Classical Picture of Infective Endocarditis Resulting from an Aortic Valve
Endocarditis with Preserved Valve Function: A Case Report
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Abstract
A middle aged man presented for first time to our emergency room with fever, weakness, unable to walk for 10 days. He was noticed to be confused, unable to give history, highly febrile with no meningeal signs or focal neurological deficit. He had vasculitic lesion on the right sole and multiple petechiae on conjunctivae. His chest, CVS, and abdomen were normal on clinical examination. Initial clue to diagnosis of IE came from early echocardiographic screening. Infective endocarditis (IE) is an infection of the endocardial surface of the heart. The intracardiac effects of this infection include severe valvular insufficiency, which may lead to intractable congestive heart failure and myocardial abscesses. IE also produces a wide variety of systemic signs and symptoms through several mechanisms, including both sterile and infected emboli and various immunological phenomena. Though Infective Endocarditis is not uncommon but it is unusual for a native valve involved in such a process to function normally.

Case Report
Introduction: Infective Endocarditis usually develops in a diseased valve following bacteraemia, after minor surgical procedures. Herein we present a patient not known to have any cardiac illness or any procedure known to predispose to Infective Endocarditis (IE); he however presented in a typical way with this occasionally difficult to diagnose illness.

History: We are presenting a 47 years old Indian working as a cook. He was diabetic on oral hypoglycemic agents for last two years. He was a non smoker with no history of illicit drug abuse and no alcohol intake history. Ten days prior to his presentation he felt unwell, weak and unable to walk with history of continuous fever. Detailed history with systemic review revealed no focus of infection. There was no history of previous cardiac illness and no history of recent dental or any surgical procedures.

Examination: Revealed a sick patient, with drowsiness, highly febrile up to 39 degrees Celsius and hypotensive with systolic B.P around 80-90 mmHg. He was not in distress. He was not pale or jaundiced with no obvious clubbing or lymphadenopathy. Systemic examination was unremarkable. In particular, there was no murmur on auscultation of the heart. No abdominal organomegaly, No signs of meningeal irritation or focal neurological deficit.

Eyes: Positive findings revealed conjunctival petechiae, fundus was normal.

Fig 1. Shows Osler nodes and Janeway lesions.
Skin: Osler nodes on finger tips. Janeway's lesion on sole of right foot, which had a wet wound, with destroyed toe-nail (Vasculitic lesion) See Fig 1.
ECG: Showed normal sinus rhythm with no chamber hypertrophy
Chest X-ray was unremarkable
Laboratory results:
Urinary exam 20-30 (RBCs)/HPF,
Blood culture: grew Staph aureus in all four blood samples taken on first day and found to be oxacillin sensitive. Hepatitis screen and HIV status were both negative.

Echocardiogram:
TTE revealed a large AV vegetation, confirmed by TEE.
   TTE: Normal Dimensions of all chambers.
   TEE: Normal LVEF, Normal MV and other valves, AV was Tricuspid with no Aortic regurgitation but RCC showed a large vegetation (size 1 x 2cm). See Fig 2.
CT Brain: Small hypodense area in the left paraventricular region and in left temporal lobe suggestive of ischemic lesion.
Ultrasound Abdomen: Sub- capsular collection at postero- inferior margin of spleen (3 x 2cm.).
CT Abdomen: revealed widespread hypodense areas in spleen due to infarction. Also a triangular hypodense area on medial upper cortex of spleen.
A Similar lesion was seen on left renal cortex.
Right side L3 vertebrae showed a focal lesion also ? osteomyelitis.
The diagnosis of acute endocarditis due to Staphylococcus with multiple site systemic emboli was confirmed.
Hospital Course: Patient was sick looking on presentation and had features of septicemia and septic shock and he was started on injection Tazocin and injection Gentamycin.
Peripheral skin lesion raised the possibility of Infective endocarditis. So echocardiography done during first 12 hours of presentation supported the diagnosis by finding of vegetation on aortic valve, which was confirmed by isolation of Staphylococcus aureus from four blood culture samples. Patient was treated with ceftriaxone, gentamycin, and vancomycin on the advice of infectious disease consultant.

He showed signs of improvement and fever subsided, with improvement in his level of consciousness within 48 hours. Blood Pressure Improved with I.V. fluids, and hyponatremia was corrected with normal saline. He developed thrombocytopenia on 4th day which is likely related to drug particularly SC heparin prescribed as a prophylaxis and it improved when heparin was discontinued. On the 7th day of hospitalization he developed right side weakness with facial palsy and repeat CT brain revealed new left internal capsule infarction. TEE was performed again on 10th day which revealed that AV is tricuspid with no functional abnormality but 1 x 2cm. sized vegetation on right coronary cusp. Patient was transferred to a cardiac surgery facility in the main university hospital where he refused surgical intervention. He completed his course of antibiotics, and on discharge he was afebrile, able to walk and communicate.

