

# Culture Negative Infective Endocarditis Associated with Osler's Nodes

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## ABSTRACT

Infective endocarditis is a form of endocarditis, or inflammation, of the inner tissue of the heart, such as its valves, caused by infectious agents. The agents are usually bacterial, but other organisms can also be responsible. The prototypic lesion of infective endocarditis the vegetation is a mass of platelets, fibrin, micro-colonies of microorganisms, and scant inflammatory cells. Infection most commonly involves heart valves (either native or prosthetic) but may also occur on the low-pressure side of a

ventricular septal defect, on the mural endocardium where it is damaged by aberrant jets of blood or foreign bodies, or on intracardiac devices themselves.

We studied one patient of rheumatic heart disease with fever, osler's nodes and echocardiographic evidence of endocarditis but blood culture was negative. Patient was successfully treated with antibiotics. This article highlights the diagnostic utility of osler's nodes in culture negative endocarditis.

## INTRODUCTION

Infective endocarditis is a form of endocarditis or inflammation of the inner tissue of the heart, such as its valves, caused by infectious agents [1]. The agents are usually bacterial, but other organisms can also be responsible. The prototypic lesion of infective endocarditis, the vegetation is a mass of platelets, fibrin, micro colonies of microorganisms and scant inflammatory cells. Infection most commonly involves heart valves (either native or prosthetic) but may also occur on the low-pressure side of a ventricular septal defect, on the mural endocardium where it is damaged by aberrant jets of blood or foreign bodies, or on intracardiac devices themselves. The clinical syndrome of infective endocarditis is highly variable. Sometimes it becomes difficult to isolate the microorganisms responsible for endocarditis. Here we present a clinical case of culture negative endocarditis with osler's nodes [1].

## CASE REPORT

A 55-year-old lady presented with complains of fever continuous type since 10 days. This was associated with joint pains. She developed reddish painful lesions over both the palms and feet for last 7 days. She had taken ofloxacin 400 mg orally twice daily without any relief. She had history of rheumatic heart disease since last 10 years. She had stopped penicillin prophylaxis for last 5 years. Patient was a housewife without any drug addiction.

**Examination:** The patient was febrile. Temp-101°F. Pulse-120/min, regular. BP-130/70mm of Hg. JVP was normal. All the peripheral pulses were well felt, bilateral symmetrical. There were tender red raised lesions found on the hands and feet. On auscultation over the precordium, 1st heart sound was loud and a mid diastolic murmur along with pan systolic murmur heard over mitral area.

**Investigations:** The routine blood investigations were as follows

Hb%-8.9g%,  
TWBC-13400/cmm

**Key Words:** Infective endocarditis, Osler's nodes, Culture negative



**[Table/Fig-1]:** Palmar surface of hand showing Osler's nodes



**[Table/Fig-2]:** Osler's nodes in both hands and feet in the same patient

DC-N<sub>78</sub>L<sub>18</sub>E<sub>03</sub>M<sub>01</sub>B<sub>01</sub>  
ESR-25mm/1<sup>st</sup> hr

Urine microscopic examination showed 10-12 RBC/HPF  
3times blood cultures 1 hr apart revealed no organism. Culture from osler's node revealed no organism.  
ECG shows left atrial enlargement.

Chest x-ray P-A view shows cardiac enlargement with mitralisation of left heart border.

2 D echocardiography showed moderate mitral stenosis with moderate mitral regurgitation along with two 7-8mm vegetations on the over surface of the valve.

The above results suggested the diagnosis of infective endocarditis. The patient was treated with piperacillin with tazobactam and gentamicin 8 hourly for 1 month. The fever subsided after 7 days. The Osler's nodes disappeared completely after 2 weeks of treatment. The patient was discharged after 1 month with penicillin prophylaxis and to consult CTV surgeon for MVR.

## DISCUSSION

The incidence of endocarditis ranges from 2.6 to 7 cases per 100,000 populations per year. From 5% to 15% of patients with endocarditis have negative blood cultures; in one-third to one-half of these cases, cultures are negative because of prior antibiotic exposure. The remainders of these patients are infected by

fastidious organisms, such as HACEK organisms, *Coxiella burnetii*, and *Bartonella* species [2].

The clinical syndrome of infective endocarditis is highly variable and spans a continuum between acute and sub-acute presentations [3].

The clinical features of endocarditis are non-specific. However, these symptoms in a febrile patient with valvular abnormalities or a behavior pattern that predisposes to endocarditis (e.g., injection drug use) suggest the diagnosis, as do bacteremia with organisms that frequently cause endocarditis, otherwise-unexplained arterial emboli, and progressive cardiac valvular incompetence. The classic non-suppurative peripheral manifestations of sub-acute endocarditis are related to the duration of infection and, with early diagnosis and treatment, have become infrequent. In contrast, septic embolization mimicking some of these lesions (sub-ungual hemorrhage, Osler's nodes) is common in patients with acute *S. aureus* endocarditis. ESR is neither sensitive nor specific for diagnosis of infective endocarditis [3].

Revised in 2000, the Duke criteria are a collection of major and minor criteria used to establish a diagnosis of endocarditis. A diagnosis can be reached in any of three ways: two major criteria, one major and three minor criteria, or five minor criteria [3].

#### Major criteria include:

1. Positive blood culture with typical IE microorganism, defined as one of the following:
  - a. Typical microorganism consistent with IE from 2 separate blood cultures,
  - b. Microorganisms consistent with IE from persistently positive blood cultures defined as:
    - i. Two positive cultures of blood samples drawn >12 hours apart, or
    - ii. All of 3 or a majority of 4 separate cultures of blood
    - iii. *Coxiella burnetii* detected by at least one positive blood culture or antiphase IgG antibody titer >1:800
2. Evidence of endocardial involvement with positive echocardiogram.

#### Minor criteria include:

1. Predisposing factor: known cardiac lesion, recreational drug injection

2. Fever >38°C
3. Evidence of embolism: arterial emboli, pulmonary infarcts, Janeway lesions, conjunctival hemorrhage
4. Immunological problems: glomerulonephritis, Osler's nodes
5. Positive blood culture (that doesn't meet a major criterion) or serologic evidence of infection with organism consistent with IE but not satisfying major criterion.

Janeway lesions, Osler's nodes, and Roth spots are more specific (but still not diagnostic) for infective endocarditis. They are also less common, and Roth spots are particularly rare. Janeway lesions are macular, blanching, non-painful, and erythematous lesions on the palms and soles. By contrast, Osler's nodes are painful, violaceous nodules found in the pulp of fingers and toes and are seen more often in sub-acute than acute cases of IE [4].

In cases of culture-negative endocarditis, Osler's nodes have been traditionally unhelpful in establishing the correct diagnosis, as they occur in only one-tenth of the cases [5]. Determination of the pathogen in culture-negative cases has been dependent upon prolonged and scrupulous culturing techniques. Moreover, biopsy, culture, and microscopic investigations have been underutilized as diagnostic tools in infective endocarditis. Osler's nodes represent micro-emboli from vegetations in endocarditis. The microemboli may be septic or bland and can incite a variety of localized reactions in the microvasculature. Osler's nodes, when identified, should be biopsied early and cultured for potential pathogens [6].

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#### DECLARATION ON COMPETING INTERESTS:

No competing Interests.

Date Of Submission: **Dec 14, 2011**

Date Of Peer Review: **Dec 22, 2011**

Date Of Acceptance: **Jan 17, 2012**

Date Of Publishing: **Apr 15, 2012**