

# Atypical presentation of infective endocarditis

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## ABSTRACT

The HACEK group of organisms are one of the infrequent causes of infective endocarditis. Infective endocarditis should be recognized and treated promptly to prevent excessive morbidity and mortality associated with the disease. Sometimes the diagnosis is delayed due to vague and subtle presentation. Through this case report, risk factors of *Cardiobacterium hominis* endocarditis and its atypical presentation is illustrated to increase the recognition of infective endocarditis as one of the differential diagnosis.

**KEYWORDS:** infective endocarditis, HACEK, *cardiobacterium hominis*, atrial fibrillation

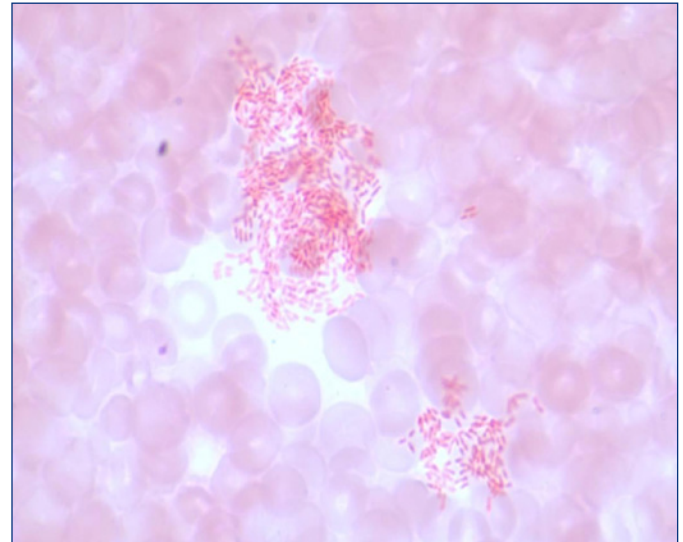
## INTRODUCTION

In the United States, an estimated 10,000 to 15,000 new cases of infective endocarditis (IE) are diagnosed each year.<sup>1</sup> To date, less than 100 cases of *Cardiobacterium hominis* (*C. hominis*) endocarditis have been reported in the English medical literature.<sup>2</sup> The HACEK group of bacteria (*Haemophilus* species, *Aggregatibacter* species, *Cardiobacterium hominis*, *Eikenella corrodens*, and *Kingella* species) are a small, heterogeneous group of fastidious, gram-negative bacteria that frequently colonize the oropharynx and have long been recognized as a cause of infective endocarditis. These organisms have been historically reported as causing infection in <5% of patients of IE.<sup>3,4</sup> This case report describes the atypical presentation of infective endocarditis due to a rare organism.

## CASE PRESENTATION

An 80-year-old man with St. Jude's prosthetic mitral valve replacement done in 2009, with a history of Alzheimer's dementia and stroke, presented with bright red blood per rectum and palpitations. He was fatigued and felt unwell for nearly 6 weeks before the presentation. He lives with his wife at home and had a dental procedure 2 months before the presentation. He was given prophylactic amoxicillin for 5 days after the procedure. In the emergency room, he was found to be diaphoretic, pale and drowsy. He was hypotensive to systolic blood pressure of 70 mm Hg and tachycardic to 150/min. On exam, he was pleasantly confused and oriented to person and place only. Oral examination revealed

Figure 1. Gram stain of blood showing gram-negative bacilli in clusters.



grossly poor dentition with dental caries. Cardiovascular exam showed a holosystolic murmur in the left 5th intercostal space medial to the nipple area. Initially the EKG looked like supraventricular tachycardia and after adenosine therapy the atrial fibrillation was clearly evident.

He was resuscitated with intravenous fluid boluses; the laboratory tests showed severe anemia with a haemoglobin of 6.4 g/dl and supratherapeutic INR of 5.4. He was transfused with 3 units of fresh frozen plasma and 3 units of packed red blood cells. During the hospitalization, he had a temperature of 102 degrees Fahrenheit; the blood culture was done which showed gram-negative bacteria in two bottles. He was started on intravenous ceftriaxone empirically.

The microbiology studies showed specific characteristics like cluster of gram negative bacilli and a waxy growth on the blood culture bottle. [Figure 1] Biochemical tests showed specific indole positivity which differentiates from other HACEK group of organisms.

The transthoracic echocardiogram done initially showed a normal ejection fraction without any obvious vegetations. The trans-esophageal echocardiogram done due to high suspicion for IE showed a mobile vegetation of approximately 1 cm in size adherent to atrial surface of the mitral valve. But the patient didn't have any significant mitral regurgitation and there was no evidence of valve dehiscence

or abscess or valve rupture. [Figure 2 & 3]

The patient was treated for 6 weeks with intravenous ceftriaxone and surgical treatment was not indicated. He recovered well in a rehabilitation facility.

## DISCUSSION

IE with *Cardiobacterium hominis*, a member of the HACEK group of microorganisms, is usually insidious in onset, with a prolonged subacute course characterized by leukocytosis, anemia, splenomegaly, embolic phenomena, congestive heart failure and weight loss.

