

## C A S E R E P O R T

# Infective endocarditis secondary to *Peptoniphilus Indolicus* and *Corynebacterium*: an amalgamation

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**Abstract.** *Corynebacterium* or *diphtheroid*'s are gram-positive aerobic, pleomorphic skin and mucosal membrane components that are not pathogenic in nature. *Peptostreptococcus indolicus* belongs to the *Peptostreptococcus* genus and is a Gram-Positive Anaerobic Cocci (GPAC). Less than one percent of endocarditis is caused by gram-positive anaerobic bacteria. We report the first case of *Peptoniphilus indolicus* and *Corynebacterium endocarditis* in a patient with native valves and a pacemaker. In time, diagnosis of a *Peptoniphilus indolicus* infection can lead to early management of the infection and a decreased incidence of serious complications such as embolization or abscess formation. The combination of aggressive antibiotic administration and surgical intervention can significantly decrease morbidity and mortality. This case report will highlight the importance of *Peptoniphilus* infective endocarditis, ultimately leading to better diagnostic strategies and management. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** infective endocarditis, peptoniphilus indolicus, *Corynebacterium*, native valve, emboli, abscess

## Introduction

*Corynebacterium* or *diphtheroids* are non-pathogenic gram-positive aerobic, pleomorphic skin and mucosal membrane components. They can be frequently isolated from cultures and are considered contaminants (1). *Peptostreptococcus indolicus* belongs to the *Peptostreptococcus* genus and is a Gram-Positive Anaerobic Cocci (GPAC). *Peptoniphilus* species can be isolated from the skin, sinus tracts, and genitourinary systems and are clinically related to leg ulcers and surgical site infections (2–5). However, its pathogenic potential has been highlighted in the last decade, and it can cause bacteremia and endocarditis (6–8). Less than one percent of endocarditis is caused by gram-positive anaerobic bacteria (9).

We report the first case of *Peptoniphilus indolicus* and *Corynebacterium endocarditis* in a patient with native valves and a pacemaker.

## Case presentation

A 55-year-old man with a history of hypertension, congestive heart failure, chronic kidney disease stage 3b, insulin-dependent diabetes mellitus type-1, a pacemaker placed in 2019, and osteomyelitis of the left foot that required extensive debridement He came to the emergency department with shortness of breath and leg edema for the past 2 days. On examination, the foot was erythematous with pustular drainage of serosanguineous fluid. Podiatry was immediately consulted, and they did a debridement and cleaning of the wound, sent tissue cultures, and bandaged the foot. The patient met sepsis criteria and was given a sepsis bolus in the emergency department. A CT angiogram of the lower extremity revealed patent superior mesenteric arteries, inferior mesenteric arteries, and renal and celiac arteries. Minimal arterial flow to the left

lower extremity via collaterals. Atherosclerotic disease in the superficial femoral arteries with significant stenosis distally. Atherosclerotic disease throughout both popliteal arteries. Three blood vessels flowing to the ankle were noted on the right. There was little collateral flow to the left calf. No bony destruction was noted.

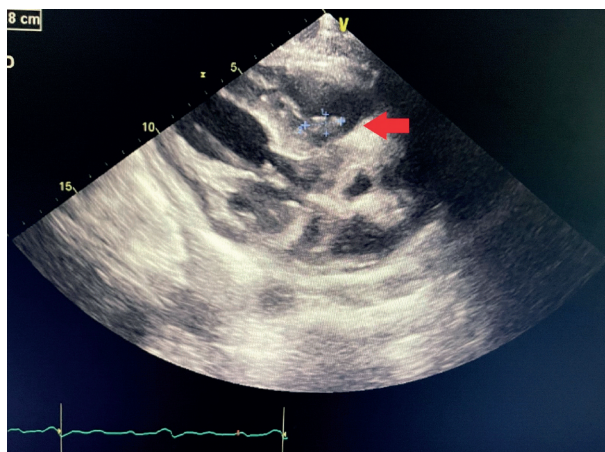
Blood cultures were sent, and the patient was started on unasyn (Ampicillin/Sulbactam) and metronidazole for suspected osteomyelitis.

Podiatry performed a left foot first metatarsal amputation, irrigation of ulceration, closure of the fasciotomy site, and a rotational full-thickness flap of the medial foot, and the patient received 1 unit of packed red blood cells post-operatively.

