RADY 403 Case Presentation
Anterior Mediastinal Mass

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March 22, 2024
Focused patient history and workup

• HPI: 15 year old male presents with one month history of cough, night sweats, unexplained 5 pound weight loss, orthopnea

• PE: lymphadenopathy of multiple chains (cervical, axillary, bilateral supraclavicular)

• Vitals: 125/69, **144 bpm**, 98.4, RR 18, SpO2 100%

• Labs: leukocytosis (21.8), anemia, G6PD deficiency, hyperkalemia (6.3), hyperbilirubinemia

• Further imaging is ordered....
List of imaging studies

- Chest XR
- PET skull base to thigh
- CT chest, abdomen, pelvis
Chest XR – PA view

Large mass obscuring cardiac silhouette

Small bilateral pleural effusions with blunted costophrenic angles
Chest XR – Lateral view

- Large anterior mediastinal mass
- Small bilateral pleural effusions with blunted costophrenic angles
Differential diagnosis

- Anterior mediastinal mass – 4 T’s
  - Thymoma
  - Teratoma
  - Thyroid goiter
  - Terrible Lymphoma
Pathology report

• Biopsy of a cervical lymph node is performed and shows:
  • CD 15, CD 30, CD20, OCT2 positive cells
  • Reed-Sternberg cells
  • Some features of Hodgkin’s lymphoma and diffuse large B-cell lymphoma
  • Diagnosis: Grey zone lymphoma
CT – axial view

Anterior mediastinal mass
CT – axial view

Prominent axillary lymphadenopathy
Lymphadenopathy – PET CT

- Brown fat artifact
- Cervical, axillary, supraclavicular LAD
Fluorodeoxyglucose (FDG) uptake with lymphadenopathy

Cervical, axillary, supraclavicular LAD
### ACR appropriateness criteria

#### Variant 1: Clinically suspected mediastinal mass. Initial imaging.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography chest</td>
<td>Usually Appropriate</td>
<td>☀</td>
</tr>
<tr>
<td>MRI chest without and with IV contrast</td>
<td>Usually Appropriate</td>
<td>☀</td>
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<tr>
<td>MRI chest without IV contrast</td>
<td>Usually Appropriate</td>
<td>☀</td>
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<tr>
<td>CT chest with IV contrast</td>
<td>Usually Appropriate</td>
<td>☀️</td>
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<tr>
<td>CT chest without IV contrast</td>
<td>Usually Appropriate</td>
<td>☀️</td>
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<tr>
<td>US chest</td>
<td>Usually Not Appropriate</td>
<td>☀</td>
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<tr>
<td>Image-guided transthoracic needle biopsy</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>☀️</td>
</tr>
<tr>
<td>FDG-PET/CT skull base to mid-thigh</td>
<td>Usually Not Appropriate</td>
<td>☀️</td>
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</tbody>
</table>

*Figure 2*
Treatment course

• Treatment started with R-EPOCH regimen followed by ASCT

<table>
<thead>
<tr>
<th>R</th>
<th>= Rituximab</th>
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<tbody>
<tr>
<td>E</td>
<td>= Etoposide Phosphate</td>
</tr>
<tr>
<td>P</td>
<td>= Prednisone</td>
</tr>
<tr>
<td>O</td>
<td>= Vincristine Sulfate (Oncovin)</td>
</tr>
<tr>
<td>C</td>
<td>= Cyclophosphamide</td>
</tr>
<tr>
<td>H</td>
<td>= Doxorubicin Hydrochloride (Hydroxydaunorubicin)</td>
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</tbody>
</table>

Figure 3
Repeat PET Scans

Initial

Deauville 3

Deauville 2
Deauville ratings

<table>
<thead>
<tr>
<th>Deauville 5-point scale (5-PS)</th>
<th>IHP criteria</th>
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<tbody>
<tr>
<td>1. No uptake</td>
<td>Positive PET:</td>
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<tr>
<td>2. Uptake ≤ MBPS</td>
<td>Uptake &gt; MBPS for lesions &gt; 2 cm</td>
</tr>
<tr>
<td>3. Uptake &gt; MBPS ≤ liver</td>
<td>Uptake &gt; background for lesions &lt; 2 cm</td>
</tr>
<tr>
<td>4. Moderately increased uptake &gt; liver</td>
<td></td>
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<tr>
<td>5. Markedly increased uptake &gt; liver</td>
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*MBPS – mediastinal blood pool structure; IHP – International Harmonization Project*
Repeat CXR compared with prior
Follow-up

• Completed R-EPOCH x 6 cycles + ASCT
• Currently in remission
• Developed chemotherapy induced cardiomyopathy 2/2 anthracycline exposure
  • Remains asymptomatic with mildly reduced EF
  • Serial echo monitoring
  • On lisinopril
• Now attending college with plans to attend medical school and become an oncologist
Learning points

• Chest radiograph and CT chest with IV contrast are usually appropriate studies for a suspected anterior mediastinal mass
• Staging of disease is performed using PET CT imaging
• Response to chemotherapy in lymphoma is graded using the Deauville scale
• Standard treatment for non-Hodgkin’s lymphoma includes R-EPOCH and ASCT
References


