Gestational diseases

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Gestational trophoblastic diseases

- Hydatidiform mole
- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumor

All elaborate human chorionic gonadotropin (hCG), which can be detected in the blood and urine at levels considerably higher than those found during normal pregnancy... hCG can aid in diagnosis and monitoring response to treatment.
Hydatidiform Mole: Complete and Partial

• Voluminous mass of swollen, sometimes cystically dilated, chorionic villi, appearing grossly as grapelike structures

• Complete hydatidiform moles:
  - Not compatible with embryogenesis and never contain fetal parts
  - All of the chorionic villi are abnormal
  - The chorionic epithelial cells are diploid (46,XX or, uncommonly, 46,XY)

• Partial mole:
  - May contain fetal parts
  - Has some normal chorionic villi
  - Almost always triploid (e.g., 69,XXY)

• Both types result from abnormal fertilization

• In a complete mole the entire genetic content is supplied by two spermatozoa (or a diploid sperm), yielding diploid cells containing only paternal chromosomes

• In a partial mole a normal egg is fertilized by two spermatozoa (or a diploid sperm)...triploid karyotype
<table>
<thead>
<tr>
<th>Feature</th>
<th>Complete Mole</th>
<th>Partial Mole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karyotype</td>
<td>46,XX (46,XY)</td>
<td>Triploid (69,XXY)</td>
</tr>
<tr>
<td>Villous edema</td>
<td>All villi</td>
<td>Some villi</td>
</tr>
<tr>
<td>Trophoblast proliferation</td>
<td>Diffuse; circumferential</td>
<td>Focal; slight</td>
</tr>
<tr>
<td>Serum hCG</td>
<td>Elevated</td>
<td>Less elevated</td>
</tr>
<tr>
<td>Tissue hCG</td>
<td>++++</td>
<td>+</td>
</tr>
<tr>
<td>Risk of subsequent choriocarcinoma</td>
<td>2%</td>
<td>Rare</td>
</tr>
</tbody>
</table>

hCG, human chorionic gonadotropin.

Elsevier. Kumar et al. Robbins basic pathology 9th...modified.
Clinical behavior

Overall, 80% to 90% of moles do not recur after thorough curettage; 10% of complete moles are invasive. No more than 2% to 3% give rise to choriocarcinoma.
Invasive Mole

• Invasive locally but no metastatic potential

• The hydropic villi penetrate the uterine wall deeply, possibly causing rupture and sometimes life-threatening hemorrhage

• Atypia of trophoblastic epithelium is common

• Hydropic villi may embolize to distant organs, such as lungs or brain, but these emboli do not constitute true metastases and may indeed regress spontaneously

• Removal is difficult and hCG is persistently elevated

• In most cases cure is possible with chemotherapy
Gestational choriocarcinoma

• It arises from trophoblastic epithelium not as that which arises from totipotential cells in gonads

• 1/30000 pregnancies in the USA...much more common in Asia & Africa

• 50% of choriocarcinomas arise from complete hydatidiform moles; about 25% arise after an abortion; the remainder manifest after what had been a normal pregnancy

...the more abnormal the conception, the greater the risk of developing gestational choriocarcinoma
Gestational choriocarcinoma, cont’d

• In most cases, choriocarcinoma manifests with a bloody, brownish discharge

• Rising titer of $\beta$-hCG in blood and urine, in the absence of marked uterine enlargement

• The $\beta$-hCG titers are much higher than those associated with a mole
Gestational choriocarcinoma, cont’d

**MORPHOLOGY**

Choriocarcinomas usually appear as hemorrhagic, necrotic uterine masses. Sometimes the necrosis is so extensive that little viable tumor remains. Indeed, the primary lesion may “self-destruct,” and only the metastases tell the story. Very early, the tumor insinuates itself into the myometrium and into vessels. **In contrast with hydatidiform moles and invasive moles, chorionic villi are not formed; instead, the tumor is composed of anaplastic cuboidal cytotrophoblasts and syncytiotrophoblasts**.
Gestational choriocarcinoma, cont’d

• By the time most choriocarcinomas are discovered, widespread vascular spread usually has occurred to the:
  - Lungs (50%)
  - Vagina (30% to 40%)
  - Brain
  - Liver
  - Kidneys
  ...etc.

• Lymphatic invasion is uncommon

Very good response to chemotherapy
...nearly 100% cured even if metastatic

***In contrast to gonadal choriocarcinoma
Placental site trophoblastic tumor

- Derived from the placental site or intermediate trophoblast
- Uncommon
- Diploid tumors, often XX in karyotype
- Do not produce hCG in large amounts...slightly elevated
- Produce human placental lactogen
- Prognosis depends on how much it invades the uterus and extrauterine spread
- Not as sensitive to chemotherapy as other gestational tumors
• What do you know about:

PREECLAMPSIA/ECLAMPSIA (TOXEMIA OF PREGNANCY)

???
Thank You