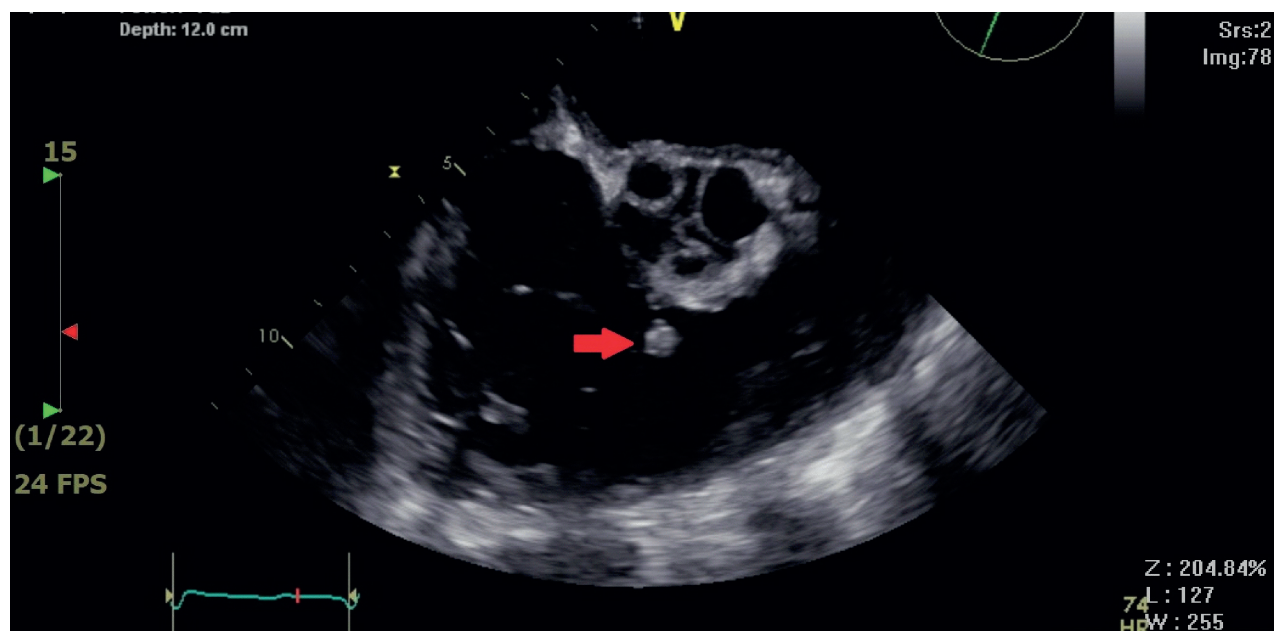
Infectious disease was consulted. An X-ray of the foot showed extensive osteomyelitis of the left foot and cellulitis with gangrenous changes. Blood culture is positive for coryneforms, diphtheroids, and *Peptoniphilus indolicus*. An echocardiogram showed echo density that was visualized in the right ventricle (RV) measuring 1.8 x 1.0 cm (Figure 1) and moderate tricuspid regurgitation, trace aortic regurgitation, and trace pulmonic valvular regurgitation. The ejection fraction (EF) is 45–50%.

Images of the transthoracic echocardiogram are shown in Figure 1 with the vegetation marked with a red arrow.

