

Effective Rescue Therapy for Infective Endocarditis: Combined Intravenous Nafcillin and Cefazolin for Persistent MSSA Bacteremia in a Non-Surgical Candidate

Patient details

Patient Clinical Overview
49-Year-Old Female with Triple-Negative Breast Cancer

- Diagnosed with Stage IA breast cancer requiring adjuvant chemotherapy (Docetaxel + Cyclophosphamide).
- Indwelling Port-a-Cath Access**
Patient utilizes indwelling venous access for the administration of chemotherapy treatments.
- Patient Background: Developmental Delays**
Clinical history includes developmental delays which may impact patient management and communication.

Risk Assessment & Status
Status: Immunocompromised / High Risk

Patient is classified as high risk due to her immunocompromised state during treatment.

0.04 Infection Rate per 100 Catheter Days

Represents the standard infection risk for cancer patients with indwelling venous access.

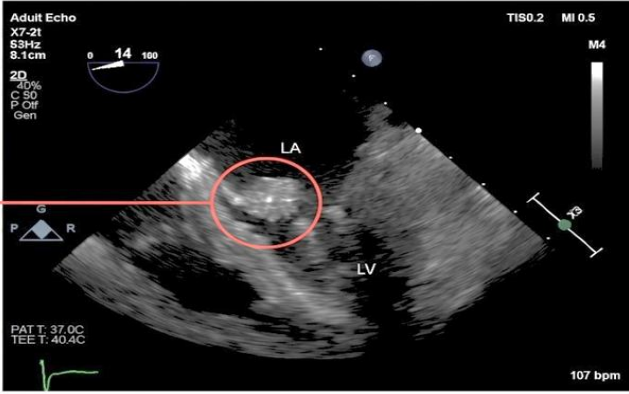
Clinical presentation

Timeline	Vital Signs	Physical Exam
<p>Day -5: Onset of fever and cough.</p> <p>Day 0: Arrival at Chemo Infusion Center, diverted to ER.</p>	<p>Temp: 38.1°C</p> <p>BP: 129/76 mmHg</p> <p>HR: 129 bpm</p> <p>O₂ Sat: 96 (Room Air)</p>	<ul style="list-style-type: none"> • General: Profound weakness and debility. • Ophthalmologic: Watery, red eyes (Conjunctival injection). • Cardiac: Tachycardic, No murmur auscultated. • Port Site: Clean, no erythema or drainage.

Investigations

Lab Data	Microbiology Timeline	Action Taken
<p>WBC: 14.7k (Neutrophilic Leukocytosis)</p> <p>Hemoglobin: 10.2 g/dL (Macrocytic Anemia)</p> <p>Viral Panel: Negative</p>	<p>Day 1: Blood Cultures Drawn + Empiric Cefepime</p> <p>Day 2: Gram-Positive Cocci in Clusters + Added Vancomycin</p> <p>Day 3: Confirmed MSSA</p> <p>Antibiotics narrowed to Cefazolin (2g IV q8h).</p>	<p></p> <p>Source Control: Port-a-Cath removed by Interventional Radiology.</p>

Echocardiography



0.5 x 0.5 cm
Vegetation on
Anterior Mitral
Leaflet

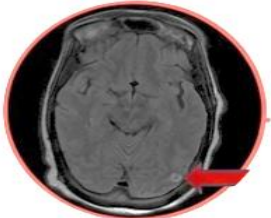
TEE Findings

- Mild Mitral Stenosis (Mean gradient 3.9 mmHg)
- No Regurgitation
- Thickening of leaflets

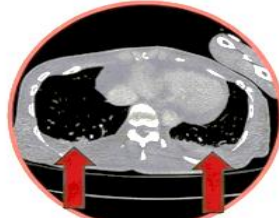
Clinical Sign

Patient developed conjunctival hemorrhages (Roth spots equivalent), suggesting active septic embolization.

