Management of Mycotic Celiac Artery Aneurysm with Chimney Technique

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Disclosure

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I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Introduction

- Mycotic celiac artery aneurysms (MCAA) are extremely rare
  - Only 9 cases have been reported to date
  - Leading etiology: Infective Endocarditis and septic emboli (5/9; 56%)
Introduction

- We present a case of MCAA involving the ostia, successfully treated by aneurysm exclusion using the Chimney Technique
Case Report

- 54 year-old male

Medical History:

- Immunoglobulin A Nephropathy
- CKD Stage 5 on Haemodialysis
  - Radial-cephalic arteriovenous fistulae
  - Cannulation by Buttonhole Technique
Emergency Department:

- Lumbosacral pain, asthenia, anorexia and fever for 4 days
  - No respiratory, gastrointestinal or genitourinary symptoms
  - Physical examination: mild epigastric pain with deep palpation
  - Analytic work-up:
    - Normal WBC count;
    - Elevated CRP (13.28 mg/dL – normal <3.0)
    - Normal Urinalysis
    - No other significant finding
  - Thorax X-Ray: Normal

Fever of Unknown Origin (FUO) admitted for further study
Case Report

Diagnostic workup for FUO

- **Blood cultures:**
  - Methicillin-sensitive staphylococcos aureus (MSSA)

- **Transthoracic Ecochardiography:**
  - Clinical suspicion of endocarditis - negative

- **CTA:**
  - Primary clinical suspicion of **spondylodiscitis** – negative
  - Celiac trunk aneurysm
Case Report

- Saccular aneurysm of the origin of the celiac trunk
- Absence of a proximal normalizing neck at the celiac base
- 17mm maximum width
Case Report

Repeated CTA (3 days later)

- **Rapid aneurysm growth (+15mm):** Saccular aneurysm of the origin of the celiac trunk, 32mm maximum width.
Case Report

Urgent Procedure: Aneurysm exclusion with Chimney Technique
Case Report

Angiography Suite

- Diagnostic Angiography
1. Chimney to the Celiac Trunk: Viabahn stentgraft, Gore® 10x100mm
Case Report

2. Single aortic endoprosthesis: Endurant II, Medtronic® 28x28x49mm
Case Report

3. Radial force strengthening: Wallstent, Boston Scientific® 10x70mm
Case Report

CTA (5 days postprocedure)

- Successful aneurysm exclusion
- No leak
After the procedure the patient was asymptomatic, apyretic, with sustained decrease in inflammatory parameters;

Discharged after a 2-week IV antibiotic course;

Lifelong targeted IV antibiotics were prescribed (on hemodialysis sessions).
Case Report

CTA (3 months postprocedure)

- Complete aneurysm thrombosis
- No leak
Discussion

- **Presumptive Etiology: Mycotic**
  - MSSA bacteriemia
  - Saccular anatomy
  - Rapid growth
  - Fever
  - Elevated inflammatory markers
Discussion

- Due to MCAA rarity, natural history and prognosis are unclear;
  - Criteria for intervention have not been well established;
  - Consensus exists for repair regardless of size;

Likelihood of progression to rupture in the face of vessel infection seems to be too high.
Discussion

Saltzberg et al “Endovascular repair as a first line of treatment for all visceral artery aneurysms in anatomically suitable cases, excluding those with lesions in the distal splenic artery”

Previous Reports for MCAA

Endovascular Treatment:
- Embolization
- Stentgraft exclusion
Discussion

- Saccular aneurysm of the origin of the celiac trunk
- **Absence of a proximal normalizing neck** at the celiac base
- Celiac Trunk **patency** was maintained
- Short term results are encouraging

No previous reports in the literature of Chimney Technique for MCAA treatment
Discussion

- Endovascular implantation of prosthetic material in an infected environment is a concern
  - Lifelong antibiotherapy
  - Close monitoring
  - Strict analytic follow-up
  - Serial imaging follow-up
    - CTA at 3, 6, and 12 months
Thank you for the attention