

CASE REPORT

PERIOPERATIVE MEDICINE

Janeway lesions in infective endocarditis: an old clinical sign revisited

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ABSTRACT

We present the case of a 17-year-old female who developed Janeway lesions as a cutaneous manifestation of infective endocarditis caused by *Staphylococcus aureus*. The patient presented with a 7-day history of high-grade fever, chills, body aches, palpitations, and exertional shortness of breath. Physical examination revealed multiple purplish-red, non-itchy macules on both hands and left foot, consistent with Janeway lesions. Cardiovascular examination demonstrated a grade 4 pan-systolic murmur at the mitral area and a grade 4 early diastolic murmur at the aortic area. Blood cultures identified *Staphylococcus aureus*, sensitive to vancomycin and gentamycin. Transthoracic echocardiography revealed vegetations on the mitral valve and moderate-to-severe mitral regurgitation. Fundoscopy did not reveal Roth's spots, and tests for ANA, HBV, HCV and HIV were negative. The patient was diagnosed with infective endocarditis and started on intravenous vancomycin and gentamycin, showing clinical improvement. She was discharged on vancomycin to complete a 6-week course of treatment. This case underscores the importance of recognizing cutaneous signs, such as Janeway lesions, which can aid in the early diagnosis of infective endocarditis and guide appropriate treatment.

Abbreviations: ANA: Antinuclear Antibody, CRP: C-reactive protein, ESR: erythrocyte sedimentation rate, LFTs: liver function tests, PML: posterior mitral leaflet, RFTs: renal function tests, TLC: total leukocyte count,

Keywords: Janeway Lesions; Infective Endocarditis; Septic Embolism; *Staphylococcus Aureus*; Vancomycin

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1. INTRODUCTION

Janeway lesions and Osler nodes are skin manifestations of infective endocarditis, typically due to bacterial or fungal infections of the heart.¹ First described by Dr. William Osler in 1893 and Dr. Edward Janeway in 1899, these lesions help diagnose infective endocarditis.

Janeway lesions are seen in acute cases often caused by *Staphylococcus aureus*, while Osler nodes are associated with subacute endocarditis.^{2,3} Risk factors include prosthetic heart valves, structural heart diseases and intravenous drug use.⁴ Janeway lesions are non-tender, erythematous or hemorrhagic macules or papules, commonly on the palms and soles, lasting days to

weeks.^{2,3} Pain helps differentiate them from Osler nodes, as Janeway lesions are painless. Osler nodes are tender, purple-pink nodules (1-1.5 mm) with a pale center, typically found on the fingers and toes. They are painful before developing and resolve in hours to days. Both lesions result from micro-emboli that lodge in different areas of the body, leading to dermal micro-abscesses.^{3,4} Osler nodes are linked to emboli in the glomus apparatus, while Janeway lesions result from vascular emboli. Bacteria may not always be seen on histology, requiring tissue culture for diagnosis. Differentiating Osler nodes and Janeway lesions is important as they resemble other conditions like palpable purpura in vasculitides or disseminated infections.^{4,5} Other possible causes of purple lesions include drug eruptions, sun exposure and rarely calciphylaxis.^{5,6}

Herein we report the case of a young, otherwise healthy female who presented with Janeway lesions due to infective endocarditis caused by staphylococcus aureus. This case highlights the importance of recognizing cutaneous signs like Janeway lesions, which can serve as key indicators of underlying systemic infections such as infective endocarditis. Early identification and treatment can prevent complications, emphasizing the need for clinicians to consider infective endocarditis even in atypical presentations. Additionally, it underscores the role of thorough diagnostic workup, including blood cultures and echocardiography, in confirming the diagnosis and guiding effective management.

2. CASE REPORT

A 17-year-old female presented with a high-grade fever for 7 days, reaching up to 102°F, accompanied by chills and generalized body aches, which were somewhat alleviated by taking paracetamol. She also experienced palpitations and shortness of breath on exertion, which improved with rest. Over time, she developed multiple painless, purplish-red, non-itchy skin lesions on both hands. She denied having a history of sore throat, joint pain, gastrointestinal symptoms, urinary issues, hemiplegia, dental problems or previous rheumatic fever. She is unmarried and has no history of sexual activity. Additionally, she does not smoke, consume alcohol or use illicit drugs.

