Micropapillary Borderline Serous Tumor Summary

- Relatively uncommon
- More likely to be bilateral and have surface growth
- More likely to have spread beyond ovary (27% vs 13% in Danish study)
- More likely to have invasive implants (50% vs 8% in Danish study)
- But, stage for stage and corrected for implant type similar prognosis to standard borderline serous tumors

Borderline Serous Tumor
Stromal Microinvasion

- Found in 5-10% of SBT
- Difficult to identify
- Not >3-5 mm maximum diameter
- Multiple foci often present
- More common in pregnant patients
- Survival:
  - Stage I: 74/78 (95%)
  - Stage II-IV: 33/39 (85%)

Borderline Serous Tumors, All Stages Treated in Denmark, 1978-2002

<table>
<thead>
<tr>
<th>Follow-up (years)</th>
<th>Overall Survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>15</td>
<td>70</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>35</td>
<td>30</td>
</tr>
</tbody>
</table>

APST (n=867)
Non-invasive MPSC (n=75)
p=0.10

Courtesy Russell Vang MD, Presented at USCAP 2012
## Patterns of Microinvasion

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eosinophilic cells or clusters</td>
<td>80%</td>
</tr>
<tr>
<td>Simple minimally branching papillae</td>
<td>80%</td>
</tr>
<tr>
<td>Cribriform glands</td>
<td>8%</td>
</tr>
<tr>
<td>Complex branching micropapillae</td>
<td>3%</td>
</tr>
<tr>
<td>Macropapillae</td>
<td>15%</td>
</tr>
</tbody>
</table>

[Image of histological sections]
Borderline Serous Tumor Findings in Lymph Nodes

- Four histologic findings:
  - Epithelial inclusions – more common in women with SBT than in the general population
  - Papillary serous tumor
  - Serous tumor cells in sinusoids
  - Invasive low grade serous carcinoma
- Not shown to be an adverse prognostic finding overall.
- Low grade serous carcinoma pattern likely imparts higher risk and should be specifically noted.
  - The ovarian tumors may be entirely noninvasive
Low grade serous carcinoma in parenchyma of lymph node


• Non-invasive, epithelial type
• Non-invasive, desmoplastic type
• Invasive (Invasive implant = low grade serous carcinoma)
• Not implants: psammoma bodies, endometriosis, endosalpingiosis

Borderline Serous Tumor Peritoneal Implants

Noninvasive Epithelial Implants
Noninvasive Desmoplastic Implant
Invasive Implant
Expanded Criteria for Invasive Implants?

- K. Bell and Kurman, 2001
  - Solid nests of tumor cells surrounded by clefts in superficial implants
  - Micropapillary pattern in implants
  - 61% with invasive implants had progressive disease vs 10% with noninvasive implants
- Deavers et al, 2002
  - Numerous nests of tumor cells in stroma, sometimes surrounded by clear cleft
  - 50% survival invasive vs 86% noninvasive

Indeterminate Implant
- Some features of an invasive implant (cellular, clefts, atypia)
- Invasive growth not identified