

IMAGING VIGNETTE

BEGINNER

CLINICAL VIGNETTE

Fulminant Bacterial Myocarditis Presenting as Myocardial Infarction



Cvetan Trpkov, MDCM,^a Michael Chiu, MD, MSc,^{a,*} Eun-Young Kang, MD,^{b,*} Adrian Box, MD, PhD,^{b,†} Andrew Grant, MD^{a,‡}

ABSTRACT

A previously healthy man presented with inferior myocardial infarction and recent upper respiratory tract infection. Bacteremia was detected and treated; however, the patient developed refractory polymorphic ventricular tachycardia storm and shock. Clinical autopsy revealed the diagnosis of isolated bacterial myocarditis.

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A 61-year-old previously healthy man presented to a community hospital with transient loss of consciousness and acute chest discomfort. He had upper respiratory tract infection for 2 weeks with subjective fever and rigors for 1 day. The patient was afebrile and initial physical examination was normal. Serum leukocyte count and chest radiograph were normal, and 12-lead electrocardiogram demonstrated inferior ST-segment elevation myocardial infarction. There were no stigmata of endocarditis or signs of aortic dissection. Intravenous thrombolysis was administered, and he was transferred to a tertiary care hospital.

Coronary angiography demonstrated occlusion of the distal left-dominant posterior descending artery, without other significant lesions, and angioplasty was not possible because of small vessel size. Transthoracic echocardiography showed left ventricular apical-inferior hypokinesis and no valve lesions. Cranial computed tomography identified a small cerebellar hemorrhage. The patient was clinically stable and transferred to cardiac intensive care unit for medical management. Approximately 24 h later there was onset of polymorphic ventricular tachycardia storm and profound shock. Admission blood cultures grew methicillin-sensitive *Staphylococcus aureus* and intravenous antibiotics were administered. Despite maximum supportive therapy the patient died 48 h following admission.

Autopsy revealed acute bacterial myocarditis (BM) with multifocal suppuration of the lower interventricular septum and inferior ventricles. The cardiac valves were unremarkable. Intramyocardial abscesses contained gram-positive cocci (methicillin-sensitive *S. aureus*) (Figure 1A). The posterior descending artery exhibited acute bacterial vasculitis and adjacent abscess (Figure 1B). Additional findings included microabscesses in the brain and spinal cord.

Endocarditis is the most common cardiac manifestation of bacterial infection in developed countries. Perivalvular extension with abscess formation is a recognized complication, but isolated BM is exceptionally rare (1).

From ^aCardiology, University of Calgary, Calgary, Alberta, Canada; and ^bAnatomical Pathology, University of Calgary, Calgary, Alberta, Canada. *Drs. Chiu and Kang are co-second authors and contributed equally. [†]Drs. Box and Grant are co-senior authors. All authors have reported that they have no relationships relevant to the contents of this paper to disclose.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the JACC: Case Reports [author instructions page](#).

Manuscript received March 3, 2020; accepted March 27, 2020.

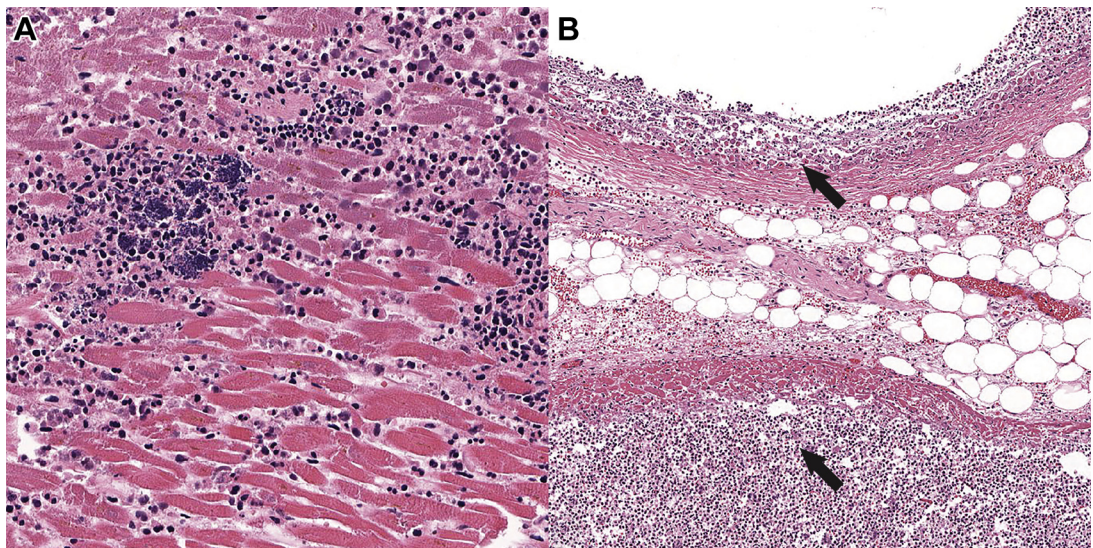
BM presenting with myocardial infarction has been reported; however, this case is notable because of the absence of immunocompromise. The incidence of isolated BM in modern practice is unknown and most reports come from old autopsy series (1). Complications of BM include myocardial rupture, arrhythmia, sepsis, and shock (1). Treatment consists of supportive care, antimicrobial therapy, and source control. Surgical intervention is not well described and may be ineffective with multifocal involvement. Use of venoarterial extracorporeal membrane oxygenation in BM has not been reported. Often, as in this case, definitive diagnosis relies on autopsy findings.

Despite modern clinical tools autopsy reveals new diagnoses or diagnostic errors in approximately 30% of cases (2). Autopsy remains an invaluable tool for quality control, education, and advancement of medical science. Unfortunately, use of autopsy has declined significantly. We highlight the ongoing utility of autopsy to establish diagnosis and provide closure to patients' family members and clinical teams.

**ABBREVIATIONS
AND ACRONYMS**

BM = bacterial myocarditis

FIGURE 1 Bacterial Myocarditis Hematoxylin-Eosin Micrographs



(A) Myocardial microabscesses with clusters of gram-positive cocci (original magnification $\times 20$). **(B)** Posterior descending artery with acute bacterial vasculitis (**top arrow**) and adjacent abscess (**bottom arrow**) (original magnification $\times 4$).

ADDRESS FOR CORRESPONDENCE: Dr. Cvetan Trpkov, University of Calgary, Cumming School of Medicine, Health Research and Innovation Centre, GAC 82-3280 Hospital Drive NW, Calgary, Alberta T2N 4Z6, Canada. E-mail: Cvetan.Trpkov@albertahealthservices.ca.

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KEY WORDS arrhythmia, autopsy, myocardial abscess, *Staphylococcus aureus*