MATURE TERATOMAS

30% Ovarian tumors
Mostly dermoid cysts
May be seen at any age
Complications: infection, torsion, rupture with pseudomalignant change outside ovary, melanosis peritonei, hemolytic anemia, limbic encephalitis
Selected Home Truths

1. If it looks like a fibroid grossly do not put through any sections. You will just end up confused! (AT Hertig, M.D.)
2. Nothing looks more malignant on high power than normal proliferative endometrium (AT Hertig, M.D.)
3. If it grossly looks like a dermoid cyst, it is a dermoid cyst!
**UNCOMMON TISSUES IN DERMoid**

Salivary gland 16%
Thyroid 13%
GI epithelium 12%
Lung 3%
Retina 2%
Prostate 1%
Pituitary 1%
Pancreas 1%


**MALIGNANT CHANGE IN DERMoid CYST**

- About 1% of cases, disproportionately in postmenopausal years
- Great majority are squamous cell carcinoma
- Others are mostly melanoma and rare sarcomas
- Thorough sampling to show association with dermoid can be crucial
- Theoretically includes mucinous tumors but by convention they are considered separately

Squamous Cell Ca in Dermoid
PRIMITIVE GERM CELL TUMORS

- Dysgerminoma
- Yolk sac tumor
- Embryonal carcinoma
- Choriocarcinoma
- Immature Teratoma
- Polyembryoma
- Mixed forms (mostly 1 and 2)

Remember some, mostly 1, arise out of gonadoblastoma

DYSGERMINOMA

- 50% Malignant primitive GCTs
- 80% <30 years (average 21 years)
- 10% Grossly bilateral
- 10% Biopsy opposite ovary +ve
- Rarely hormonal manifestations
- Rare origin in gonadoblastoma

Dysgerminoma
Dysgerminoma

Dysgerminoma + syncytiotrophoblast giant cells

Dysgerminoma + gonadoblastoma
IMMATURE TERATOMAS

- Account for 20% of malignant germ cell tumors
- Account for 15% of ovarian cancers in first two decades
- Median age, 18 years
- 25% have ipsilateral and 10% contralateral dermoid cyst
- Rarely have elevated hCG and AFP levels
GRADING OF IMMATURE TERATOMAS

Grade 1: <1 low power field per slide
Grade 2: 2-3 low power fields per slide
Grade 3: 4 or more low power fields per slide

O’Connor and Norris have proposed binary system combining categories 2 and 3 into high grade
Fibroma

- 4% of ovarian tumors
- Mean age 48
- Rarely hormone-producing
- Meigs’ Syndrome (1%)
  - ascites and pleural effusion
  - (ascites alone 10-15%)
- Gorlin’s syndrome (Nevoid BCC syndrome)
  - Bilateral, calcified
- Bilateral 8%
- Average diameter 6 cm
Cellular Fibroma

Thecoma

- <1% of ovarian tumors
- Mean age 59, rare under 30
- Usually estrogenic
- Nearly all are benign
- Unilateral 97%
- Size 5-10 cm
Sclerosing Stromal Tumor

- Young women - 80% under 30
- Rarely hormone-producing
- Unilateral, solid to cystic
- Benign

Leydig Cell Tumor

- Postmenopausal (avg 58)
- 75% virilizing, estrogenic rare
- Hilar (most) or non-hilar (stromal)
- Unilateral, avg 2.4 cm
- Benign
- 20% of steroid cell tumors
Steroid Cell Tumor

- Younger than Leydig cell tumors (mean 43)
- 50% androgenic, 10% estrogenic, rare progesterone, cortisol, aldosterone
- Larger (mean 8 cm), 5% bilateral
PRESENTATION OF GRANULOSA CELL TUMOR

- Prepubertal – sexual precocity
- Young woman – menstrual irregularity
- Postmenopausal – vaginal bleeding

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10% - acute abdomen
10% - incidental finding in hysterectomy

Granulosa cell tumor (GCT)

GCT
Juvenile granulosa cell tumor (JGCT)

JGCT – irregular follicles

JGCT – typical cytology
Ovarian Tumors with Paraendocrine Hypercalcemia

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Small cell CA</td>
<td>59%</td>
</tr>
<tr>
<td>Clear cell CA</td>
<td>18%</td>
</tr>
<tr>
<td>Serous CA</td>
<td>6%</td>
</tr>
<tr>
<td>Squamous cell CA in dermoid cyst</td>
<td>6%</td>
</tr>
<tr>
<td>Dysgerminoma</td>
<td>6%</td>
</tr>
<tr>
<td>Mucinous CA</td>
<td>3%</td>
</tr>
<tr>
<td>Mixed clear cell/endometrioid CA</td>
<td>1%</td>
</tr>
<tr>
<td>Steroid cell tumor</td>
<td>1%</td>
</tr>
</tbody>
</table>

Small cell CA, hypercalcemic (SCC,H)

SCC.H

Small cell ca, hypercalcemic (SCC,H)
CONFUSING FEATURES OF METASTASES

1. May account for clinical presentation
2. May be functioning
3. History of primary may be remote
4. Often much larger than primary
5. Tendency for cyst formation
6. Maturation phenomenon
7. Formation of follicle-like spaces
8. Metastasis may involve ovary harboring primary neoplasm
9. Patient may have independent histologically similar primary tumors of ovary and elsewhere

Krukenberg tumor
Cystic metastatic Ca pancreas

Maturation phenomenon

Pseudomyxoma peritonei
Metastatic appendiceal mucinous tumor in ovaries

Metastatic gastric Ca

Metastatic gastric Ca