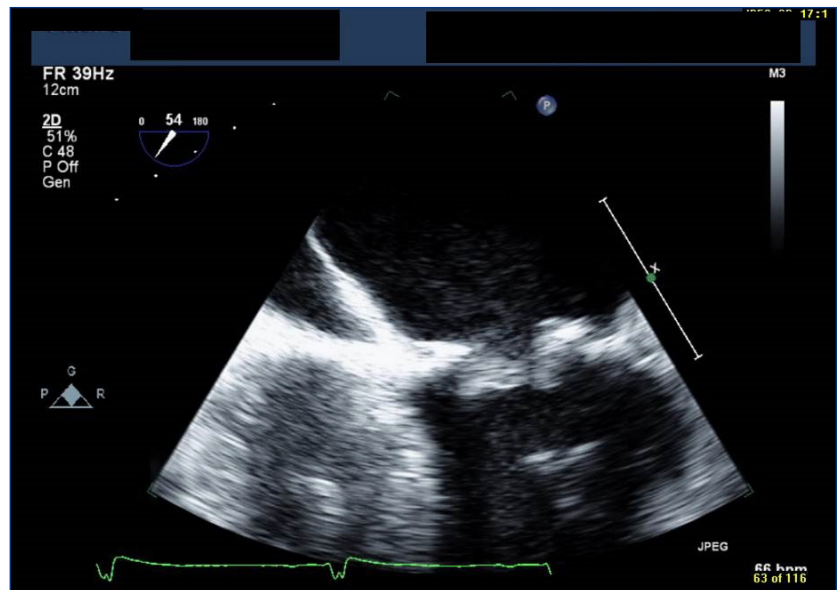
*C. hominis* endocarditis is known for a spectrum of unusual clinical presentations, non-specific symptoms and protracted clinical course. It has been reported to occur after dental procedures, upper GI endoscopy and colonoscopy. Incidence among elderly patients are higher due to the above risk factors and increased use of prosthetic valves and devices implants. Other rare presentations include septic arthritis, mycotic aneurysm, congestive heart failure and acute coronary syndrome.

*C. hominis* produces indole and is oxidase-positive. It ferments glucose, sorbitol, mannose, sucrose and, in most cases, maltose and mannitol. It does not demonstrate urease, catalase, nitrate reductase, phenylalanine deaminase, beta galactosidase, lysine decarboxylase, ornithine decarboxylase or arginine dihydrolase activity. These characteristics help distinguish it from other members of the HACEK group.<sup>10</sup>

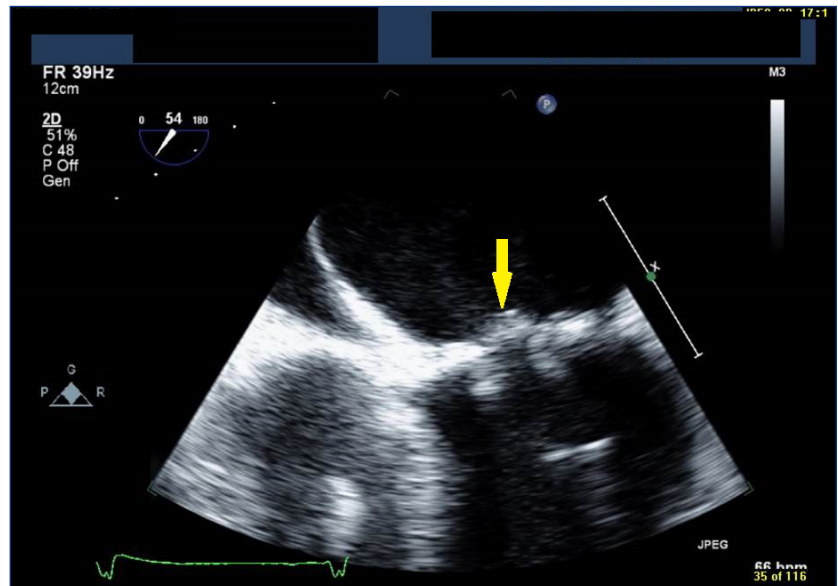
Although *C. hominis* is of relatively low virulence, endovascular infection complicates 95% of all cases of bacteremia, with the aortic valve being most commonly affected.<sup>5,6</sup> Peripheral and central nervous system emboli occur frequently in *C. hominis* endocarditis, noted in 51% and 21% of cases, respectively, especially when the aortic valve is involved.<sup>5,7,8</sup> Prognosis is generally favourable, with a 93% cure rate for both native and prosthetic valve infection.<sup>5</sup> A third-generation cephalosporin is the drug of choice for infection with HACEK organisms.<sup>9</sup>

Most often this disease has a chronic clinical course and requires prolonged antibiotic therapy. Association of atrial fibrillation with *C. hominis* endocarditis is rare and can be present either at the time of presentation or develop after hospitalization. This case report illustrates the atypical presentation of rare case of *C. hominis* subacute bacterial endocarditis (SBE) and also stresses the recognition of important risk factors like poor dentition, prosthetic valves in elderly patients for prompt diagnosis of prosthetic valve endocarditis.

**Figure 2.** Vegetation on the mitral valve seen on transesophageal echocardiogram



**Figure 3.** Mobile vegetation prolapsing (arrow) into the left atrium with mild mitral regurgitation by transesophageal echocardiogram.



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### Disclosures

None

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