Other radiological investigations



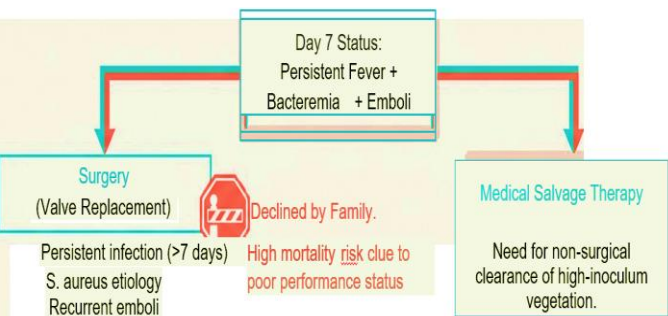
Brain MRI: Acute infarcts in cerebellum, basal ganglia, and frontal cortex



Thorax CT: Bilateral pleural effusions and consolidations

Implication: CNS involvement requires high blood-brain barrier penetration. Regimen switched to Nafcillin.

Day 7: change in treatment



Day 7 Status:
Persistent Fever +
Bacteremia + Emboli

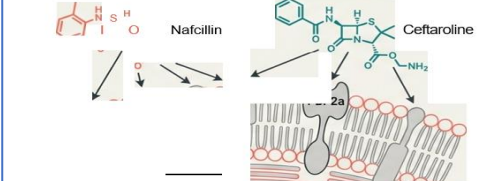
Surgery
(Valve Replacement)

Declined by Family.

Persistent infection (>7 days)
S. aureus etiology
Recurrent emboli

Medical Salvage Therapy

Need for non-surgical clearance of high-inoculum vegetation.

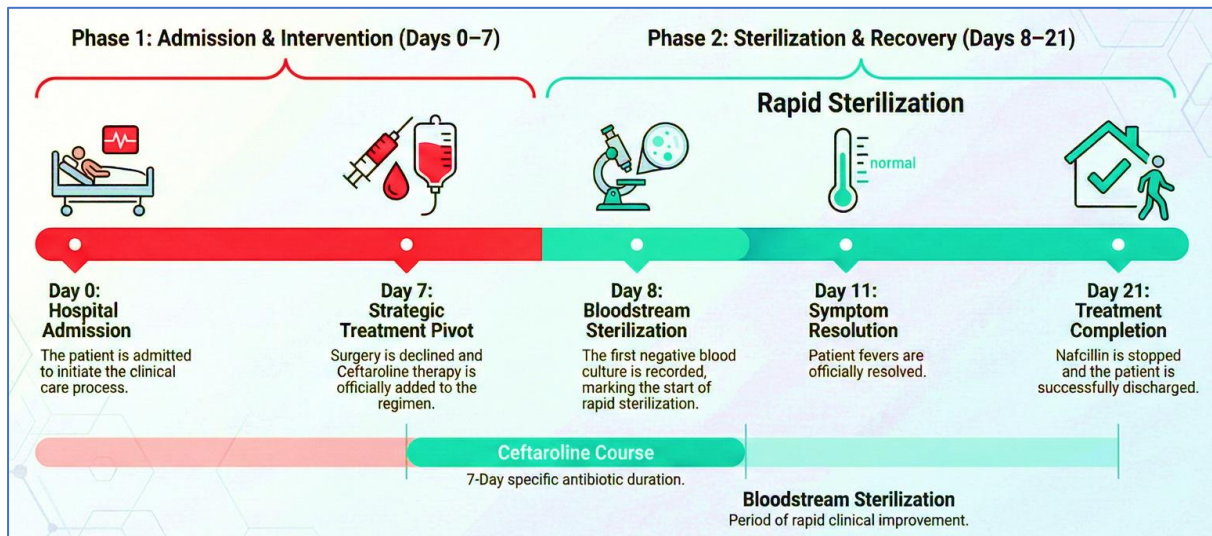


1. Nafcillin 2 g IV q 4h
2. Ceftaroline 600 mg IV q 12h

Mechanism of Action: Complementary Saturation

- Nafcillin binds standard Penicillin-Binding Proteins (PBPs).
- Ceftaroline has high affinity for PBP2a and other specific domains.
- Result: Bactericidal synergy ("1 + 1 = 3").

Recovery



Discharge plan

- Location: Skilled Nursing Facility.
- Access: PICC Line inserted.
- Regimen: Cefazolin Monotherapy for 4 weeks.
- Note: Cefazolin chosen to reduce renal toxicity risk.

Clinical takeaways

