

Diagnosis Of Endocarditis By Bedside Echocardiography

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Citation

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Abstract

Subacute left-sided bacterial endocarditis is a serious condition that may be overlooked due to highly variable clinical manifestations. Accurate and early diagnosis for initiation of effective treatment is essential in improving patient outcome. Echocardiography is the primary resource for the diagnosis of endocarditis, particularly when the results are incorporated into the Duke criteria.

CASE REPORT

A 23-year-old Caucasian male presented with a 2-month history of worsening shortness of breath, associated with an uncertain but notable weight loss, as well as fatigue, intermittent fevers, night sweats, non-productive cough, and ankle swelling. Three days prior to arrival he noted increasing shortness of breath at rest, increasing fevers, chills, and chest discomfort. He was recently discharged from jail and had a history of IV heroin abuse, with the last use approximately 1 week ago. His past medical history was significant for a benign heart murmur since birth.

Physical examination revealed a blood pressure of 96/44, a heart rate of 114, respiratory rate of 24, and a temperature of 39.5 C. The patients' sclera and conjunctiva were unremarkable. No JVD was appreciated. Breath sounds were clear but diminished bilaterally. A grade 2/6 systolic ejection murmur was heard at the right upper sternal border, radiating to the carotids. The patient's abdomen was soft with mild hepatomegaly and a palpable spleen tip. His skin had scarring from IV drug use, but no rash or nodules were appreciated, and the nail beds were unremarkable. His EKG showed sinus tachycardia with diffuse non-specific ST-T wave changes.

Laboratory analysis was significant for a WBC count of 13.5 k/uL with 83% neutrophils, a Hgb of 8.5, a troponin of 5.8 ng/mL, and a B-type natriuretic peptide 836 pg/mL.

An immediate bedside emergency-department cardiac ultrasound was performed (Figures 1-2, and Video 1), showing a dilated, poorly contracting left ventricle with a hyperechoic aortic valvular leaflet vegetation. A

presumptive diagnosis of acute versus worsening subacute endocarditis was made. The patient was started on intravenous antibiotics while cardiology and cardiothoracic surgery consults were obtained. A formal echocardiogram confirmed the findings seen by the Emergency Physician, and in addition demonstrated a bicuspid aortic valve, severe aortic insufficiency, and an estimated ejection fraction of 40%. The patient was taken to the operating room for urgent replacement of his aortic valve after initiation of IV antibiotics.

Figure 1



Figure 2



DISCUSSION

Subacute left-sided bacterial endocarditis is a serious condition that may be overlooked due to highly variable clinical manifestations^[1]. Accurate and early diagnosis for initiation of effective treatment is essential in improving patient outcome^[2]. Echocardiography is the primary resource for the diagnosis of endocarditis, particularly when the results are incorporated into the Duke criteria^[1, 3]. Bedside echocardiography performed in the ED may lead to early or improved recognition of this disease in patients at risk^[4]. Our patient presented with one major criterion and two minor criteria; subsequent positive blood cultures

provided a second major criterion, satisfying the Duke criteria for definite endocarditis.

Findings at operation included phlegmon on the aortic valve leaflets with anterior leaflet perforation. The valve was replaced with a St. Jude prosthetic valve. Blood cultures were all positive for *Streptococcus viridans*. The patient was ultimately discharged from the hospital after recovering well from surgery, only to return one and a half years later with prosthetic valve endocarditis and a subaortic cardiac abscess requiring mechanical mitral valve placement as well as replacement of the previously placed prosthetic aortic valve. He was again discharged after recovering well from surgery, and at last follow-up was having limited but improving success at giving up intravenous drug use.

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