Case Presentation

Presentation and History
- 58 year-old woman
- Wheezing, chest tightness and dyspnea on minimal exertion one month after permanent pacemaker (PPM) placement.
- 3 months prior presentation:
  - episodes of palpitations associated with loss of consciousness and brief tonic clonic activity.
  - Holter: RBBB with intermittent heart block
  - A permanent pacemaker (PPM) was placed.
- No skin, or joint abnormalities.
- Life-long non-smoker
- Childhood allergies

Physical Examination and Initial Laboratory Data
- Audible end expiratory wheezes.
- CBC, serum chemistries, BNP and ESR were normal

Clinical Course
- Normal CXR and chest CT
- Spirometry revealed airflow obstruction (Table)
- Exercise stress test: normal
- Cardiac catheterization revealing no occlusive vessel disease.
- A trial of furosemide did not help her symptoms.
- Treated for “asthma” with inhaled bronchodilators and tapering corticosteroids.
- Patient had some transient improvement
- One month later: hospitalized for dyspnea at rest.

Additional medical history:
- Allergic to mercurochrome, an antiseptic for minor cuts
- History of “bad reactions” to fake jewelry

Clinical Course (continued)
- Testing for metal allergy was done and revealed positive for titanium (used in the casing of the PPM that had been placed), nickel, and mercury. Not gold.
- A Gold PPM replaced the initial one.
- Symptoms resolved within 24 hours.
- Spirometry improved after gold PPM placement (Table).

Radiology or Pathology

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<thead>
<tr>
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<th>Prior to PPM</th>
<th>After initial PPM placement</th>
<th>After gold PPM placement</th>
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</thead>
<tbody>
<tr>
<td>FEV1</td>
<td>1.89L / 74%</td>
<td>2.49L / 76%</td>
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<tr>
<td>FVC</td>
<td>2.53L / 78%</td>
<td>2.05L / 63%</td>
<td>2.49L / 76%</td>
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<tr>
<td>FEV1/FVC</td>
<td>74%</td>
<td>72%</td>
<td>76%</td>
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Discussion

Other conditions that are associated with metal allergies include orthopedic hardware and cardiac stents. For orthopedic cases, about 10-20% can occur resulting in granulation, or prosthetic failure. It is to the best of our knowledge that this case presentation is the first reported in literature. The other cases similar to this scenario presented with skin necrosis, but no pulmonary manifestation.

Conclusion

We report a case of asthma related to a titanium PPM that was placed in an individual with a documented allergy to this metal. To the best of our knowledge, such a case has not been reported previously. Clinicians should be aware of this potential cause of asthma.

References