

# Roth Spots in Bacterial Endocarditis

Michael A. Weintraub, MD

## CASE PRESENTATION

A 30-year-old female with a history of intravenous drug use presented to the hospital with left wrist pain. Physical exam revealed a left volar ulnar wrist abscess with purulent drainage, a holosystolic murmur heard best at the apex radiating to the axilla and Janeway lesions on the right hand and bilateral feet. A transthoracic echocardiogram revealed a 20 mm mobile vegetation on the mitral valve along with valve perforation and severe regurgitation consistent with bacterial endocarditis.

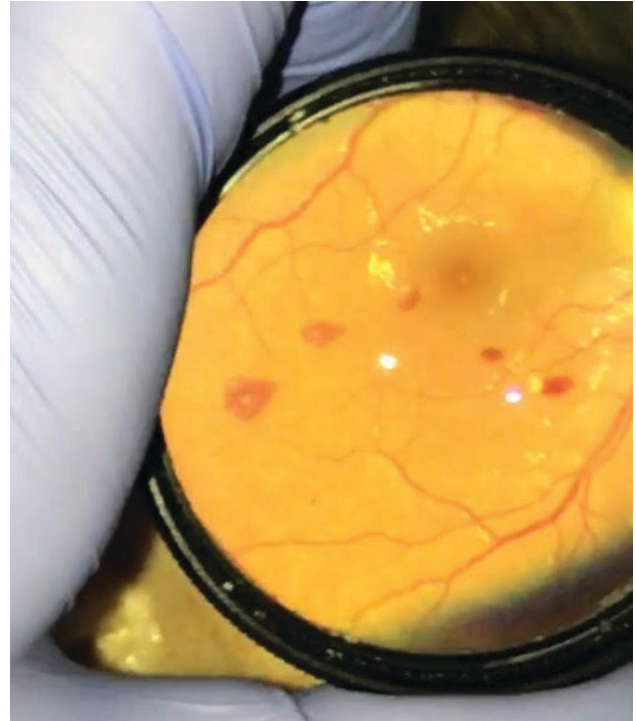
On eye exam, Roth spots (Figure 1) were noted bilaterally. Roth spots are present in less than 2% of all infective endocarditis cases and are composed of immune complex microthrombi that lead to a localized vasculitis. Roth spots are one of the immunologic phenomena that make up the modified Duke criteria in endocarditis but they also appear in other conditions such as leukemia and diabetes. The patient continued to develop more Roth spots, however she did not experience any vision changes.

Brain MRI revealed multiple septic emboli and abscesses. CT angiogram of the head revealed multiple foci of contrast outpouchings consistent with mycotic aneurysms. Her course was complicated by a spontaneous mycotic aneurysm rupture which required endovascular coiling.

## DISCUSSION

In endocarditis, surgical valve repair is indicated in the setting of embolic events therefore she ultimately underwent bioprosthetic mitral valve replacement. The mitral valve culture was positive for *propionibacterium acnes*, a rare cause of endocarditis (1% of cases). Wrist abscess cultures grew *clostridium perfringens* and *streptococcus viridans* which suggested polymicrobial endocarditis. However, polymicrobial endocarditis was thought to be less likely since the mitral valve cultures only grew *P. acnes*.

As a member of normal skin and mouth flora, the pathogenic potential of *P. acnes* is often overlooked. It is a fastidious organism that presents commonly with negative blood cultures, as seen in our patient. The majority of patients with *P. acnes* endocarditis are middle-aged males with prosthetic cardiac devices. This case is unique given the patient's demographics, the causative organism, and the classic exam findings seen in endocarditis.



**Figure 1.** Roth spots are white-centered retinal hemorrhages. Roth spots were noted bilaterally on our patient's eye exam.