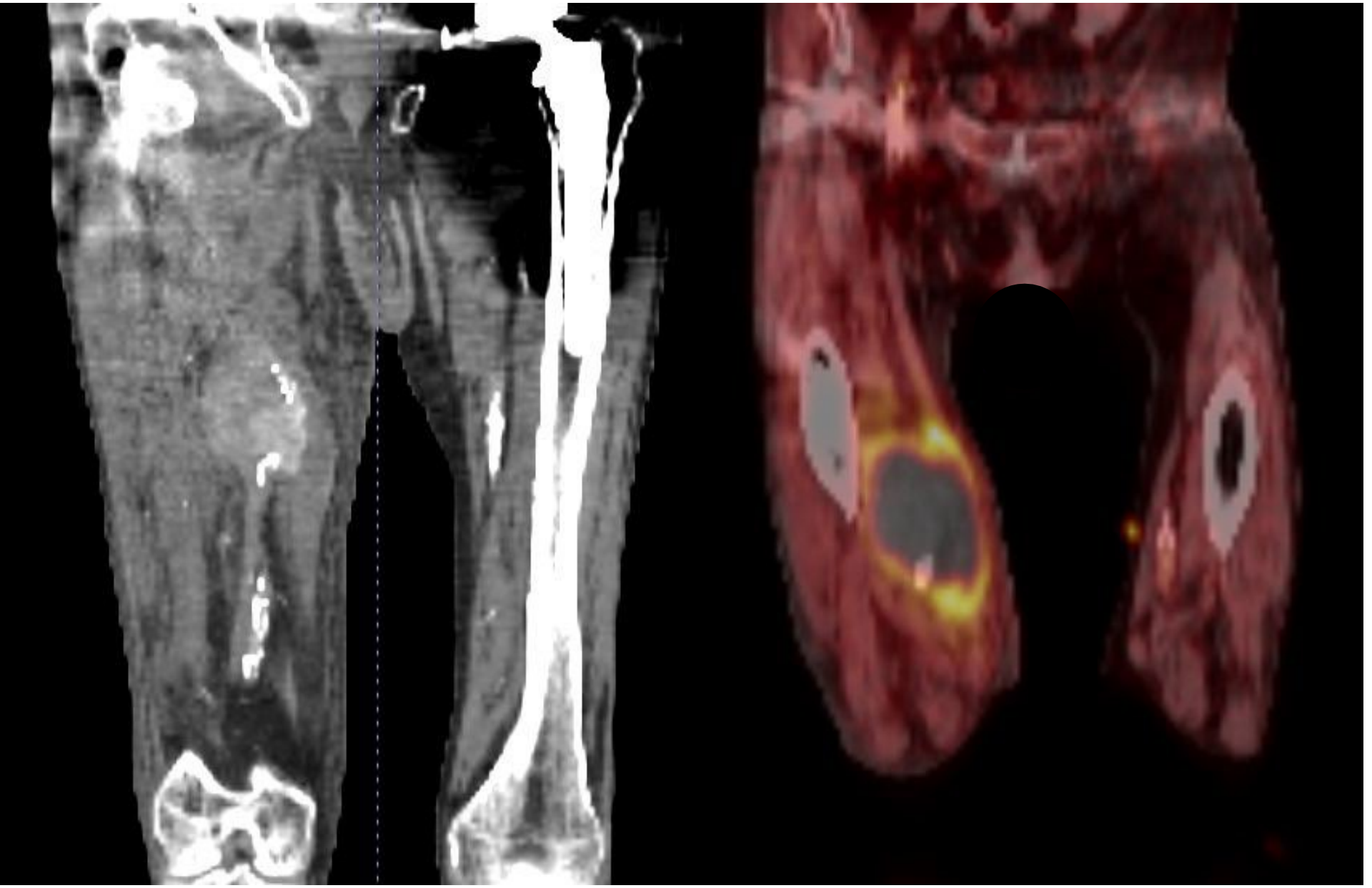
  Presentation:
- Right medial thigh pain for weeks with enlarging pulsatile mass
- Blood cultures positive for MSSA
- WBC 9.5 on presentation; treated with Cubicin at OSH for enterococcus UTI

Case 3: History

- PMH: CAD, CHF, T2DM, gout, HTN, stage IV prostate cancer, CVA, atrial fibrillation s/p atrial clip, CAD s/p PCI, CHF (EF 20-25%), mitral regurgitation, aortic regurgitation, aortic stenosis, chronic indwelling catheter
- PSH: CABG, bilateral total hip replacement, prostate surgery, defibrillator placement, hernia repair, cardiac stents x6
- Compliant with ASA, brilinta

