Session 7: Mast Cell Disease - Case ID 104

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Clinical History

61 y/o woman with marked splenomegaly, recent weight loss, pancytopenia, no apparent skin lesions

June 2003:

- WBC 3.0
- Neutrophils 76%
- Basophils 1%
- 2nRBC’s
- Hgb/Hct 8.2/25
- Platelets 138,000
Diagnostic Studies

- **Chromosomal analysis:**
  - Unable to perform, dry tap

- **Molecular analysis for c-kit D816V mutation:**
  - Sent to research facility, result Unknown
Treatment and Disease Course

2003

✓ Four (4) months imatinib no response; hydroxyurea, no significant response

2004

✓ Splenectomy, temporary improvement of peripheral blood counts, new appearance of skin lesions

2005 – Feb 2007

✓ Multiple courses of 2-CdA with sustained response
## Treatment and Disease Course

<table>
<thead>
<tr>
<th>February 2007 to Present</th>
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<tr>
<td>Neuropathy</td>
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<tr>
<td>No skin lesions</td>
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<td>On triple histamine blocker treatment</td>
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<table>
<thead>
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<th>September 2007</th>
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<tr>
<td>WBC = 8.0</td>
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<tr>
<td>Hgb = 13.6</td>
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<td>Platelets = 519k</td>
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Diagnosis:

Systemic Mastocytosis – Aleukemic Mast Cell Leukemia
(WHO Classification 2001)
Mast Cell Leukemia versus “other” Systemic Mastocytosis

- Chronic disease course > 4 years unexpected for poor prognosis mast cell leukemia
- Sustained response to monotherapy
Kluin-Nelemans HC, Oldhoff JM, Van Doormaal JJ et al

Cladribine therapy for systemic mastocytosis

Blood 2003 Dec 15;102(13):4270-6

- Indolent mastocytosis,
- SM with an accompanying hematologic malignancy
- Aggressive systemic mastocytosis,
  - Indolent mastocytosis,
Penack O, Sotlar K, Noack F, Horny HP, Thiel E, Notter M

**Cladribine therapy in a patient with an aleukemic subvariant of mast cell leukemia**

*Ann Hematol. 2005 Oct;84 (10):692-3*
Noack F, Sotlar K, Notter M, Thiel E, Valent P, Horny HP

Aleukemic mast cell leukemia with abnormal immunophenotype and c-kit mutation D816V

Leuk Lymphoma 2004 Nov;45(11):2295-302
Therapeutic Implications

**Dasatinib** - *in vitro* activity against c-KIT D816V

- **PKC412** – *in vitro* activity against c-KIT D816Y and D816V
Conclusion -1

Current classification of mast cell leukemia includes a heterogeneous set of mast cell disorders with different biologic behavior and underlying genetic abnormalities.
Conclusion -2

Diagnostic work-up and future classification systems need to include genetic / molecular abnormalities for better prognostic and therapeutic stratification.