

Case Series: Clinical Heterogeneity of Infective Endocarditis (IE)

Dr Arulanandhan Ettiyar¹, Dr. Sureshkumar Ponnuswamy²

¹DM Cardiology Resident, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India
dr.arulanandhancyr[at]gmail.com

²Assistant Professor, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India
psureshkumar79[at]gmail.com

Abstract: ***Aim:** To highlight the clinical diversity of infective endocarditis for early diagnosis and effective management, ultimately improving clinical outcomes. This case series presents three patients with varied presentations and complications of IE. Infective endocarditis (IE) continues to challenge clinicians due to its unpredictable presentation and diverse clinical course. This case series walks us through three distinctly different patient profiles-ranging from a middle-aged man with dual-valve involvement to a young girl with congenital heart disease, and a young adult suffering from MRSA-induced endocarditis. What stands out, in my view, is how each case unfolds with a unique pattern of valve involvement, microbial agents, and systemic complications, yet all benefit from a timely diagnostic strategy rooted in clinical suspicion, echocardiography, and targeted blood cultures. It is evident that despite varying severity and etiology, the unifying thread lies in the swift administration of pathogen-specific intravenous antibiotics, which played a decisive role in stabilizing each patient. This suggests that early recognition and intervention-though seemingly straightforward-remain the linchpin in curbing morbidity. Taking this further, the cases subtly remind us that behind each infection is a story of missed prophylaxis, pre-existing defects, or microbial resistance-factors we often overlook in routine care. By drawing attention to the spectrum of IE manifestations, this series reinforces the importance of a vigilant, structured diagnostic lens and calls for clinicians to be consistently alert to atypical signs in vulnerable patients.*

Keywords: infective endocarditis, case series, clinical variability, early diagnosis, intravenous antibiotics

1. Case 1

Case 1: Left- and Right-Sided Infective Endocarditis in a Middle-Aged Male

Patient: 44-year-old male Presenting Complaints:

- Fever
- Palpitations
- Breathlessness (NYHA Class III)
- Duration: 2 weeks

Investigations:

- Echocardiography: Vegetations on both mitral and tricuspid valves
- Blood Culture: Positive for coagulase-negative Staphylococcus species
- Complications: Septic pulmonary embolism

Management:

- Treated with IV antibiotics as per sensitivity
- Clinical improvement noted
- Outcome: Discharged in stable condition

2. Case 2

Case 2: Right-Sided Infective Endocarditis in a Young Female with Congenital Heart Disease

Patient: 16-year-old female

Known History: Ventricular Septal Defect (VSD)

Presenting Complaints:

- Fever
- Palpitations
- Breathlessness
- Duration: 3 weeks

Investigations:

- Echocardiography: Mobile mass in Right Ventricular Outflow Tract (RVOT)
- Blood Culture: Methicillin-Sensitive Staphylococcus aureus (MSSA)

Management:

- Treated with IV antibiotics
- Monitored for complications
- Outcome: Discharged after stabilization

3. Case 3

Case 3: Left-Sided Infective Endocarditis in a Young Adult Male

Patient: 24-year-old male Presenting Complaints:

- Fever
- Palpitations

- Breathlessness (NYHA Class II)
- Duration: 2 weeks

Investigations:

- Echocardiography: 1 cm mobile vegetation on mitral leaflet
- Blood Culture: Methicillin-Resistant *Staphylococcus aureus* (MRSA)

Management:

- IV antibiotics initiated per sensitivity
- Outcome: Discharged in stable condition

4. Discussion

This case series demonstrates the clinical heterogeneity of infective endocarditis in terms of age, anatomical involvement, predisposing conditions, causative organisms, and complications. Early recognition using clinical suspicion, echocardiography, and blood cultures is critical. Prompt initiation of pathogen-directed antibiotic therapy remains the cornerstone of treatment.

5. Conclusion

Understanding the variable presentations of IE is crucial for timely diagnosis and management. These cases emphasize the need for a structured diagnostic approach to prevent complications and improve outcomes.

References

- [1] Contrepoint A. Towards a history of infective endocarditis. *Medical history*. 1996;40:25–54. doi: 10.1017/s0025727300060658. [DOI] [PMC free article] [PubMed] [Google Scholar]
- [2] Osler W. The Gulstonian Lectures, on Malignant Endocarditis. *British medical journal*. 1885;1:577–579. doi: 10.1136/bmj.1.1264.577. [DOI] [PMC free article] [PubMed] [Google Scholar]
- [3] Bin Abdulhak AA, et al. Global and regional burden of infective endocarditis, 1990–2010: a systematic review of the literature. *Glob Heart*. 2014;9:131–143. doi: 10.1016/j.gheart.2014.01.002. [DOI] [PubMed] [Google Scholar]
- [4] Thayer W. Studies on bacterial (infective) endocarditis. *Johns Hopkins Hosp Rep*. 1926;22:1. [Google Scholar]
- [5] Fowler VG, Jr, et al. *Staphylococcus aureus* endocarditis: a consequence of medical progress. *Jama*. 2005;293:3012–3021. doi: 10.1001/jama.293.24.3012. This prospective cohort study of 1779 patients with definite endocarditis demonstrates that *S. aureus* is the leading cause of endocarditis in many regions of the world. [DOI] [PubMed] [Google Scholar]
- [6] Rabinovich S, Evans J, Smith IM, January LE. A Long-Term View of Bacterial Endocarditis. 337 Cases 1924 to 1963. *Annals of internal medicine*. 1965;63:185–198. doi: 10.7326/0003-4819-63-2-

185. [DOI] [PubMed] [Google Scholar]

- [7] Watt G, et al. Prospective comparison of infective endocarditis in Khon Kaen, Thailand and Rennes, France. *The American journal of tropical medicine and hygiene*. 2015;92:871–874. doi: 10.4269/ajtmh.14-0689. [DOI] [PMC free article] [PubMed] [Google Scholar]