

UNUSUAL PRESENTATION OF ENDOCARDITIS WITH NUTRITIONAL VARIANT STREPTOCOCCI

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Abstract

Patients presenting with endocarditis often will give clues to the diagnosis within the history and the physical exam. A history of valvular heart disease and obvious signs of bacteremia are classical stigmata of infective endocarditis. However, we should keep in mind that endocarditis can present with unusual signs and symptoms that can mislead to the wrong diagnosis and if unrecognized it can lead to severe complications.

Keywords: infective endocarditis, diplopia, nutritional variant Streptococcus, septic embolism.

Case Presentation

We describe a 61 year-old caucasian male who presented to our hospital complaining of sudden onset diplopia which lasted over 24-hour period. He had become aware of double images while working at his computer the previous night. There were no other associated symptoms like orbital pain, headache, neck stiffness, fever, chills, night sweats, skin rash, lightheadedness, dizziness, weakness or paresthesias. Review of systems was only positive for 30 pounds weight loss over the previous six-month period. He denied head trauma, recent dental procedures or intravenous drug use.

The patient's past medical history was significant for a lumbar epidural abscess 6 months before this presentation. He underwent lumbar decompression, bone and facet removal due to complete erosion and drainage of the epidural abscess. The pathology only showed reactive periostitis and cultures of bacteria and fungi were both negative. Trans-thoracic echocardiogram did not reveal any vegetation. He was discharged home on intravenous Ceftriaxone to complete an 8 weeks course. Follow up MRI of the lumbar region showed no evidence of recurrent or persistent infection.

On physical examination the patient was a middle-aged man in no apparent distress. His vital signs were within normal limit. There were no conjunctival hemorrhages, splinter hemorrhages, Janeway lesions or Osler nodes noted. Heart examination revealed an old grade 3/6 systolic murmur best heard over the apex, with

no radiation. His neurological exam was normal except for the following ocular findings: binocular diplopia, the adduction of the right eye was impaired while the abduction was intact.

The majority blood work was essentially normal ruling out the common infectious agents, except for erythrocyte sedimentation rate (ESR) which was 60 (normal values <15). Soon after the admission, imaging of the head was performed with computer tomography (CT) scan, followed by an magnetic resonance imaging (MRI) of the brain and both tests failed to reveal any focal abnormalities of the brain that could explain the symptoms and the physical findings. The ultrasound of the carotids showed no significant stenosis on either side. Meningitis was ruled out with a lumbar puncture which failed to reveal any infectious process in the central nervous system (CNS). The culture, the Lyme antibody and Herpes polymerase chain reaction (PCR) obtained from the cerebrospinal fluid were all negative. The trans-thoracic echocardiogram was performed to rule out endocarditis and it revealed a mobile echogenic structure attached to the anterior mitral valve leaflet. The echocardiogram was followed by a trans-esophageal echocardiogram (TEE) and blood cultures to confirm the diagnosis. TEE showed a mobile mass very suggestive for endocarditis (Figure 1). Blood cultures grew nutritional deficient streptococcus and the patient received treatment with ceftriaxone and gentamycin. Following the antibiotic treatment the symptoms gradually disappeared and the patient was discharged home.

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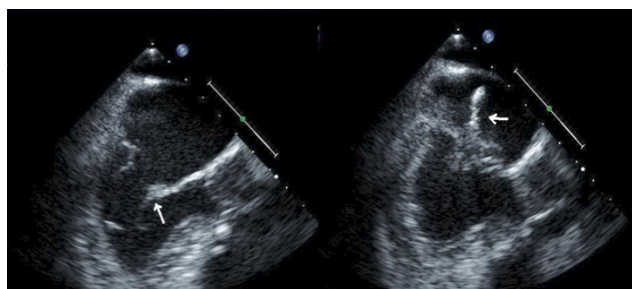


Figure 1. The mobile vegetation on the mitral valve seen at trans-esophageal echocardiography is pointed by the white arrow.

Discussion

The most common initial presentation of infective endocarditis is a constellation of vague symptoms like low-grade fever ($<39^{\circ}\text{C}$), night sweats, fatigability, malaise, and weight loss [1]. Chills and arthralgia may occur in some occasions. The first clue that leads to the diagnosis of endocarditis is usually a heart murmur heard at the physical exam. Studies have shown that at the initial presentation $\leq 15\%$ of patients may have high fever or a murmur, but eventually almost all develop both as the disease progresses [2]. In many cases physical examination may be normal or include pallor, fever, a change in a preexisting murmur or development of a new regurgitating murmur, and tachycardia [3]. The patient that we present in this case report had none of these symptoms, which made endocarditis very unlikely at the presentation time and suggests that in rare cases, endocarditis can have unusual presentations.

The other spectrums of symptoms that are generally present in endocarditis are symptoms that are caused by septic embolism. The most common places for embolism are the skin, the retina (Roth spots) and the brain causing transient ischemic attacks and cerebral abscesses [4]. Our patient presented with diplopia caused by an unusual form of embolization. This unusual presentation with diplopia suggests that the most likely cause for our patient's symptoms was the medial rectus muscle paralysis. The blood supply for the medial rectus muscle is given by branches from the ophthalmic artery and the inferior muscular artery which are extremely rare places for septic emboli to occur and also difficult to diagnose. While in many embolic cases the diagnosis is made with angiography, due to the particular place of embolization and the urgent need for treatment, angiography was not performed. The diagnosis was made by exclusion and it was supported by the concurrent diagnosis of endocarditis and by the fact that the symptoms improved immediately after the administration of antibiotics. The likely scenario is that septic emboli from the vegetation caused transient paralysis of the medial rectus through transient occlusion of the branches of the ophthalmic artery, followed by a slow recovery of the function after treatment with

antibiotics. Other rare presentation of septic embolism from endocarditis reported in literature are: testicular swelling, endogenous endophthalmitis and complete blindness because of ruptured occipital mycotic aneurysms as a sequel [5,6,7]. The present case demonstrates that septic emboli from mitral valve endocarditis can reach almost any part of the body including the ophthalmic artery.

Another unique aspect of this case is represented by the rare organism that was responsible for the endocarditis. The most common organisms that cause endocarditis are the staphylococcus species and streptococcus species. In 95% of the cases these bacteria are easily seen on a culture obtained from blood on the conventional agar plates. In 5-6% of the endocarditis cases, as well as in our case, the pathogen causing endocarditis could be the nutritional variant of streptococci. These particular streptococci variants are part of the normal flora of the mouth and as other bacteria from the mouth they can cause endocarditis [8]. These organisms are responsible for 1% to 2% of all infective endocarditis and, although the vegetations are small in this group of patients, embolization proves to be a common event [9,10]. The mortality associated with endocarditis caused by the nutritional variant streptococci was shown to be much higher when compared to enterococci or viridans streptococci [11].

Conclusion

We presented a case of endocarditis with nutritional variant streptococci with an initial chief complain of diplopia. The diplopia was most likely caused by transient paralysis of the medial rectus muscle of the eye secondary septic embolus. This is an extremely rare form of presentation for endocarditis which may lead to worse prognosis when misdiagnosed. Nutritional variant streptococci require a special agar for culture and can be missed in many cases of endocarditis. Endocarditis with this variant of streptococci carries a worse prognosis.

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