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Recommended Citation

Khan, Samreen; Patel, Stavan; and Nidiry, Mary Anne, "When less-virulent becomes virulent!! An atypical presentation of Streptococcus Viridians." (2020). *Providence Portland Medical Center Internal Medicine*. 16.

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When less-virulent becomes virulent!! An atypical presentation of Streptococcus Viridians.

Samreen Khan MD, MPH. Stavan Patel MS, MD. Mary Anne Nidiry MD.

Introduction

- Infective endocarditis (IE) is a life-threatening disease, and its timely diagnosis, antibiotic treatment, and management of complications is critical to optimal outcomes.
- We present a case of a 45-year-old man with **no-known risk factors** who presented in respiratory distress and was found to have **viridians streptococcal aortic valve endocarditis**.

Case Presentation

- 45 y/o male with no significant PMH presented with worsening dyspnea, fevers and chills.

Upon Arrival

- Temp 101.3, BP 125/67, P 122, RR 26
- In respiratory distress, had b/l rales, no murmurs, no raised JVD, no peripheral edema
- CXR showed mild cardiomegaly with pulmonary vascular congestion.

Clinical Course

- Reported new onset of chest heaviness and cough while in ED.
- Rapid deterioration in respiratory status which required urgent intubation.
- Urgent bronchoscopy done in setting of acute hypoxic respiratory failure with concerns for multi-focal pneumonia, revealing diffuse alveolar hemorrhage.
- Started on broad spectrum treatment for both bacterial and viral causes of ARDS.
- ECHO showed **severe aortic insufficiency** related to suspected large vegetation with leaflet disruption.
- Intraoperative finding of aortic intra-annular abscess requiring emergent aortic valve replacement.
- Blood cultures grew **streptococcus viridians**.
- Though clinical course was complicated by cardiogenic shock and multi-organ failure, he fortunately made full recovery.
- Completed a six weeks course of antibiotics.

