

Enterococcus faecalis endocarditis and Streptococcus gallolyticus bacteremia in a patient with adenocarcinoma of the descending colon.

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INTRODUCTION

Infective endocarditis is a strong marker for occult cancer and a predictor of modestly increased long-term cancer risk. Here we describe a patient that presented with *Enterococcus faecalis* (*E. faecalis*) endocarditis and later *Streptococcus gallolyticus* (*S. gallolyticus*) bacteremia which led to the diagnosis of adenocarcinoma of the descending colon.

CASE PRESENTATION

Our patient is a 51-year-old Hispanic male with a medical history of hypertension, hyperlipidemia, and type 2 diabetes mellitus who presented to the hospital with a one-month history of gait instability and week history of altered mental status.

As per his wife, the patient had been having difficulty with balance over the past month which progressively became worse, and his mentation deteriorated over the past week. The patient works as a landscaper and immigrated from Mexico 25 years ago. He admitted to having low grade fevers, fatigue, and blurry vision.

His physical exam showed a 2/6 systolic ejection murmur at the right sternal border and a 1/6 systolic ejection murmur along the right sternal border. Patient initially underwent stroke workup and on MRI there was left basilar ganglion, superior frontal, parietal, and occipital hypodensities with petechial hemorrhage indicative of embolic stroke. This was later seen as a temporoparietal lobe infarct on a follow up CT scan of the head.

Imaging:

FIGURE A: TEE image of 0.5 cm x 0.4 cm mobile vegetation on the atrial aspect of the anterior mitral valve leaflet.

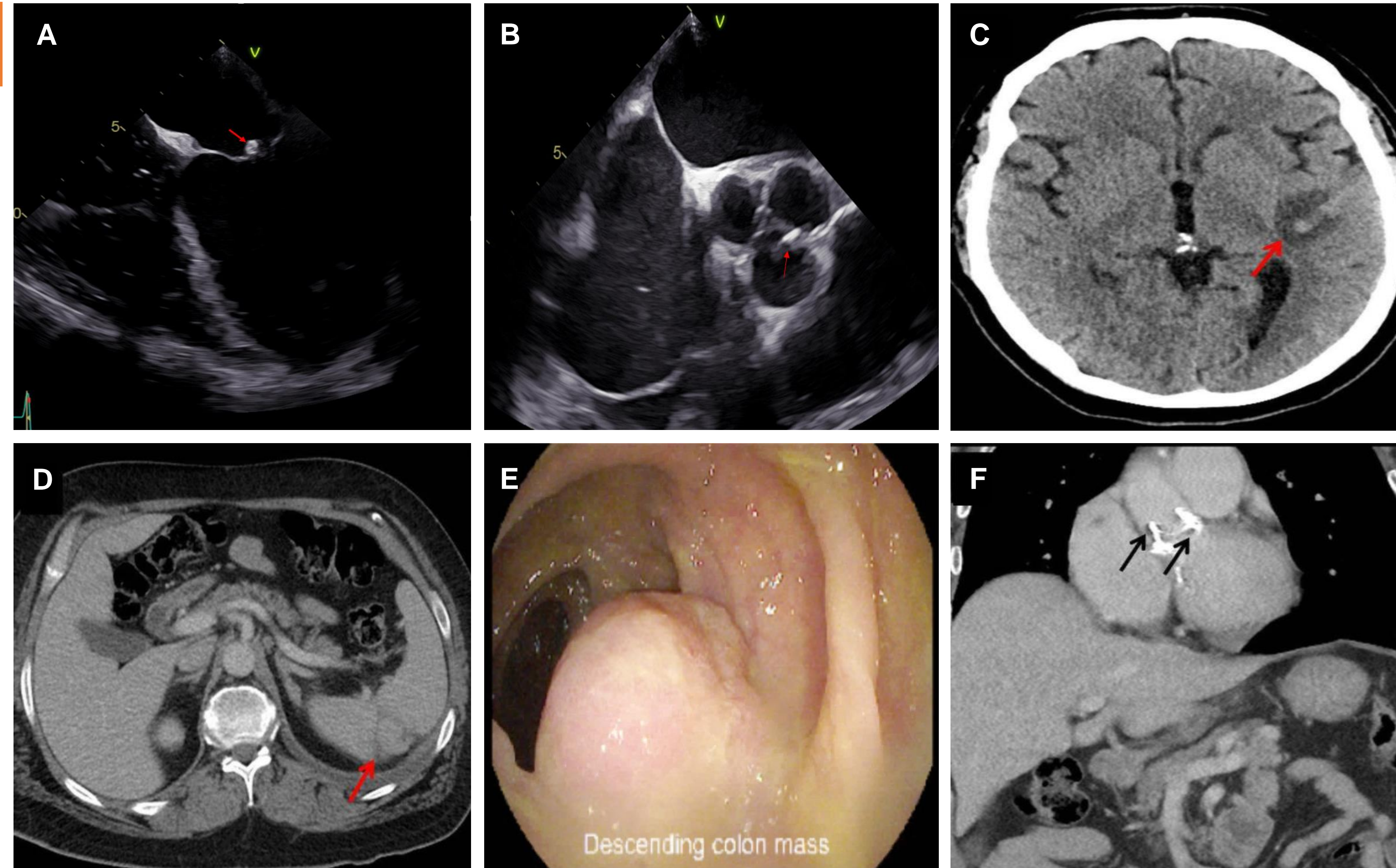
FIGURE B: TEE image of 1.7 cm x 0.8 cm highly mobile vegetation on the aortic valve.