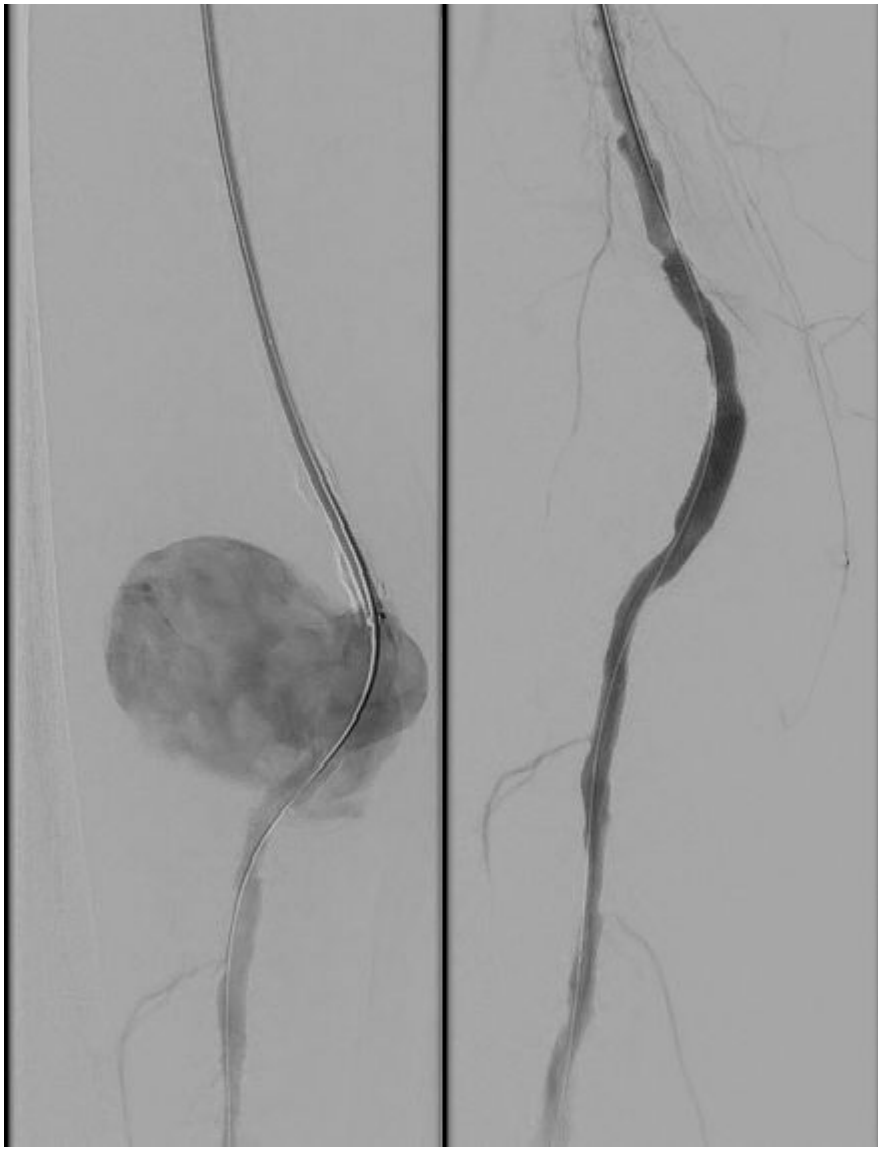
Case 3: Imaging

- CTA showing 8.7 cm superficial femoral artery pseudoaneurysm
- TEE showed echodensity near atrial pacemaker lead inconclusive for vegetation
- PET scan with increased activity around right thigh pseudoaneurysm



Case 3: Management

- Percutaneous transcatheter stent placement of right superficial femoral artery (8 x 100 mm Viabahn)



Case 3: Management

- Prolonged antibiotic management
  - Cefazolin 2g IV q8h x 6 weeks
  - Negative blood cultures x2 prior to discharge
- Lost to follow up

Discussion

- Mycotic pseudoaneurysms remain rare but dangerous.

- Key issues:
  - Often associated with prior vascular interventions or vascular access
  - CTA is the diagnostic modality of choice
  - Management requires surgical and infectious disease collaboration.

Clinical Pearls

- Maintain suspicion in bacteremic patients with prior vascular procedures
- Early CTA imaging is critical
- Multidisciplinary management improves outcomes
- Long–term antibiotic therapy often required along with surgical intervention

Key controversies

- Role of endovascular as first approach
- Duration of antibiotics (6 weeks vs lifelong suppression)
- Optimal conduit choice
- Management of infected stent grafts

Conclusion

- Mycotic pseudoaneurysms represent complex vascular infections requiring early diagnosis and aggressive treatment.

- Our case series highlights varied presentations and multiple management strategies.

References

- Wilson WR et al. Clinical Infectious Diseases.
- Sörelius K et al. Journal of Vascular Surgery.
- Brown SL et al. Annals of Vascular Surgery.
- Society for Vascular Surgery. Clinical practice guidelines on the care of patients with aneurysmal disease. *J Vasc Surg.*
- Osler William W. The Gulstonian Lectures on malignant endocarditis. *Br Med J.* 1885.
- Journal of Vascular Surgery. Contemporary management of infected (mycotic) aneurysms. Multiple reviews and case series.
- European Society for Vascular Surgery (ESVS). Management of vascular graft and endograft infections. *Eur J Vasc Endovasc Surg.*
- Circulation. Infectious aortitis and mycotic aneurysms: pathogenesis, diagnosis, and management.
- Rutherford's Vascular Surgery and Endovascular Therapy. 9th ed. Elsevier.
- Sabiston Textbook of Surgery. 21st ed. Elsevier
- Infectious Diseases Society of America (IDSA). Guidelines for management of bacteremia and vascular infections.