

Multifaceted Management of Subacute Endocarditis

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DOI : <https://www.doi.org/10.59710/oaijoaru2313020k>

Abstract

In subacute endocarditis caused by *Staphylococcus viridans*, the bacteria typically damages the heart by forming vegetations on heart valves. These vegetations consist of bacteria, platelets, and fibrin, leading to inflammation and potential valve dysfunction. Endocarditis, an infection of the heart's inner lining, can be serious, affecting valve integrity and possibly causing systemic complications. The severity varies, but complications may include heart failure, embolism, or abscess formation. This case report details a 28-year-old male patient diagnosed with subacute endocarditis caused by *Staphylococcus viridans*. The infection resulted in the formation of vegetations on heart valves, prompting surgical intervention. The patient underwent aortic valve replacement (AVR) with a mechanical heart valve. The abstract explores the clinical implications and management strategies for subacute endocarditis caused by *Staphylococcus viridans*, shedding light on the challenges and outcomes associated with this condition.

Key words: Infection, treatment, valve, staphylococcus, heart

Introduction

Subacute endocarditis is a type of infective endocarditis, which is an inflammation of the inner lining of the heart chambers and heart valves. Subacute endocarditis develops more slowly than acute endocarditis. It is typically caused by bacteria entering the bloodstream and then settling on the heart valves, where they can create an infection. Common sources of these bacteria include dental procedures, skin infections, and other infections in the body. Individuals with pre-existing heart valve abnormalities or artificial heart valves are at a higher risk. [1]

Acute endocarditis is marked by a swift and sudden onset, featuring severe and rapidly progressing symptoms. High fever, chills, rapid heart rate, and substantial valve damage are common indicators. The causative agents are typically more aggressive bacteria. [2]

Subacute endocarditis has a gradual onset, progressing more slowly than acute endocarditis. Initial symptoms, including fatigue, weight loss, and low-grade fever, are less severe, following an insidious course. Common causative agents are less aggressive bacteria, such as Viridans Streptococci, Enterococci, and *Staphylococcus epidermidis*. In younger patients, symptoms may encompass fatigue, low-grade fever, joint pain, and night sweats, while in older patients, symptoms can be less specific. [3]

Survival rates depend on factors like overall health, underlying conditions, and timely treatment. Complications, including heart valve damage, heart failure, embolism, and abscess formation, may arise. Untreated subacute endocarditis can be life-threatening. Treatment involves antibiotics tailored to the specific bacteria's susceptibility, with potential surgical intervention to address damaged heart valves. Surgical treatment for subacute bacterial endocarditis is crucial in certain cases, especially when there are complications such as heart valve damage or persistent infection despite antibiotic therapy. Surgery may involve repairing or replacing damaged heart valves to restore proper cardiac function and prevent further complications. It is typically considered when medical management alone is insufficient or when there is a risk of severe valve damage leading to heart failure. [4] [5]

Case report

This case report details the presentation, diagnosis, and extensive management of a 28-year-old male initially seen by a cardiologist for symptoms of leg edema, dyspnea, and coughing. Elevated cardiac enzymes prompted further investigation, leading to the diagnosis of subacute endocarditis. Echocardiography revealed a mobile echodense mass on the right aortic cusp with pronounced aortic regurgitation and preserved left ventricular function. Streptococcus viridans was isolated from the first blood culture taken. With elevated body temperature, blood cultures were taken from the left and right hand and appeared negative. Despite the negative blood cultures from both hands, the patient underwent a battery of diagnostic tests including laboratory analyses, hemostasis assessment, and imaging studies. The treatment involved a combination of dual antibiotic therapy, diuretics, antiarrhythmics, probiotics, and antifungals.

After initial stabilization, the patient was transferred for surgical intervention. Aortic valve replacement (AVR) with a mechanical heart valve was performed without complications. Postoperatively, the patient exhibited proper gas exchange and hemodynamics, enabling extubation on the second day. Subsequent recovery included the removal of drains on the tenth day, with the patient being mobilized and discharged in good general condition. This case underscores the complexity of managing subacute endocarditis, emphasizing the collaborative efforts of medical and surgical interventions for a successful outcome.

Table 1. Results from blood test analysis

Parameters	Initial Hospitalization	Post- Treatment and Surgery	Reference values
Complete Blood Count	WBC: 12,2	WBC: 9,1	WBC: 4,00-9,00
	RBC: 4,04	RBC: 3,39	RBC: 4,20-5,50
	Hb: 97	Hb: 91	Hb: 120-180
	Hct: 0,297	Hct: 0,297	Hct: 0,37-0,54
	MCV: 73,5	MCV: 87,6	MCV: 82,0-98,0

	MCH: 24,0 MCHC: 32,7	MCH: 26,8 MCHC: 30,6	MCH: 27,0-33,0 MCHC: 32,0-36,0
Inflammatory markers	CRP: 128	CRP: 13,0	CRP: < 6
Infectious Markers	Streptococcus viridans was isolated from the blood culture.	No bacterial growth	Negative
Cardiac Biomarkers	Troponin I: 1019	Troponin I: 100,53	Troponin I: < 34,2 for men
Renal Function	Urea: 5,0 Creatinine: 98,2	Urea: 2.1 Creatinine: 49.8	Urea: 2.7-7.8 Creatinine: 45-109
Coagulation Parameters	PT: 13 INR: 1,1 D-dimer: 1998	PT: 13.1 INR: 2.0 D-dimer: 1000	PT: 9,8- 14,2 INR: 0,8-1,2 D-dimer: 0-500

Despite the young age, the patient's positive outlook and commitment to regular check-ups and chronic therapy are noteworthy. The successful outcome allows the individual to lead a normal life, underscoring the importance of ongoing medical follow-ups and adherence to prescribed therapies for maintaining optimal health and preventing future complications. This case highlights the resilience of the patient and the significance of long-term care in achieving a positive prognosis.

Conclusion

This case illustrates the intricate management of subacute endocarditis in a young adult, emphasizing the collaborative efforts of medical and surgical interventions. The successful aortic valve replacement with a mechanical valve showcases the positive outcome achievable with timely and comprehensive care. The patient's commitment to regular check-ups and chronic therapy, despite their youth, reflects a proactive approach to sustaining a normal and fulfilling life. This case underscores the importance of ongoing monitoring and adherence to prescribed treatments, reinforcing the potential for favorable long-term outcomes in the face of a challenging medical condition.

Source of funding

This research received no specific grant from any funding agency in the public, commercial, or non-profit sectors.

Conflict of interest

The author have declared that no competing interests exist.

Acknowledgement

None

Statement of Informed Consent

Written Informed Consent was obtained from the patient for their anonymized information to be published in this article.

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