

Pseudoaneurysm of Aortic Arch Induced via Group B Streptococcus Bacteremia

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Introduction

William Osler coined the term mycotic aneurysm in 1885 to describe a mushroom-shaped aneurysm in a patient with subacute bacterial endocarditis. Originally the term was used for fungal etiologies only. The term mycotic aneurysm is now used to describe an aneurysm that results from any infectious etiology- bacterial, fungal, or viral in origin.³ We now know that most mycotic aneurysms are precipitated by bacterial infections with Staph Aureus being the most common in Western Countries.³ *Group B Streptococcus* (GBS) mycotic aneurysms are exceedingly rare with less than 25 cases reported.³ We report a case of mycotic aortic aneurysm caused by GBS bacteremia in a 60 year old male.

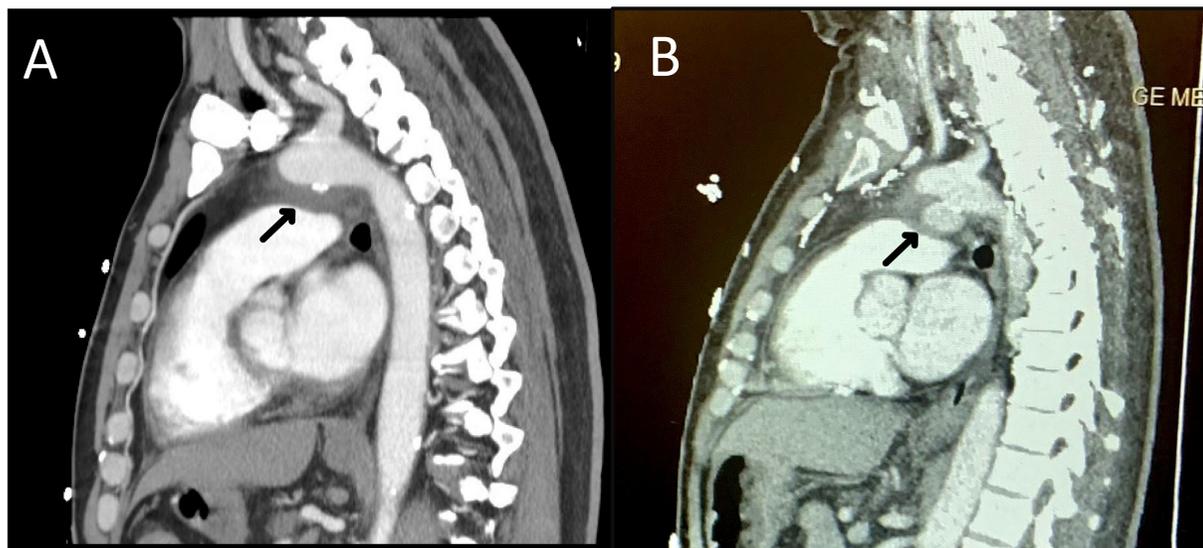


Figure 1: (A) CTA 1 month prior to GBS Bacteremia without findings of aneurysm (arrow). (B) CT chest with contrast 6 weeks after GBS Bacteremia with findings of aneurysm (arrow).

Case Presentation

Admission #1

- Our patient was a 60 year old male
- Presented with complaints of left-sided neck pain, vomiting and diarrhea for several days
- PMH: Hypertension, Atrial Fibrillation, Insulin Dependent Type II Diabetes and remote history of GBS Metatarsal Osteomyelitis
- On admission the patient was altered and tachycardic
- Physical exam: unremarkable expect for left lower extremity chronic diabetic foot ulcer
- Labs: leukocytosis, lactic acidosis, hyperglycemia and elevated creatinine
- Admitted/treated for severe sepsis, diabetic ketoacidosis and acute renal failure
- Due to persistent neck pain, an MRI of the cervical spine was obtained and revealed moderate enhancement from C2-C6 concerning for acute discitis and osteomyelitis
- Blood cultures ultimately were positive for group B hemolytic *S. agalactiae*
- The remainder of infectious work-up was negative at that time and the patient was discharged to complete a total of six weeks intravenous Ceftriaxone given sensitivities

Admission #2

Six weeks later...

- Presented with recurrent neck pain
- CT chest with contrast revealed a new incidental pseudoaneurysm of the inferior aspect of the aortic arch measuring 3.3 x 1.6 x 2.7 cm. *Review of prior imaging included CTA one 1 month prior to patient's first admission without evidence of aneurysm (Figure 1).
- Repeat infectious work-up at that time was unrevealing
- The patient ultimately received an elective minimally invasive hybrid aortic arch repair several months later
- There were no intra-operative cultures or biopsies taken
- The patient recovered well from surgery

Discussion

- Our patient had positive blood cultures for Group B Strep with developing cervical osteomyelitis and was subsequently treated with six weeks of IV antibiotics. His known documented history of GBS metatarsal osteomyelitis most likely led to the former mentioned.
- After completion of his antibiotics, our patient returned with recurrent neck pain and was found to have a new thoracic pseudoaneurysm. Previous imaging before his bacteremia showed no evidence of an aneurysm.
- There is no official diagnostic criteria for mycotic aneurysms but there is commonly used supporting criteria.^{1,2,4} In our patient, there is positive supporting evidence to diagnosis mycotic aneurysm however the timeline and completion of antibiotics makes using these variables difficult (Table 1).
- Induction of mycotic aortic aneurysm through local vertebral osteomyelitis have been reported numerous times.^{5,7}
- Mycotic aneurysms are potentially fatal given their pre-disposition to rupture and treatment is either via IV antibiotics or surgical repair.⁶

Supportive Criteria	Our Patient
Positive Blood Cultures	Yes, previous
Neck/Thoracic Pain	Yes
Infectious CT Scan findings	No*
Intraoperative Cultures	Not taken

Table 1: Commonly used supportive criteria for diagnosing mycotic aneurysms compared to our patient. *However, taken after completion of antibiotics.

Conclusion

Mycotic Aneurysms are potential fatal⁶ and GBS associated aneurysms are rare.³ Although we not say for certain that our patient's aneurysm was a mycotic aneurysm, it is possible given supportive criteria, location of osteomyelitis and prior CT scans without findings of the aneurysm that it may have been mycotic or at least induced via GBS bacteremia.

Literature Review