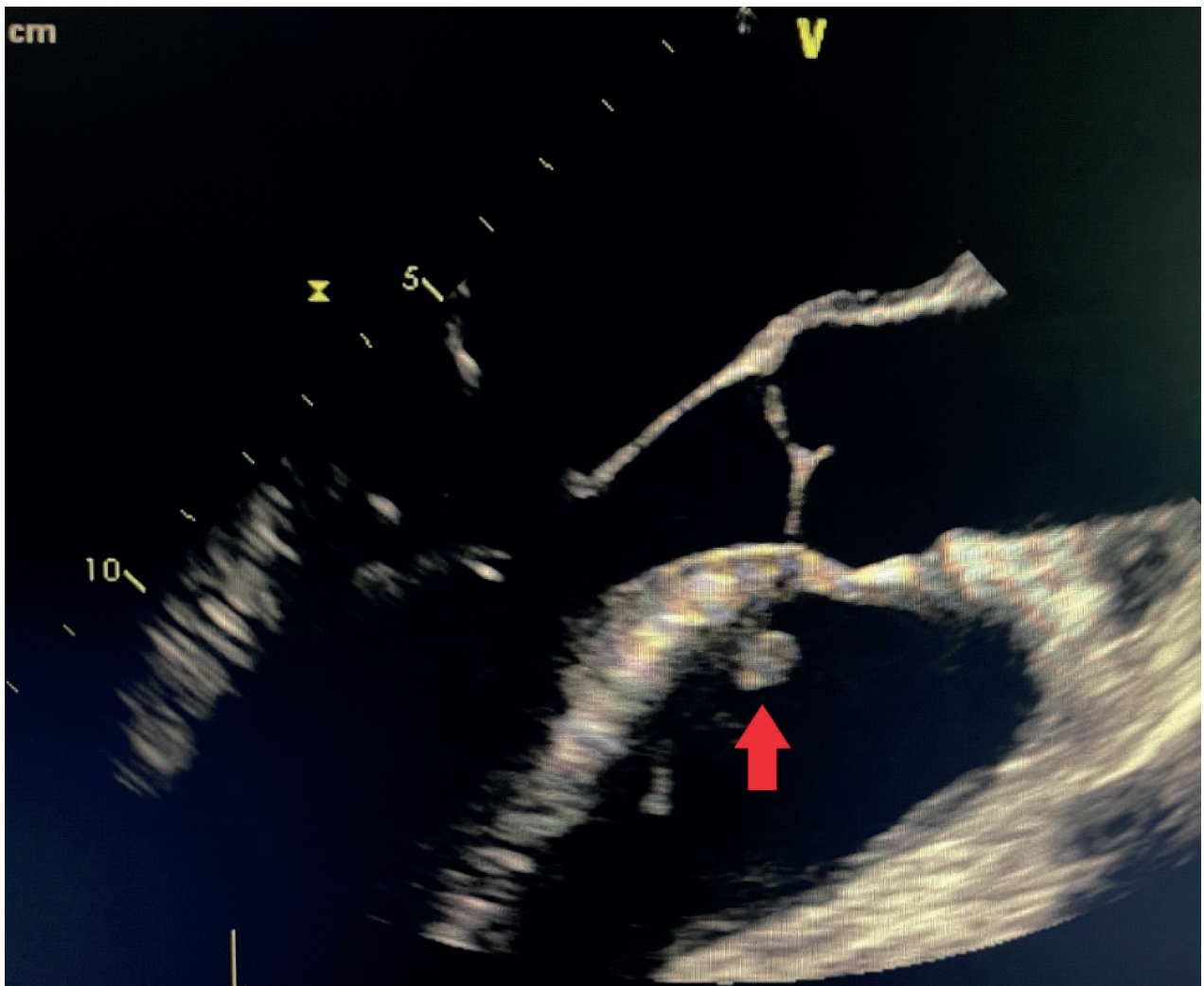
A transesophageal echocardiogram revealed a pacemaker lead in the right ventricle with a mobile round density of 0.7 x 0.7 attached to the right ventricular septum just distal to the septal tricuspid leaflet in the right ventricle and moderate tricuspid regurgitation, aortic regurgitation (Figures 2–34).



**Figure 1.** Echo density visualized in the right ventricle (RV), vegetation is demarcated with a red arrow.



**Figure 2.** A mobile round echo density attached to the right ventricular septum just distal to the septal tricuspid leaflet in the right ventricle, marked with a red arrow.



