"A Story of a Clip and a Mouth Bug": Infective Endocarditis from MitraClip Placement

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Introduction

- MitraClip is the first trans-catheter device used for mitral valve repair.
- To date, there have been seven cases of Infective Endocarditis (IE) after repair with MitraClip, most of which are *S. aureus* and one with *S. viridians*.
- We describe a case of IE due to *S. viridians* diagnosed 8 months post MitraClip placement.

CASE PRESENTATION

A 75 year-old man presented to the emergency department for evaluation after a fall.

HPI:
- Patient was recently hospitalized at a nearby hospital in July 2020 for septic shock. Blood culture revealed *S. viridians* bacteremia. CT head revealed dental abscess of prosthesis for which the patient underwent removal as well as incision and debridement. Trans-esophageal echocardiogram (TEE) showed a mobile echo-density on the mitral leaflet tip, which raised a suspicion for vegetation. He was discharged on 30-day regimen on Ceftriaxone. On the 4th week of treatment, he was found unconscious and was brought to the hospital.

PMH:
- Severe Mitral Regurgitation s/p MitraClip placement (November 2019)
- CAD s/p multiple PCI (most recent one in 2006)
- Hypertension, Diastolic CHF
- Esophageal Ca s/p radiation (2007)

Physical Examination:
- Grade III holosystolic murmur at apex
- Did not have JVD, peripheral edema, crackles or displaced PMI

Diagnostics:
- Transthoracic Echocardiogram (TTE) showed a 2.2cm x 1.6cm large vegetation on mitral valve.
- Blood culture revealed *S. viridians*
- CT head revealed dental abscess of prosthesis for which the patient underwent removal as well as incision and debridement.

PMR:
- Broadened antibiotics to Cefepime and Vancomycin
- MitraClip removal and mitral valve replacement (MVR) by Cardiothoracic Surgery (specimen showed vegetation that was 5cm in size)
- Patient was transferred to ICU post-op on ventilation.

Hospital course:
- Blood culture revealed *S. viridians*
- Esophageal Ca s/p radiation (2007)

Diagnostics:
- Transthoracic Echocardiogram (TTE) showed a mobile echo-density on the mitral leaflet tip, which raised a suspicion for vegetation.

Echocardiogram

- Did not have JVD, peripheral edema, crackles or displaced PMI

CASE REPORTS OF IE AFTER MITRACLIP PLACEMENT

<table>
<thead>
<tr>
<th>#</th>
<th>PI</th>
<th>Comorbidity</th>
<th>Org.</th>
<th>Time post Clip</th>
<th>Tx</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52M</td>
<td>CKD, DM</td>
<td><em>S. epidermidis</em></td>
<td>3years</td>
<td>MVR</td>
<td>Alive after 2yrs</td>
</tr>
<tr>
<td>2</td>
<td>F*</td>
<td>Unknown</td>
<td>Unknown</td>
<td>5weeks</td>
<td>MVR</td>
<td>Alive after 1yr</td>
</tr>
<tr>
<td>3</td>
<td>88M</td>
<td>CKD III, Pulmonary HTN</td>
<td><em>S. aureus</em></td>
<td>30days</td>
<td>MVR</td>
<td>Alive after 15days</td>
</tr>
<tr>
<td>4</td>
<td>67M</td>
<td>CAD</td>
<td><em>S. viridians</em></td>
<td>14months</td>
<td>Conservative</td>
<td>No F/U</td>
</tr>
<tr>
<td>5</td>
<td>83F</td>
<td>COPD, Stroke</td>
<td><em>S. aureus</em></td>
<td>14days</td>
<td>Conservative</td>
<td>Death after 2 weeks</td>
</tr>
<tr>
<td>6</td>
<td>76F</td>
<td>Stroke</td>
<td><em>S. aureus</em></td>
<td>22days</td>
<td>Conservative</td>
<td>Death after 31days</td>
</tr>
<tr>
<td>7</td>
<td>60M</td>
<td>CAD, DM, CKD</td>
<td><em>S. aureus</em></td>
<td>9days</td>
<td>Conservative</td>
<td>Death after 9 days</td>
</tr>
</tbody>
</table>

*age unknown

Figure a. Pictorial depiction of MitraClip in the mitral valve
Figure b. Four chamber view of TTE showing a large vegetation on mitral valve of this patient

Discussion

- Prevalence of mitral valve prolapse in patients over age of 75 is as high as 10%.
- MitraClip is an alternative for patients with whom surgical valve replacement is contraindicated.
- The most common complications occur within 1 year post MitraClip placement.
- We report eighth case of IE after MitraClip placement, second case with *S. viridians*.

Conclusion

- IE after MitraClip placement is rare but will likely increase as this intervention becomes more common.
- Most reported cases are due to *S. aureus*.
- Six out of eight cases of IE after MitraClip placement recorded to date occurred within one year post MitraClip placement, indicating the importance of close follow-up during this time period.
- Patient was diagnosed with IE 8 months post MitraClip placement and died 37days after MVR due to respiratory failure.

References