Abiotrophia defectiva Infective Endocarditis in Hypertrophic Obstructive Cardiomyopathy

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INTRODUCTION

- *A. defectiva* is a rare cause of IE (**1–2%** of cases), but carries high rates of progression from bacteremia.[1–3]
- Often demonstrates **reduced penicillin susceptibility**[4].
- High rates of **embolization and valve destruction**, often attributed to diagnostic delay.[2,5]
- **First reported case** of *A. defectiva* IE in HOCM.

Aggressive
Re-classified as a *typical* cause of IE in 2023

Penicillin Resistant
Complicates first-line IE prophylaxis

Morbid
High rates of emboli and valve destruction

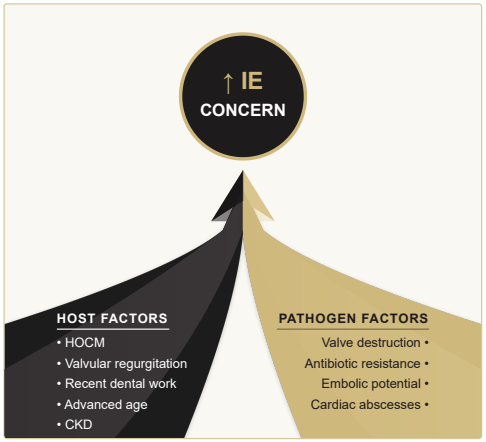
CLINICAL QUESTION

GUIDING QUESTION

When should clinicians escalate evaluation for IE in patients with high-risk pathogens and structural heart disease, despite negative initial TTE?

RISK FACTOR CONVERGENCE

Host and pathogen factors raise risk of IE and worsen prognosis if it develops.



CASE PRESENTATION

PRESENTATION 1

74-year-old male with HOCM, moderate-severe MR, CKD stage 3a

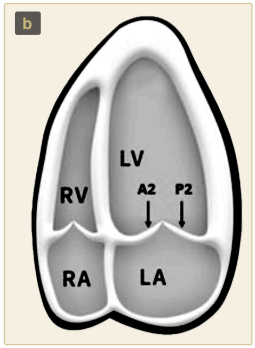
- Fevers, chills, malaise ×6 weeks
- *A. defectiva* in 2/2 blood cultures
- No peripheral stigmata of IE
- TTE: **No vegetations**
- Odontogenic source suspected; recent dental work
- 7 days IV ceftriaxone → culture clearance
- Discharged on amoxicillin-clavulanate

7 MONTHS LATER

PRESENTATION 2

Re-presented following further dental work; transferred from outside hospital

- Dyspnea and fatigue ×2 weeks
- WBC 13,000/μL; Cr **3.9 mg/dL** (baseline 1.8)
- *A. defectiva* in 2/2 blood cultures; started on ceftriaxone
- Initial TTE: **No vegetations**
- Transferred for **clinical deterioration**
- Repeat TTE: echodensity on mitral valve (Fig. 1a); TEE confirmed vegetation
- Hemolytic anemia; GN requiring hemodialysis
- MDC: no indication for urgent surgery; dental extractions for source control
- Discharged on 6-week IV vancomycin
- **IE resolved without surgery**; renal function improving at follow-up



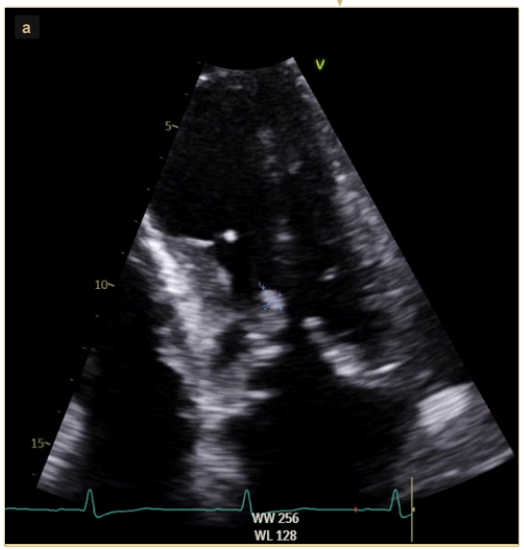


Figure 1. (a) Repeat TTE demonstrating an echodensity (8 x 4 mm) on the anterior mitral leaflet shown as A2 **(b)**.

DISCUSSION

DIAGNOSTIC CHALLENGE

LIMITED TTE SENSITIVITY

TTE sensitivity for IE is only **50–90%**[6], potentially further reduced by HOCM's complex anatomy. Both presentations had negative initial TTEs.

CUMULATIVE RISK DROVE ESCALATION

HOCM, valvular regurgitation, atrial enlargement, and ongoing dental procedures amplified host risk. Post-test probability remained high despite a negative TTE, warranting escalation to TEE.

CONTRAST CONTRAINDICATED

Rapidly declining renal function (Cr 3.9 from baseline 1.8) precluded contrast imaging, limiting assessment for septic emboli.[8]

Repeat TTE or TEE is recommended if clinical suspicion for IE remains high and the initial exam was negative or inconclusive, or as soon as a new complication of IE is suspected.[9,10]

TREATMENT CONSIDERATIONS

- **Antibiotic selection:** Penicillin-resistant (MIC 4.0 μg/mL); standard dental prophylaxis would have been ineffective. Treated with 6-week vancomycin.
- **Source control:** Dental extractions eliminated recurrent bacteremic seeding.
- **Conservative approach:** MDC found no indication for urgent valve surgery despite structural disease and dialysis-dependent AKI; IE resolved on medical therapy.

CONCLUSIONS

1. **Sustain clinical suspicion** for IE when a virulent organism grows in the setting of structural heart disease, even with negative initial imaging.
2. **Escalate to TEE** when combined host- and pathogen-related risk factors keep post-test probability high despite a negative TTE.
3. **Recognize prophylaxis gaps:** penicillin-resistant organisms like *A. defectiva* may not be covered by standard first-line dental prophylaxis in high-risk patients.

ABBREVIATIONS

AKI Acute Kidney Injury
Cr Creatinine
HD Hemodialysis
IE Infective Endocarditis
MDC Multidisciplinary Conference
MR Mitral Regurgitation
TEE Transesophageal Echocardiography
WBC White Blood Cell Count
CKD Chronic Kidney Disease
GN Glomerulonephritis
HOCM Hypertrophic Obstructive Cardiomyopathy
IV Intravenous
MIC Minimum Inhibitory Concentration
PCN Penicillin
TTE Transthoracic Echocardiography

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Diagram adapted from cardioserv.net

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