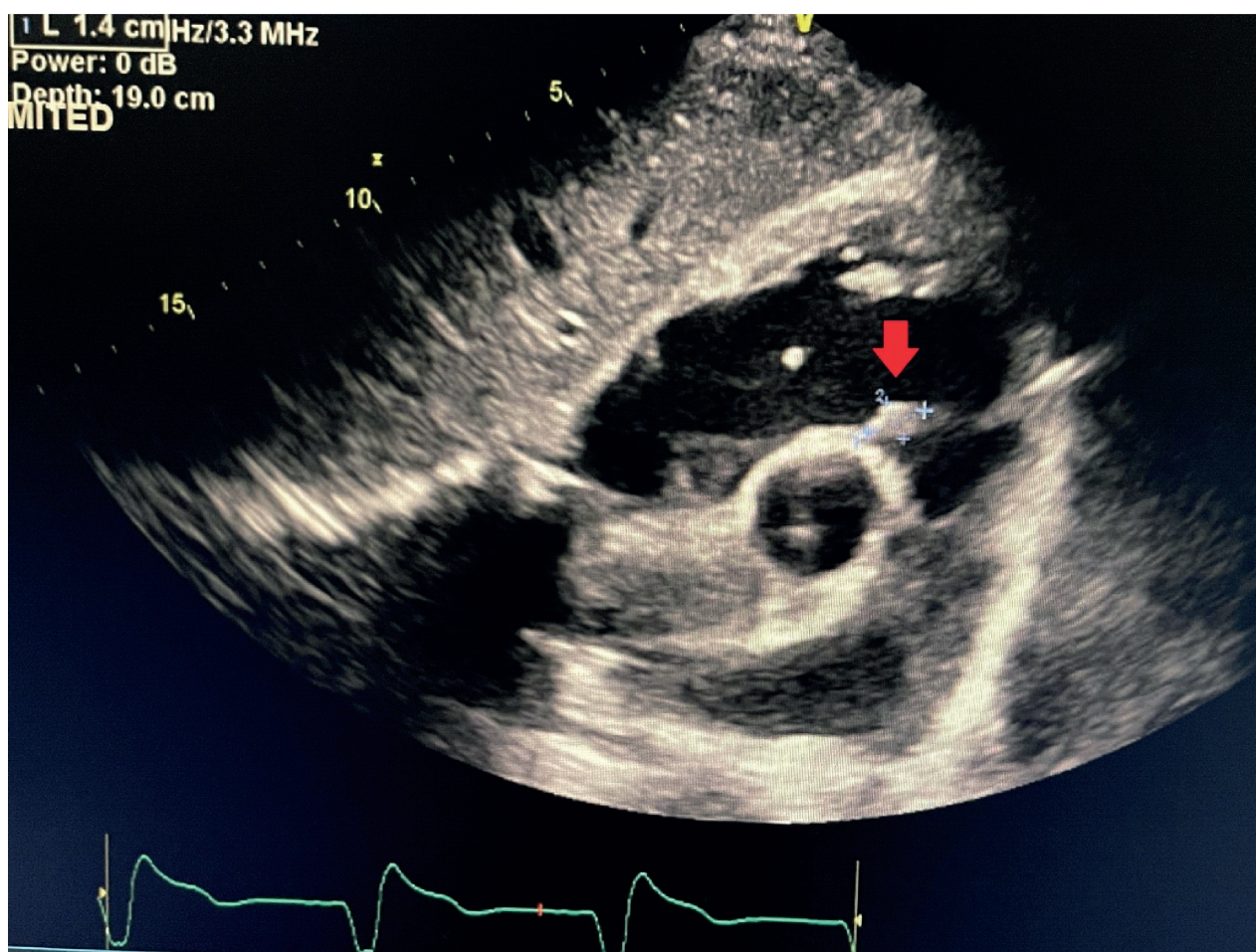
**Figure 3.** The mobile round echo density is marked with a red arrow.

He was transferred to a tertiary care center, where he had a temporary pacemaker, an epicardial lead replacement, and an implantable cardioverter-defibrillator (ICD) generator implant. The patient had sustained ventricular tachycardia, which decelerated to ventricular fibrillation and required defibrillation. He was given a life vest and would get an ICD implant once the infection clears.

### Discussion

Endocarditis is divided into the native valve, intravenous drug use, and prosthetic valve

endocarditis [10]. Infective endocarditis is diagnosed based on a fever, positive blood culture results, and vegetation visualized on an echocardiogram (11, 12). Our patient had positive blood cultures, and vegetation was also visualized on an echocardiogram. *Peptoniphilus* species have been associated with diabetic skin infections and surgical site infections (13–16). *Peptoniphilus* spp has been reported with diabetic skin infections (17,14). The source of our patient's infections is unknown. An infection secondary to implantation may be possible. *P. indolicus* is an opportunistic infection, but its pathogenic properties have not been well studied (18,19). Gram-positive anaerobic cocci (GPAC IE) are more prevalent in male patients with a



**Figure 4.** The round echo density, is marked with a red arrow.

mean age of 52 years, which is lower than our patient's age. Surgical treatment is required depending on the size of the vegetation, the age of the patient, and the presence of valvular decay. These bacteria are very susceptible to antibiotics and are usually associated with favorable outcomes (20).

## Conclusions

Infective endocarditis is one of the most dreaded and life-threatening complications of bloodstream infections involving the native or prosthetic valve, endocardial surface, or cardiac devices.

In summary, *Peptoniphilus indolicus* is a rare organism; however, it can cause endocarditis as the primary pathogen or as part of a polymicrobial infection.

In time, diagnosis of a *Peptoniphilus indolicus* infection can lead to early management of the infection and a decreased incidence of serious complications such as valvular dysfunction, embolus, or abscess formation. The combination of aggressive antibiotic administration and surgical intervention can significantly decrease morbidity and mortality significantly. This case report will raise awareness of *peptoniphilus* infective endocarditis, ultimately leading to better diagnostic strategies and treatment.

**Informed Consent:** Informed Consent was taken.

**Author's Contribution:** MSW came up with the idea, MSW, MA, and WS wrote the manuscript, Dr.RP and Dr.SA reviewed the manuscript.

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