DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE

Week 3

ASSIGNMENT, OBJECTIVES, AND CASE STUDY

TOPIC 1 OF THE WEEK: DISEASES OF IMMUNITY

REQUIRED READING:

Cotran, Kumar, Robbins: PATHOLOGIC BASIS OF DISEASE, 6th Edition,
Diseases of Immunity (Chapter 7, pp. 216-257) (For Review pp. 188-216)
(Chapter 16, pp. 712-716: Bronchial Asthma)
(Chapter 27, pp. 1201-1205: Blistering Diseases)

TOPIC 2 OF THE WEEK: ONCOGENESIS AND NEOPLASIA

REQUIRED READING:

Cotran, Kumar, Robbins: PATHOLOGIC BASIS OF DISEASE, 6th Edition,
Neoplasia (Chapter 8, pp. 260-276; pp. 319-325) (For Review pp. 276-319)

REQUIRED STUDY FOR SMALL GROUPS

CASE BASED STUDY Small Group Sessions

ASSIGNMENTS:
- Laboratory Medicine Case Book Chapters 8, 22 OR
- Laboratory Medicine Case Set CD ROM Chapters 10, 30
- Printed Case 1 (attached)

OBJECTIVES:
1. Case Book, Chapter 8 OR Case Set Chapter 10
   - Pathogenesis, clinical course, and complications of multiple myeloma
   - Laboratory findings in multiple myeloma
   - Serum protein electrophoresis as a test (understanding, interpretation, diagnostic use):
     -Raskova, Shea, Skvara, and Mikhail: Laboratory Medicine Case Book, pp. 89-90
2. **Case Book, Chapter 22 OR Case Set Chapter 30**
   - Pathogenesis and clinical course of AIDS
   - Stages of HIV infection
   - Opportunistic infections in AIDS
   - Cytopenias in HIV infection
   - Laboratory evaluation of patients with HIV infection;
     Ravel: Clinical Laboratory Medicine, pp. 271-274
   - Laboratory detection of cytomegalovirus:
     Ravel: Clinical Laboratory Medicine, pp. 267-269;
     Raskova, Shea, Skvara, and Mikhail: Laboratory Medicine Case Book, p. 237
   - Histopathology
   - Relationship between serum albumin and serum calcium levels;
     Ravel: Clinical Laboratory Medicine, p. 420

3. **Printed Case (Attached)**
   - Pathogenesis of diagnosed problems
   - Understanding of problems raised by questions for homework and discussion

**PATHTALK Small Group Sessions**

**ASSIGNMENTS:**
- *Projection slides* on carousels in the Media Library, labeled by weekly topic and subject
- Slide Manual (pp.30-35, Immunity; 36-38, Neoplasia)
- Journal Club Article (see your Course Book)

**OBJECTIVES:**
- Correlations of histopathology, gross pathology, and laboratory findings
- Review of pathophysiology

**ADDITIONAL MATERIAL (Optional, unless indicated otherwise)**

- SELF-STUDY MATERIAL, MATERIAL FOR SELF EVALUATION and VISUAL AND AUDIOVISUAL MATERIAL

See your Course Book (page 4) for a complete listing.
HISTORY: A 4-month old white female was admitted because of a one week history of generalized petechiae and bruises accompanied by several episodes of epistaxis. Several days of watery diarrhea occurred two weeks before admission and for the past several days the patient has had "cold" symptoms, but without a fever. She was born at 34 weeks gestation with a birth weight of 2680 gms., discharged at 3 days of age, and rehospitalized at 3 days of age because of hyperbilirubinemia, for which she received 12 hours of phototherapy. At birth her HIV serology was positive, but her complete blood count was normal. She was seen at 2 months of age for a well care visit and no petechiae were present. The mother, who is a known heroin addict and denies IV drug use during pregnancy, is HIV positive and has been on methadone maintenance.

PHYSICAL EXAMINATION: The patient was well developed and well nourished in no acute distress. Vital signs were in the normal range. Generalized petechiae were present with an area of ecchymosis over the left knee. Liver was palpable 2.5 cm. below the right costal margin and a spleen tip could be felt. No lymphadenopathy was present. Deep tendon reflexes were slightly exaggerated. She smiled, cooed, followed visually, and pushed herself up. Her vital signs were normal.

LABORATORY DATA:

**Hematology:**

<table>
<thead>
<tr>
<th>WBC</th>
<th>11.300</th>
<th>[4-10 K/UL]</th>
</tr>
</thead>
<tbody>
<tr>
<td>neutrophils</td>
<td>22 %</td>
<td>[24 %]</td>
</tr>
<tr>
<td>lymphocytes</td>
<td>68 %</td>
<td>[59 %]</td>
</tr>
<tr>
<td>monocytes</td>
<td>5 %</td>
<td>[5 %]</td>
</tr>
<tr>
<td>eosinophils</td>
<td>5 %</td>
<td>[3 %]</td>
</tr>
<tr>
<td>Platelet Count</td>
<td>28,000/mm³</td>
<td>[140K - 340K]</td>
</tr>
<tr>
<td>Hgb</td>
<td>11.2gm/dl</td>
<td>[10 - 14]</td>
</tr>
<tr>
<td>Reticulocytes</td>
<td>1 %</td>
<td>[0.5 - 1.5%]</td>
</tr>
</tbody>
</table>

**Chemistry:**

<table>
<thead>
<tr>
<th>Serum IgG</th>
<th>1060mg/dl</th>
<th>[300-600]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum IgM</td>
<td>230 mg/dl</td>
<td>[30-60]</td>
</tr>
<tr>
<td>Serum IgA</td>
<td>108 mg/dl</td>
<td>[10-551]</td>
</tr>
<tr>
<td>HIV serology</td>
<td>Positive</td>
<td>[Neg.]</td>
</tr>
<tr>
<td>Toxoplasma serology</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Epstein-Barr serology</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Serum bilirubin</td>
<td>1.1 mg/dl</td>
<td>[&lt;1.5]</td>
</tr>
</tbody>
</table>

**Urine:**
COMMENT: Examination of the peripheral smear showed no significant red cell or white cell abnormalities. Platelets appeared markedly decreased in number.

QUESTIONS FOR DISCUSSION:
1. What is the correlation between the lab data and the presenting symptoms and physical findings? Explain.
2. What was the cause of the hyperbilirubinemia at 5 days of age?
3. What is the most likely diagnosis?
4. What is the epidemiology of HIV infection? What are the possible origins and routes of the infant’s infection?
5. Why are the serum immunoglobulins elevated? What are some other immune function abnormalities?