Upon examination, the patient appeared pale and had a temperature of 101°F. Notable findings included multiple flat, painless, purplish-red macules on the dorsum and palm of both hands (Figures 1 and 2) as well as on the 3rd and 4th toe of the left foot (Figure 3), which were identified as Janeway lesions. Cardiovascular examination revealed an ill-sustained, heaving apex beat



Figure 1: Multiple flat, painless, purplish-red macules of Janeway lesions over dorsum of hands bilaterally



Figure 2: Multiple flat, painless, purplish-red macules of Janeway lesions over palm of hands bilaterally



Figure 3: Janeway lesions on 3rd and 4th toe of left foot

at the 5th intercostal space in the mid-clavicular line, along with a grade 4 pan-systolic murmur heard at the mitral area, which was intensified during expiration. Additionally, a grade 4 early diastolic murmur was present at the aortic area, also exacerbated by expiration and when the patient was sitting up and leaning forward. No other significant findings were noted during the rest of the examination.

On investigation, the patient's hemoglobin level was 8.9 g/dl, with a normal total leukocyte count (TLC) and platelet count. Her renal function tests (RFTs), liver function tests (LFTs) and urinalysis were all within normal limits. However, both the erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were elevated, with values of 80 mm/1st hour and 113.3 mg/L, respectively. The ASO titer was negative. Blood cultures identified gram-positive *Staphylococcus aureus*, which was sensitive to vancomycin and gentamycin. Transthoracic echocardiography revealed vegetations on the anterior mitral leaflet (AML) and the posterior mitral leaflet (PML) along with moderate-to-severe mitral regurgitation in addition to moderate aortic regurgitation. Fundoscopy performed by an ophthalmologist did not show any Roth's spots, and the fundus examination was otherwise normal. The tests for Antinuclear Antibody (ANA), hepatitis B virus (HBsAg), hepatitis C virus (Anti-HCV) and Human Immunodeficiency Virus (Anti-HIV) were all negative. An arterial Doppler of both the upper and lower limbs showed normal blood flow.

The patient was diagnosed with infective endocarditis complicated by Janeway lesions, caused by *Staphylococcus aureus*. She was treated with injectable vancomycin (30mg/kg body weight/24 hours) and gentamycin (3mg/kg body weight/24 hours for 5 days) in addition to symptomatic supportive therapy, and showed clinical improvement during the hospital stay. She was discharged on vancomycin to complete a 6-week course of treatment. A plan was made for regular outpatient follow-up, with repeat echocardiograms every two weeks to monitor the resolution of the vegetations.

2. DISCUSSION

This case presents a young, otherwise healthy female with Janeway lesions resulting from infective endocarditis caused by *Staphylococcus aureus*, underscoring the significance of identifying skin signs for early detection. Early diagnosis and comprehensive testing, including blood cultures and echocardiography, are essential for proper treatment and avoiding complications. Infective Endocarditis is a rare but serious condition that can cause severe complications, including cardiac failure, septic embolism, and high mortality if not treated early.⁷ Valvular disease and other

structural heart issues increase the risk of infection by bacteria and fungi.⁸ Delayed diagnosis of Infective Endocarditis can lead to increased vegetation size and septic embolism, highlighting the importance of early diagnosis to assess the size, location of vegetations, and infection extent.^{7,8}

The highest incidence of IE occurs in those aged >70 years, with risk factors including prosthetic valves, intracardiac devices, diabetes, hemodialysis, and intravenous drug use.^{9,10} Our patient, however, was young and had no apparent risk factors for infective endocarditis. Therefore, the presence of Janeway lesions aided in establishing the diagnosis timely. *Staphylococcus aureus* is the most common pathogen in IE, responsible for over half of cases.¹¹ In this case, the pathogen was *Staphylococcus aureus*, sensitive to vancomycin and gentamycin. Our patient improved after treatment, and repeat echocardiography was scheduled for monitoring. Surgical intervention is usually indicated for severe valve dysfunction, heart failure, prosthetic valve infection, large mobile vegetations, recurrent embolism, or persistent sepsis despite adequate antibiotics.^{5,12} Since our patient did not face these complications and responded well to antibiotics, surgery was not necessary.

3. CONCLUSION

In conclusion, recognizing cutaneous signs such as Janeway lesions is essential for the early detection of infective endocarditis, enabling timely intervention. This case highlights the importance of a thorough diagnostic workup and vigilant clinical evaluation in managing atypical presentations of the condition.

4. Ethical considerations

Detailed informed consent was taken from the patient and her parents prior to data collection and manuscript writing. Anonymity of the patient has been concealed.

5. Conflict of interest

None declared by the authors. No external or industry funding was involved.

6. Authors contribution

This study was conceived and designed by BW, NIB and MSAG. BW, NIB, MSAG and IK did the initial literature research.

BW, AB, IK and AA did the data collection, patient assembly and patient assessment.

BW, IK and AB were involved in manuscript writing.

NIB, MSAG and AA did the final critical review and corrections. NIB is the corresponding author on behalf of all other authors.

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