Peripheral signs of IE

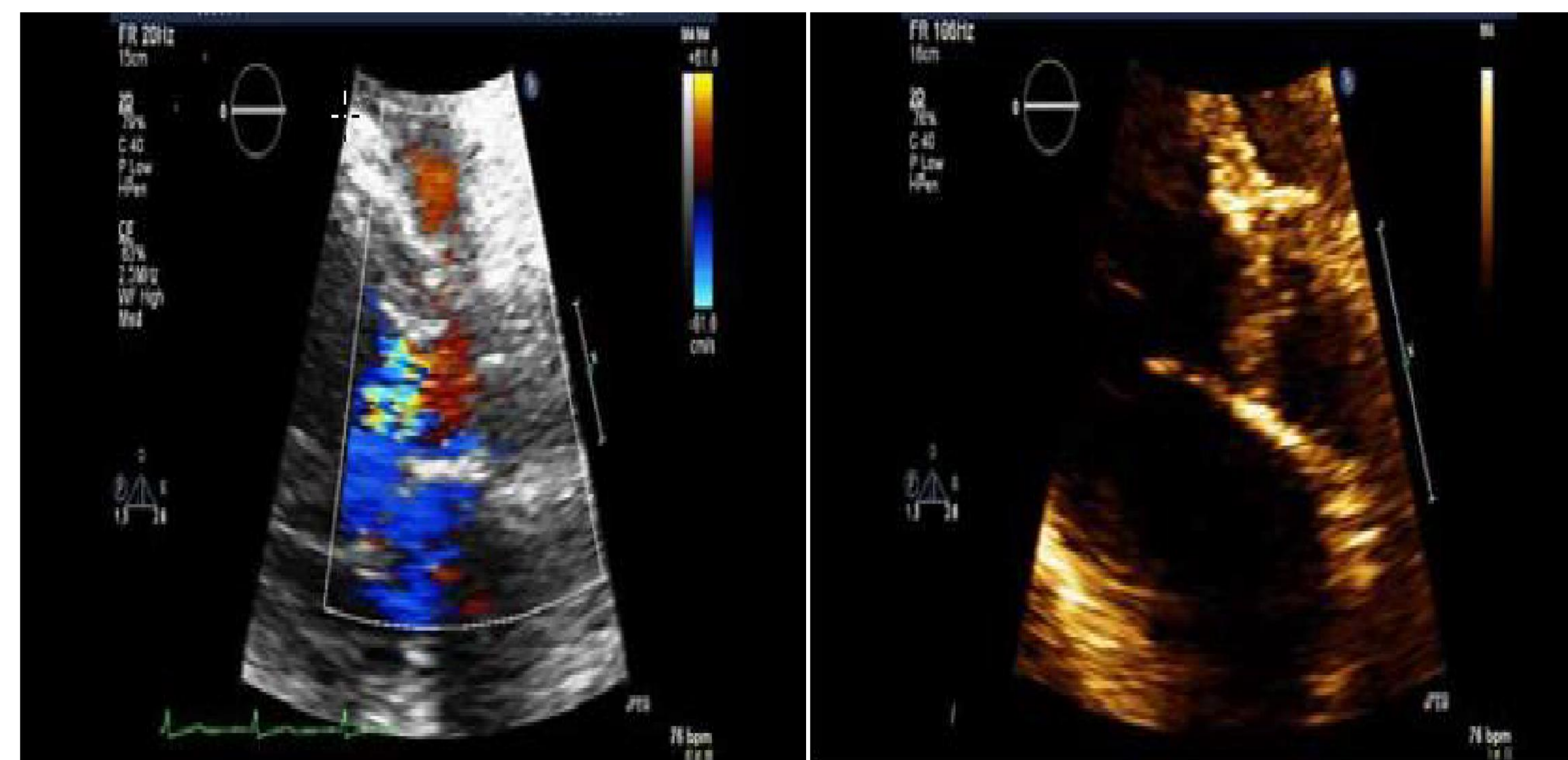


Modified Duke Criteria for Diagnosis of IE

MAJOR CRITERIA	minor criteria		
1. Blood cultures positive for infective endocarditis	1. Predisposing factor ^a	Two major criteria or One major and three minor criteria or Five minor criteria Definite Diagnosis	
2. Evidence of endocardial involvement	2. Temperature >38°C		
	3. Vascular phenomena ^b		One major and one minor criteria or Three minor criteria Possible Diagnosis
	4. Immunologic phenomena ^c		
	5. Microbiologic evidence ^d		

^a Intravenous drug use or a predisposing heart condition.
^b Vascular phenomena include major arterial emboli, septic emboli, pulmonary infarcts, mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhages, and painful skin nodules (i.e., Janeway lesions).
^c Immunologic phenomena include glomerulonephritis, Osler's nodes (i.e., Osler's nodes), retinal hemorrhages with small, clear centers (i.e., Roth's spots), and positive rheumatoid factor.
^d Positive blood culture not meeting a major criterion or serologic evidence of an active infection with an organism known to cause infective endocarditis.

TTE showing Aortic Insufficiency and questionable vegetation and leaflet disruption



Risk factors for IE

- Cardiac factors (history of prior IE or pre-existing valvular or congenital heart disease),
- Underlying conditions (such as intravenous drug use, an indwelling intravenous catheter, or immunosuppression),
- Recent dental or surgical procedure.

Treatment

- Treatment regimens for native valve endocarditis due to penicillin-susceptible viridans streptococci
- Aqueous penicillin** or **Ampicillin** or **Ceftriaxone** for 4 weeks
 - Beta-lactam-intolerant patients: Vancomycin**

Discussion

- S. viridans is part of the normal flora of the mouth which can cause dental caries, pericoronitis and subacute IE.
- Infections with Viridians Streptococcal is not uncommon but are routinely seen in those with **underlying heart disease** and dental manipulation.
- S. Viridians is responsible for up-to 40-60% of IE in normal valves and in patients (young males and over 45 years of age) usually with **mitral valves**.
- With S. viridians endocarditis, it is commonly associated with heart failure and lesion such as peri-annular abscesses, fistulas, or pseudoaneurysms with risk of mortality at 15%
- Our report discusses a rather unusual presentation of a patient who is **immunocompetent with no risk factors** developing Viridians Streptococcal bacteremia with infective endocarditis of the **aortic valve** with inter-operative findings of aortic intra-annular abscess.

Take Home Messages

- Despite advances in medical, surgical and critical care interventions, IE remains a life-threatening illness.
- Though subacute IE is commonly associated with S. viridans its **presentation can be atypical**. In addition patient had no known risk factors which would contribute to the development of IE.
- The rate at which S. viridans IE occurs in those without any dental manipulation, as of this case report, is unclear.
- On initial presentation IE was not suspected and patient was placed on broad coverage antibiotics for both viral and bacterial causes of ARDS.
- Early ECHO can be instrumental in early diagnosis of IE.
- The lack of supporting data in history and minimal findings on histopathology does not always exclude this pathogen as a cause.

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