Intraoperative consultation for gynecologic pathology

for doctors in training, and practicing doctors

Scope

- Approach to intraoperative evaluation of gynecologic specimens
- Limited to evaluation of gross features (without frozen section)
- Limited to evaluation of ovarian and uterine corpus tumors

Intraoperative evaluation of ovarian mass

Must know

WHO Classification of ovarian tumors

Should know

- Age
- Gross appearance
- Incidence

Ovarian neoplasms, frequency and age distribution

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage of malignant ovarian tumors</th>
<th>Percentage that are bilateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serous</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Benign (seru)</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Borderline (seru)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Malignant (seru)</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Mucinous</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Benign (muc)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Borderline (muc)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Malignant (muc)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Endometrioid CA</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Undifferentiated CA</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Clear cell CA</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>Granulosa cell tumor</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Teratoma</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Benign (ter)</td>
<td>1</td>
<td>rare</td>
</tr>
<tr>
<td>Malignant (ter)</td>
<td>5</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Metastatic</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Distribution of ovarian neoplasms by age

<table>
<thead>
<tr>
<th>Tumor</th>
<th>Percentage of tumor category in each age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;20 20-25 30-35 30-40 40-50 50-60 60-70 70+</td>
</tr>
<tr>
<td>Benign</td>
<td>Serous 17 15 13 11 9 7 5 3</td>
</tr>
<tr>
<td></td>
<td>Mucinous 11 10 9 8 7 6 5 4</td>
</tr>
<tr>
<td></td>
<td>Endometrioid 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Borderline</td>
<td>Serous 9 7 5 4 3 2 1 0</td>
</tr>
<tr>
<td></td>
<td>Mucinous 4 3 2 1 0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>Endometrioid 0 0 0 0 0 0 0 0</td>
</tr>
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<td>Malignant</td>
<td>Serous 17 15 13 11 9 7 5 3</td>
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<tr>
<td></td>
<td>Endometrioid 0 0 0 0 0 0 0 0</td>
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<tr>
<td>Metastatic</td>
<td>Serous 17 15 13 11 9 7 5 3</td>
</tr>
<tr>
<td></td>
<td>Mucinous 11 10 9 8 7 6 5 4</td>
</tr>
<tr>
<td></td>
<td>Endometrioid 0 0 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>
1. Specimen
2. Side, size
3. Surface
4. Solid / Cystic
5. Color
6. Consistency
7. Content

Don’t forget

- Adnexal mass is not always ovarian mass
  - May be tube, ovary, intraligamentous mass, etc., thus start with identifying organ with lesion
- Tubal mass may mimic ovarian mass
- Not all masses are neoplastic

Surface epithelial-stromal tumors

- Predominantly cystic
- The only solid epithelial tumor – Brenner
- Multiloculated / huge – mucinous
- Solid-cystic - the more soft solid part† likelihood of CA
- Adenofibromatous part appears solid firm
- Some tumors are associated with endometriosis

Germ cell tumors

- Usually young
- Solid homogeneous lobulated – Dysgerminoma
- Teratoma with unidentifiable tissue – Immature teratoma or mixed germ cell tumor / SCC in the 50’s or more
- Cytic, necrotic, hemorrhagic – Yolk sac tumor / mixed germ cell tumor
- Embryonal carcinoma, choriocarcinoma - Rare

Sex cord-stromal tumors

- May have hormonal manifestation
- Fibroma – solid rubbery homogeneous
- Thecoma – yellow fibroma-like, not common
- Granulosa cell tumor – yellow nonhomogeneous, if cystic +bloody content
- Others - rare
Metastatic tumors

- Frequently bilateral
- Small multinodular surface tumors
- Extensive, unusual extraovarian spread
- Clinical history
- Krukenberg may appear fibroma-like but bilateral, lobulated, + history
- Metastatic mucinous carcinoma can mimic primary ovarian mucinous tumor

Assessment of ovarian neoplasms

- Clinical history
- Age
- Bilaterality
- Gross:
  - Solid, solid-cystic, cystic
  - Surface involvement
  - Color, consistency
- Micro
- Cancer : staging
- Primary vs. Metastasis

Intraoperative evaluation of uterine corpus tumors

**Must know**
WHO Classification of uterine corpus tumors

**Should know**
- Location (endometrial / myometrial)
- Gross appearance (consistency, color, extension)
- Age
- Incidence

WHO classification of the tumors of the uterine corpus

- Epithelial tumors
- Mesenchymal tumors
- Mixed epithelial and mesenchymal tumors
- Gestational trophoblastic disease
- Miscellaneous tumors
- Lymphoid and hematopoetic tumors
- Secondary tumors

Endometrial carcinoma

- Soft irregular endometrial mass(es) or diffusely thickened endometrium
- With or without myometrial invasion

Smooth muscle tumors

- Typical leiomyoma – circumscribed, whorled, firm, homogeneous
- Degenerative changes and unusual growth pattern may mimic sarcoma
- Degenerative changes – change in color and consistency but usually no friable necrosis
- Intravenous leiomyomatosis – worm-like growth
Endometrial stromal tumor

- Soft, yellow
- May be intramural mass, polyloid endometrial lesion, adenomyosis-like, worm-like growth
- May mimic intramural leiomyoma
- Irregular border, multiple number = sarcoma

Uterine sarcoma

- Bulky, firm, variegated appearance
- Elderly – think of MMMT

Possible distinction by gross evaluation

- Neoplastic or Nonneoplastic
- Benign or Malignant
- Tumor group
- Specific diagnosis

Take home message

- WHO classifications of tumors of ovary and the uterine corpus – must know
- Age and incidence – very helpful
- Gross – learn pattern recognition
- Dx by gross evaluation is possible

Take home message

Communication and cooperation between surgeon and pathologist is very important