**Discussion and review of literature**

Endocarditis has evolved into several variations, keeping it near the top of the list of diseases that must not be misdiagnosed or overlooked. The history of IE can be divided into several eras. Lazaire Riviere first described gross autopsy findings of the disease in 1723. In 1885, William Osler presented the first comprehensive description of endocarditis in English. Lerner and Weinstein presented a thorough discussion of this disease in modern times in their landmark series of articles, "Infective Endocarditis in the Antibiotic Era," published in 1966 in the New England Journal of Medicine(1,2,3). IE currently can be described as infective endocarditis in the era of intravascular devices, as infection of intravascular lines has been determined to be the primary risk factor for Staphylococcus aureus blood stream infections (BSIs). S. aureus is the primary pathogen of endocarditis.[4 ] IE remains a diagnostic and therapeutic challenge. Its manifestations may be muted by the indiscriminate use of antimicrobial agents or by underlying conditions in frail and elderly individuals or immunosuppressed persons(5). Our patient had none of these predisposing factors. Complications of subacute endocarditis result from embolization, slowly progressive valvular destruction, and various immunological mechanisms. The pathological picture of subacute IE is marked by valvular vegetations in which bacteria colonies are present both on and below the surface.

Our patient initially diagnosed as sepsis which was thought to complicate a diabetic foot, turned to have IE. This is a very common diagnosis, but it is unusual for cardiac valve involved particularly if the valves are native, to function normally though well documented. The virulent organism did cause infective endocarditis with its typical presentation, peripheral signs and major complication due to systemic embolization involving spleen and kidney leading to infarction and abscess formation, as also osteomyelitis and brain infarction. Diagnosis was secured having two major and several minor criteria, and he was treated medically with antibiotics and showed good response. S. aureus causes over 60 percent of IE cases among IDUs(8). Our patient was not a known case of intravenous drug abuser, though he had a positive culture for Staphylococcus aureus. Other neurological embolic damage includes cranial nerve palsies, cerebritis, and mycotic aneurysms caused by weakening of the vessel walls and produced by embolization to the vasa vasorum. Mycotic aneurysms may occur in the abdominal aorta and the splenic, coronary, and pulmonary arteries. Congestive heart failure due to aortic valve insufficiency is the most common intracardiac complication of subacute endocarditis. It develops after months of untreated disease but may in patients...
with acute disease, especially disease caused by S. aureus infection, emboli almost inevitably lead to abscesses in the areas where they are deposited. Multiple abscesses can occur in almost every organ, including the kidneys, heart, and brain (10). Mycotic aneurysms may occur in almost any artery. Paradoxically, they are less common in patients with acute IE. [6,7] occur a full year following microbiological cure. Early detection and appropriate treatment of this uncommon disease can be lifesaving. The clinical symptoms of acute IE result from either embolic or intracardiac suppurative complications. The onset of illness is abrupt, with rapidly progressive destruction of the infected valve. The valvular leaflets are quickly destroyed by bacteria that multiply rapidly within the ever-growing friable vegetations. Complications develop within a week. These include the dyspnea and fatigue of severe congestive heart failure and a wide spectrum of neuropsychiatric complications. Murmurs are absent in approximately one third of patients with acute IE. The most common type is an aortic regurgitation murmur. Because of the suddenness of onset, the left ventricle does not have a chance to dilate. In this situation, the classic finding of increased pulse pressure in significant valvular insufficiency is absent resulting from cardiovascular involvement (7,9).

**Surgical Care**

Approximately 15-25% of patients with IE eventually require surgery. Indications for surgical intervention in patients with native valve endocarditis (NVE) are as follows: (11,12)

- Congestive heart failure refractory to standard medical therapy
- Fungal IE (except that caused by Histoplasma capsulatum)
- Persistent sepsis after 72 hours of appropriate antibiotic treatment
- Recurrent septic emboli, especially after 2 weeks of antibiotic treatment
- Rupture of an aneurysm of the sinus of Valsalva
- Conduction disturbances caused by a septal abscess
- Kissing infection of the anterior mitral leaflet in patients with IE of the aortic valve

Congestive heart failure in a patient with NVE is the primary indication for surgery. A second relapse, during or after completion of treatment, requires replacement of the valve.

There was indication for surgery to remove vegetation as he developed brain infarction with persistent sizable vegetation on aortic valve. Patient was discharged in a stable condition where he chose to go back home and stay within care of his family.

**References:**


Conflicts of Interest: None

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