

Clostridium septicum Bacteremia with Subsequent Mycotic Aortic Aneurysm: A unique presentation in underlying malignancy

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Introduction

Significant Uniqueness of case: Clostridium septicum bacteremia and mycotic aneurysms are separate distinctly rare and formidable life-threatening conditions; together they catalyze progression rapidly with devastating results. Clostridium septicum is a spore producing, anaerobic, Gram positive bacillus that has a strong relationship to Colon Cancer, Leukemia, and Diabetes. Severe infections with C. septicum are very rare in humans. Annual incidence of C. septicum bacteremia was reported as 0.4 – 1.0 cases per million within the population of England and Wales. C. Septicum can result in atraumatic myonecrosis (gas gangrene) which can be extremely damaging; this finding specifically is highly associated with malignancy. Mycotic Aortic Aneurysms are also rare and typically occur with some form of introduction of bacteria into the arterial wall. This case report discusses the clinical presentation, diagnostic evaluation, and unique pathology seen when these rare disease processes co-occur along with discussions of the high likelihood of a relationship with malignancy

Case Presentation

The patient is an 88 y/o male with past medical history significant for Type 2 Diabetes, stable Abdominal Aortic Aneurysm, Basal Cell Carcinoma on his left nose- status post surgical intervention and 3 months prior to presentation initiated on Vismodegib. On presentation, the patient is febrile at 101.7, with significant leukocytosis and anemia requiring transfusions. Blood cultures resulted with preliminary read of gram variable bacilli in less than 12 hours, with all subsequent confirmatory blood cultures resulting positive for, Clostridium septicum. CT chest, abdomen and pelvis demonstrated notable gaseous content within the vessel walls of patient's abdominal aortic aneurysm. Repeat imaging noted worsening gas progression with subsequent increased diameter of the previously stable abdominal aortic aneurysm. In the face of persistent bacteremia with Clostridium septicum, extensive infectious workup failed to yield a definitive source. Concern for malignancy within the colon was expressed to the patient. Colonoscopy was recommended due to nature of C. septicum's relationship with malignancy, however patient declined. Due to patients' poor functional status and comorbidities, evaluation with vascular surgery deemed him a poor surgical candidate and prolonged course of antibiotics were recommended as sole treatment. Despite a 96% mortality rate with lone medical management of mycotic AAA, and extremely high mortality associated with C. Septicum bacteremia, this patient survived his infection and went on to live for well over a year on with palliative and later hospice care.

Discussion

- Highly probable that undiagnosed colon cancer was underlying etiology leading to patient presentation. C. septicum bacteremia should prompt suspicion for underlying colon or hematologic malignancy due to its link with colon cancer and leukemia.
- Case reviews have noted that 50% of patients infected with C. septicum had associated malignancy. [1]
- Basal Cell Carcinoma has a very rare (.005 - .1%) risk of metastasis, the most common site is often to the lymph nodes. Studies note lymphogenic and hematogenic spread of metastatic BCC are equal in frequency. [5] Additionally, Patients with Basal Cell Carcinoma have a 9% increased incidence of developing a new primary cancer; recorded cases have been seen with colon, blood, breast, and prostate cancers.
- Vismodegib is indicated post Basal Cell Carcinoma surgical resection when there is concern for locally advanced, recurrent, or metastatic BCC. This medication is currently undergoing clinical trials for treatment in metastatic colorectal, stomach, pancreatic cancers and medulloblastoma .
- The probability of surviving an infection with C. septicum is low, in this case this low probability was compounded by gas formation occurring within the wall of an increasingly unstable AAA.
- There are a subset of infections that can clue physicians into malignancy. C. Septicum bacteremia is extremely rare, but when it is identified the hunt for new primary malignancy or metastasis should begin.

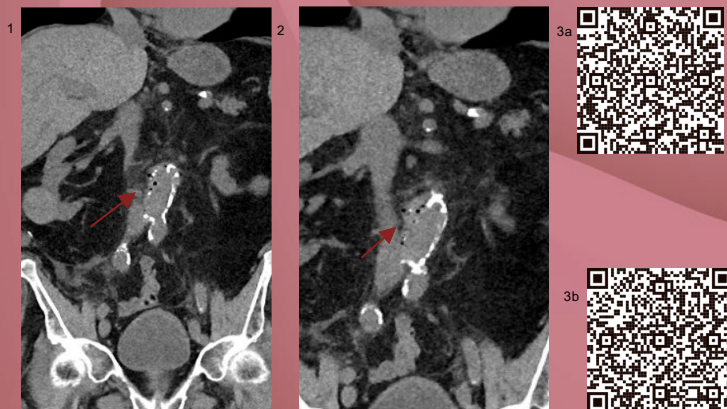


Figure 1 & 2 - Radiology report noted; dilation of infrarenal abdominal aorta, with gas bubbles likely located to the wall of the vasculature. Diameter up to 4.3 cm overall has increased compared to previous study. Noting surrounding haziness of fat suggestive of inflammation.
Figure 3 - QR code - scan to for video stroll through of emergency trail is set to open in google drive
Figure 3a is a Coronal View of CT chest/abdomen and pelvis. Figure 3b is an axial view of CT chest/abdomen and pelvis
Figure 4: Basal Cell Carcinoma seen on the left nose

Mortality Rate	
Surgical and medical intervention	38%
Medical intervention alone	96%

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