Background

- The incidence of nodal metastases in soft tissue sarcoma (STS) is infrequent and varies with histologic subtype
- Extraskeletal myxoid chondrosarcoma (ESMC) is a rare STS known to spread to lymph nodes
- Limited information is available on the incidence of metastatic disease to lymph nodes in ESMC

Objectives

- Determine the incidence of lymph node metastasis in patients with ESMC
- Analyze the implications of lymphatic spread
- Analyze outcomes of treatment for ESMC

Methods

- IRB approved, single institution study
- Retrospective review from 1982-2017
- 30 patients undergoing resection of ESMC
- Mean follow up 7±4 years

<table>
<thead>
<tr>
<th>Demographic</th>
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<tbody>
<tr>
<td>Mean Age</td>
<td>50±16 years</td>
<td></td>
</tr>
<tr>
<td>Male (Female)</td>
<td>21 (9)</td>
<td></td>
</tr>
<tr>
<td>Location:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower extremity</td>
<td>23 (77%)</td>
<td></td>
</tr>
<tr>
<td>Upper extremity</td>
<td>4 (13%)</td>
<td></td>
</tr>
<tr>
<td>Chest wall</td>
<td>3 (10%)</td>
<td></td>
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<tr>
<td>Mean tumor size</td>
<td>9±5 cm</td>
<td></td>
</tr>
<tr>
<td>Mean tumor volume</td>
<td>490±833cm³</td>
<td></td>
</tr>
<tr>
<td>Positive margin</td>
<td>3 (10%)</td>
<td></td>
</tr>
<tr>
<td>Re-excision of inadvertently excised</td>
<td>8 (27%)</td>
<td></td>
</tr>
<tr>
<td>Tumor grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>6 (20%)</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>11 (37%)</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>13 (43%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Patient and disease characteristics

Results

- **Lymph Node Metastases**
  - Lymph node metastatic disease in 6 (20%) patients
  - Preoperatively in 3 (10%) and postoperatively in 3 (10%)
  - All in lower extremity (p=0.31)
  - Lymphadenectomy in 5 patients and definitive radiotherapy in 1 patient

- **Overall Metastatic Disease**
  - Overall metastatic disease in 16 (53%) patients
    - Distant metastases: 10 (33%)
    - Distant and lymph node metastases: 5 (17%)
    - Isolated lymph node metastases: 1 (3%)
  - Risk factors for metastatic disease: larger tumor size (>9 cm, HR 4.36, p=0.01) and local tumor recurrence (HR 3.28, p=0.02)

- **Survival**
  - Overall 5- and 10-year rates of disease specific survival were 80% and 57% respectively
  - 10-year disease specific survival rates stratified by status of metastatic disease (Figure 1)
    - No metastases: 100%
    - Lymph node metastases: 62%
    - Other distant metastases: 0%
  - 5- and 10-year local recurrence free survival: 89% and 52%
    - Local recurrence in 8 (27%) patients
    - Positive surgical margin (HR 11.86, p=0.01) was a risk factor for local recurrence
  - Mean MSTS93 was 79±21%
  - Complications occurred in 9 (30%) patients
    - Most commonly wound complications (n=6, 20%)

Conclusions

- Patients with extraskeletal myxoid chondrosarcoma have a high incidence of lymph node metastatic disease
- Nodal metastases had negative implications on patient survival, but not as poor of implications as other sites of metastatic disease
- Preoperative staging of the lymph node basin in patients with ESMC is important, particularly in the lower extremity
- May warrant consideration for a sentinel lymph node biopsy

Figure 1: Following surgical resection at 5- and 10-years postoperative, patients with lymph node metastatic disease (83% and 62%, blue) had worse disease specific survival than patients without metastatic disease (100% and 100%, red), but better survival compared to those with metastatic disease elsewhere (50% and 0%, green) (p=0.0004).