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

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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**

<table>
<thead>
<tr>
<th>Major Criteria</th>
<th>Minor Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blood cultures positive for infective endocarditis</td>
<td>1. Predisposing factor</td>
</tr>
<tr>
<td>2. Evidence of endocardial involvement</td>
<td>2. Temperature &gt;100°F</td>
</tr>
<tr>
<td>4. Immunologic phenomena</td>
<td>4. Microbiologic evidence</td>
</tr>
<tr>
<td>5. Microbiologic evidence</td>
<td>5. Cardiac and/or non-heart tamponade</td>
</tr>
</tbody>
</table>

**TTE showing Aortic Insufficiency and questionable vegetation and leaflet disruption**

**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 excepted 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.

**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. Viridans* 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. viridans* 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.

**References**

1. Giannakopoulos K, On initial presentation IE was not excepted and patient was placed on broad coverage antibiotics for both viral and bacterial causes of ARDS.
2. Desimone V, Underlying conditions (such as intravenous drug use, an immunocompetent group streptococci before and after publication of the 2007 American Heart
3. temp 101.3, BP 125/67, P 122, RR 26
4. 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.
5. Treatment regimens for native valve endocarditis due to penicillin-susceptible viridans streptococci
6. Aqueous penicillin or Ampicillin or Ceftriaxone for 4 weeks
7. Beta-lactam-intolerant patients: Vancomycin
8. 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.
9. The rate at which *S. viridans* IE occurs in those without any dental manipulation, as of this case report, is unclear.
10. On initial presentation IE was not excepted and patient was placed on broad coverage antibiotics for both viral and bacterial causes of ARDS.
11. Early ECHO can be instrumental in early diagnosis of IE.
12. The lack of supporting data in history and minimal findings on histopathology does not always exclude this pathogen as a cause.