<table>
<thead>
<tr>
<th>Adult GCT</th>
<th>Juvenile GCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1% prepubertal</td>
<td>50% prepubertal</td>
</tr>
<tr>
<td>Most &gt; 30 years</td>
<td>Most &lt; 30 years</td>
</tr>
<tr>
<td>NOX12 mutation</td>
<td>No NOX12 mutation</td>
</tr>
<tr>
<td>Microfollicles</td>
<td>Macrofollicles</td>
</tr>
<tr>
<td>Fine chromatin</td>
<td>Coarse chromatin</td>
</tr>
<tr>
<td>Grooved nuclei</td>
<td>Round nuclei</td>
</tr>
<tr>
<td>Minimal atypia, few mf</td>
<td>Marked atypia, many mf</td>
</tr>
<tr>
<td>Cells rarely luteinized</td>
<td>Cells often luteinized</td>
</tr>
<tr>
<td>Late recurrences</td>
<td>Most recur &lt; 3 years</td>
</tr>
</tbody>
</table>

**Current UCSF Immunostains for GCT**

- **Positive Stains**
  - Inhibin
  - NOX12
  - Maybe SF-1 and/or calretinin

- **Negative Stains**
  - Cytokeratin Cocktail
  - EMA

**Case 16 Clinical History**

- 50 year old woman with metrorrhagia
- Pelvic ultrasound revealed a slightly enlarged right ovary
- Followed, but the enlargement persisted
- Elected to have a laparoscopic hysterectomy and BSO
- At surgery, the ovarian mass seen on ultrasound could not be visualized
Case 16 Gross Pathology

- The right ovary measured 3.5 x 3.0 x 2.5
- The external surface was tan, lobular and intact
- Cross sections revealed a 2.5 cm solid orange nodule
Case 16 Diagnosis

Steroid Cell Tumor, NOS
Steroid Cell Tumors

- Leydig Cell Tumor
- Stromal Luteoma
- Steroid Cell Tumor, NOS
- Luteoma of Pregnancy (a Pseudotumor)

Leydig Cell Tumor

- ~ 20% of steroid cell tumors
- Three types:
  - Hilar (Hilus Cell Tumor)
  - Non-hilar
  - Stromal
- Histologic marker of Leydig cells: crystalloid of Reinke

Leydig Cell Tumor

- Most patients postmenopausal; average age 58
- Presentation: Virilization, PMB, Incidental
- Serum testosterone usually elevated
- Usually small (average 2 cm); localization may be difficult and require selective venous sampling
- Clinically benign
• **1991 - Age 48**
  - Gradual onset of facial hirsutism
  - Subsequently developed temporal hairline recession, male pattern baldness, deepening of voice, increase in musculature, and acne.

• **1995 - Age 52**
  - Elevated serum testosterone.
  - Normal adrenals on CT
  - Pelvic ultrasound and CT negative
  - Thought to have functional adrenal hyperandrogenism and treated with glucocorticoids, without effect.

• **1996 - Age 53**
  - Repeat pelvic ultrasound revealed an 8 mm right ovary (previous LSO)
  - MRI normal
  - Selective venous catheterization revealed marked testosterone gradient in right ovarian vein
  - Laparoscopic right oophorectomy → 11 mm Leydig cell tumor in hilum
  - Postoperative testosterone levels returned to normal and there was slow regression of the hirsutism.
Diagnostic Feature of Leydig Cell Tumor: Crystalloids of Reinke

Steroid Cell Tumors

**Immunohistochemistry**

- Inhibin
- Calretinin
- SF-1
- FOXL2 Usually Negative
- Melan-A, MART-1
- WT-1
- CD56
- Cytokeratin – some are positive