Non-Uremic Calciphylaxis

David H Truong, DPM, MS
Postgraduate Year 3
Geisinger Community Medical Center
Scranton, PA, USA
Disclosures

• NONE
Pathogenesis

- Characterized by...
  - calcification
  - microthrombosis
  - fibrointimal hyperplasia of small dermal and subcutaneous arteries and arterioles

- May develop vascular calcification in...
  - skeletal muscles
  - brain
  - lungs
  - intestines
  - eyes
  - mesentery

- Calcification is considered to be an early and essential process in calciphylaxis plaque development
Calciphylaxis

- Non-Uremic
  - Non-renal
  - Treatment: ???
- Uremic
  - ESRD
  - Treatment: Well-documented
### Etiology & Mortality of NUC

**Analysis of 36 cases of NUC**

- 1-year mortality rate = 45-81%

- Leading cause of death = sepsis

- "No known effective treatment"

#### Causes of nonuremic calciphylaxis

<table>
<thead>
<tr>
<th>Cause</th>
<th>No. of Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary hyperparathyroidism</td>
<td>10 (27.8)</td>
</tr>
<tr>
<td>Malignancy</td>
<td>8 (22.2)</td>
</tr>
<tr>
<td>Alcoholic liver disease</td>
<td>6 (16.7)</td>
</tr>
<tr>
<td>Connective tissue diseases</td>
<td>4 (11.1)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2 (5.5)</td>
</tr>
<tr>
<td>Chemotherapy-induced protein C and S deficiency</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>Crohn disease</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>Ostomelacia treated with nadroparin calcium</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>POEMS syndrome</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>Vitamin D deficiency</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>Weight loss</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>CKD (not ESKD)</td>
<td>1 (2.8)</td>
</tr>
</tbody>
</table>

Clinical Presentation
Diagnosis

SUGGESTIVE of calciphylaxis
- Intense pain associated with cutaneous lesions and palpation of firm calcified subcutaneous tissue in dialysis patients and patients with other risk factors

DEFINITIVE Dx
- Require skin biopsy
  - Risks = ulceration, superimposed infection, propagation of new lesion, induction of necrosis
  - Punch biopsy is preferred over incisional biopsy
  - Biopsy at the center of ulcer or of necrotic area is of LOW diagnostic yield

Radiology
- Non-invasive tests (x-ray, bone scan, etc) are NOT beneficial and are NOT recommended
Histology

- Small Dermal and SubQ arteries and arterioles
  - Calcification
  - Microthrombosis
  - Fibrointimal hyperplasia

- Leading to cutaneous ischemia and intense septal panniculitis

- Theoretical sequences: calcification -> thrombosis -> ischemia

Risk Factors

- Diabetes
  - Frequent co-morbidity. No data available regarding whether DM control or duration affects calciphylaxis risks

- Obesity
  - Risk factor for proximal calciphylaxis (trunk, thighs, breast, etc)

- Autoimmune Conditions
  - SLE, RA

- Infectious, autoimmune, and alcoholic hepatitis

- Hypoalbuminemia

- Coumadin
Case Presentation

75 year old F
Work up/Treatment

- Normal kidney function and no h/o dialysis.
- PCP switched patient from Coumadin to Xarelto
  - persistently necrotic with no improvement after discontinuing Coumadin
- CBC, CMP, and PTH level = WNL
- Vascular consult
- Hematology/Oncology consult
  - MGUS
- Scheduled for 4 treatments of pamidronate disodium 30mg infusion every two weeks along with local wound care
2 weeks s/p 1st infusion
s/p 4th infusion
1 month s/p 4th infusion
Conclusion

- NUC can be easily misdiagnosed as VLU
- Future Study
  - Large cohort of NUC patient treated solely with pamidronate and local wound care
- Pamidronate could be the drug of choice
- A single drug therapy will...
  - Reduce drug-drug interaction
  - Increase compliance in patient
  - Reduce cost
  - Reduce side effects