FIGURE C: Axial non-contrast CT head showing sub-cortical area of hypodensity in the left temporal lobe concerning for embolic infarct.

FIGURE D: Axial post-contrast CT abdomen image showing peripheral wedge-shaped area of low attenuation consistent with splenic infarct which was found on TAVR work up.

FIGURE E: A 3-4 cm tubulovillous adenoma in the descending colon.

FIGURE F: Coronal post-contrast CT chest and abdomen image showing hypodense filling defects around the aortic valve replacement prosthesis concerning for vegetations or thrombi.



HOSPITAL COURSE

The patient underwent a 23 mm Edwards Inspiris aortic valve repair and 27 mm Epic St Jude bio mitral valve repair.

During the procedure, a penetrating ulcer of the ascending aorta was also found and repaired.

The patient was discharged on IV Ceftriaxone and Ampicillin, completing a 6-week antibiotic course.

Months later, patient returned to the hospital with fevers, chills, generalized malaise.

His blood cultures were positive for *Streptococcus gallolyticus*. A TEE was negative for vegetations, but a CT scan (Figure F) showed hypodense filling defects on follow up. The patient was initially on Ampicillin and Vancomycin, which was later reduced to Penicillin G.

Further investigation with colonoscopy was conducted to search for a source and showed a 3-4 cm tubulovillous adenoma in the descending colon. Snare polypectomy was conducted, and pathology was consistent with adenocarcinoma.

The patient was then referred to colorectal surgery and underwent robotic segmental colectomy with pathology and lymph node biopsy indicating T2N0 stage.

CONCLUSION

It is important to be aware of the sources of opportunistic infections as this can help identify pathologies predisposing the patient to infection. A patient presenting with such an infection should prompt the team to consider colon cancer, so that here is no delay in diagnosis.

REFERENCES

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Enterococcus Faecalis & Streptococcus Gallolyticus

- E. faecalis* is a gram-positive, catalase-negative, facultative anaerobe that grows as diplococci in short chains
- S. Gallolyticus* is a gram-positive, catalase-negative, facultative anaerobe that grows as pairs or chains of cocci
- Initially, both were clustered together into the Lancefield Group D streptococci based on the presence of a glycerol teichoic acid on their membranes.
- E. faecalis* is often associated with nosocomial invasive infections in organ transplant, dialyzed, oncologic and intensive-care patients while *S. gallolyticus* is strongly associated with colorectal cancer (65% of patients diagnosed with *S. gallolyticus* infection have a concomitant colorectal neoplasia).
- E. faecium* and *S. gallolyticus* are both considered opportunistic pathogens, the source of infection is commonly endogenous with a translocation process through the intestinal barrier. This process occurs due to pathological conditions such as pancreatitis, trauma, surgery, or cytotoxic drugs.
- In the case of our patient, adenocarcinoma of the descending colon likely led to compromise of the intestinal epithelium predisposing him to both endocarditis and bacteremia.
- Rat models have shown that reactive oxidative species and extracellular superoxide produced by *E. faecalis* causes genomic instability which could predispose the host to mutations and consequently cancer.