Neoplasia I

Tuesday, May 06, 2008
1:00 PM

- **Neoplasm “Tumor”** – A mass of new *clonally proliferating* cells
  - Autonomous, uncontrolled growth, persistent/irreversible, no adaptive function
  - “oma” = neoplasm, signaled by non-equilibrium growth, and start/stop disobedience
  - Benign – not invading/metastasizing
  - Malignant – can invade tissue and metastasize
- **Hyperplasia** – an increase in the number of cells in tissues capable of dividing
  - Hormonal – ex: lactating breast
  - Compensatory – ex: callus
- **Hypertrophy** – increase in the size of cells; ex: heart muscle
- **Metaplasia** – a *reversible* change in which one adult cell type is replaced by another
  - Usually an *adaptive substitution* of cells sensitive to stress by cells which can deal w/ stress
  - Ex: endocervix – changes from glandular --> squamous epithelium (controlled, reversible)
  - Ex: respiratory – changes from squamous --> “intestinal” Barrett’s mucosa due to acid reflux
- **Hamartoma** – a mass of cells of the cell type normal for tissue, but abnormally arranged/jumbled
  - QUIZ: Vascular hamartoma – hemangioma
- **Choristoma** – a mass of ectopic tissue that is normal, but growing in abnormal location
  - Embryologic accident – piece of organ present in wrong spot
  - Pancreas – a nodule of pancreatic tissue growing within the wall of stomach

<table>
<thead>
<tr>
<th>Invasion</th>
<th>Benign</th>
<th>Malignant</th>
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<tbody>
<tr>
<td>Smooth, cohesive, delineated mass</td>
<td>Invasive</td>
<td></td>
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<table>
<thead>
<tr>
<th>Structure</th>
<th>Benign</th>
<th>Malignant</th>
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</thead>
<tbody>
<tr>
<td>Ordered structure</td>
<td>Cellular disarray</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Nuclei/Cytoplasm</th>
<th>Benign</th>
<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low nuclear/cytoplasmic ratio</td>
<td>High nuclear/cytoplasmic ratio</td>
<td></td>
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<table>
<thead>
<tr>
<th>Morphology</th>
<th>Benign</th>
<th>Malignant</th>
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<tbody>
<tr>
<td>Cell &amp; nuclei are same shape &amp; size</td>
<td>Cells &amp; nuclei are pleomorphic</td>
<td></td>
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<table>
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<tr>
<th>Nuclei Shape</th>
<th>Benign</th>
<th>Malignant</th>
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<tbody>
<tr>
<td>Regular, less division</td>
<td>Hyperchromatism, irregular, <em>mitotic figures</em></td>
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- **Adenocarcinoma** – A “gland” carcinoma where glands are being made, *malignant*
- **Adenoma in colon** – A benign neoplasm can be dysplastic here, although usually not
- **Dysplasia**
  - Dysplasia – a *morphologic alteration* in both *cytology* and *arrangement* of epithelial cells
    - Not only look abnormal themselves, but don’t relate to each other in normal fashion
    - Severe dysplasia = *carcinoma in situ*, cancer precursor
  - Show disordered growth, abnormal variation in size/shape, show *hyperchromatism, pleomorphism*
  - Ex: skin layers – becoming less stratified = dysplasia --> cancer precursor
- **Intraepithelial Neoplasia**
  - = Dysplasia, in Cervix (CIN I to III), Vulva VIN, Vagina VAIN, Anus AIN, Prostate PIN, Breast DCIS
- **QUIZ: Malignancy Grading/Staging**
  - Grade – *degree of differentiation* --> well, moderate, poor, *anaplastic*
  - Stage – *degree of progression* (size, depth of invasion, lymph node metastases, distant metastases)
    - T – Tumor = size/depth
    - N – lymph Node status
    - M – Metastasis