2019 ACVP Certifying Exam
Examination in Anatomic Pathology

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Modified from original by: Dalen Agnew, ACVP Examination Committee Chair, 2017
This presentation...

- Is focused on the 2019 Phase II ACVP Certifying Examination in Anatomic Pathology held in Tampa, Florida
- Website resources
- Highlights of the Tampa facility
- Sample essay and multiple choice questions
- Other useful information
Website Resources

• www.acvp.org/
Website Information

• Under the Exam tab on www.acvp.org/
  
  • Application
  • Candidate Handbook
  • Important Examination Dates
  • Job Task Analysis
  • Phase I
  • Phase II - Tampa
ACVP Phase II Certifying Examination in Anatomic Pathology

- One day exam (7 hours)
- August 13 or 14, 2019
- At the American Board of Pathology (ABP) Testing Center, Tampa, Florida
- Computer-based – not hand written
  - Very user-friendly
  - Short practice test on examination day to familiarize you with how the testing center computers work
  - Images can be enlarged on monitors
# Test Day Schedule of Phase II Certifying Examination

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 7:50 a.m.</td>
<td>Registration and setup</td>
</tr>
<tr>
<td>7:50 – 8:00 a.m.</td>
<td>Instructions and sample test</td>
</tr>
<tr>
<td>8:00 – 11:00 a.m.</td>
<td>Microscopy  12 sides x 15 minutes = 180 min (3 hours)</td>
</tr>
<tr>
<td>11:00 a.m. – 12:30 p.m.</td>
<td>Break</td>
</tr>
</tbody>
</table>
| 12:30 – 4:45 p.m. | 100 interpretation MCQ x 1.2 minutes = 2.0 hours  
15 minute break  
100 knowledge MCQ x 1.2 minutes = 2.0 hours |

• For 2019 Exam:
  • 15 minutes per slide on the microscopy section
  • 90 minute break between Microscopy section and Interpretation section
  • 15 minute break between Interpretation and Knowledge sections
# ACVP Phase II Certifying Examination in Anatomic Pathology: Test Scoring

<table>
<thead>
<tr>
<th>Session</th>
<th># of items</th>
<th>Points per item</th>
<th>Approximate contribution to final score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microscopic Essays</td>
<td>12</td>
<td>20</td>
<td>33%</td>
</tr>
<tr>
<td>Interpretation MCQ</td>
<td>100</td>
<td>1</td>
<td>33%</td>
</tr>
<tr>
<td>Knowledge MCQ</td>
<td>100</td>
<td>1</td>
<td>33%</td>
</tr>
</tbody>
</table>

- All scores are combined into a single pass/fail result for the entire examination
- A total of 194/300 points is needed to pass
- More detail on the ACVP website
ACVP Phase II Certifying Examination in Anatomic Pathology

• Species distribution over the whole examination
  • Domestic animals 50 – 70%
  • Lab animal 20 – 30%
  • Non-domestic 10 – 20%

• Interpretation MCQ distribution
  • Gross images 50 – 70%
  • Microscopic images (histopathology, immunohistochemistry (IHC), electron microscopy (EM), cytopathology, hematology
  • Clinical pathology/data items 0 – 10%

• Knowledge MCQ distribution
  • The focus is on entry-level knowledge
  • Questions concentrate on natural disease, not experimental disease

• Microscopic essay point distribution
  • Description 50 – 80%
  • Interpretation 20 – 50%
ABP Testing Center
ABP Testing Center
Essays – Microscopes

• Microscopes provided but you may bring your own if desired
• Provided microscopes have 4, 10, 40 & 100x objectives
• **Important** – regardless of whether you use the provided microscope or bring your own lens tissue and lens cleaner
• You won’t share a slide flat with a neighbor
Essays - Timing

• No timers or watches allowed
• Time remaining (numbers count down to zero) is visible on the computer monitor

Question 1
After completion of this examination I will:
  ○ A) Be an ACVP diplomate for life
  ○ B) Get some rest
  ○ C) Return to work immediately
  ○ D) Read some slides
Essays - Glass Slides

• Unless otherwise indicated, assume that:

  • Histologic sections are stained with Hematoxylin + Eosin (H+E)
  • Blood smears and cytology preparations are stained with Wright-Giemsa
ACVP Phase II Certifying Examination in Anatomic Pathology

• The next few slides will provide more detail about and provide examples on these question categories:

  • Microscopic essays
  • Interpretation multiple choice questions
  • Knowledge multiple choice questions
Microscopic Essays – General Information

• 3 hour session
• 12 glass slides x 15 minutes/slide
• More than one tissue may be present on a slide
Glass Slide Selection

• Glass slides are chosen for examination with consideration of the following criteria:
  • Quality of the tissue
  • Quality of the lesion
  • Diversification of species, organ systems, and disease processes
Glass Slide Selection

• Species
  • Small animal (dog and cat)
  • Large animal (ox, sheep, goat, pig, and horse)
  • Laboratory animal
  • Non-mammalian, exotic, wildlife, and zoo animals (NEWZ)
Glass Slide Selection

• Organ Systems
  • Cardiovascular
  • Digestive
  • Endocrine
  • Hemolymphatic
  • Liver
  • Eye/Special senses
  • Musculoskeletal

• Reproductive
• Respiratory
• Integumentary
• Urinary
• Pancreas
• Nervous
Glass Slide Selection

• Disease processes
  • Infectious/Inflammatory
  • Degeneration/necrosis
  • Disturbances of growth/Neoplasia
  • Genetic
  • Metabolic/nutritional
  • Chemical/toxic

• Slides may have more than one disease process
Microscopic Essays – Scoring

• Microscopic essay point distribution
  • Description 50 – 80%
  • Interpretation 20 – 50%

• Organization/Clarity Points
  • Not used on every slide
  • Either 1 or 2 points when used
  • Three reasons for assigning them:
    1) Logical and clear description of the microscopic features that leads to the correct diagnosis
    2) Appropriate use of anatomic and/or scientific terminology
    3) Clear differentiation between a primary and secondary process or two primary processes
Microscopic Exam

• Description

• Interpretation—One or more of the following:
  • Morphologic diagnosis
  • Cause/etiologic agent
  • Additional tests
  • Associated lesions
  • Pathogenesis
    • Endpoint is morphologic diagnosis/lesion

• Avoid acronyms
Tissue from a cat

Histopathologic Description (14 points)

Morphologic Diagnosis(es) (2 points)

Cause(es) (4 points)
Tissue from a cat

Skin: Pyogranulomatous inflammation expands the dermis and panniculus; adnexal atrophy/loss
Tissue from a cat

Epithelioid macrophages, neutrophils, lymphocytes, and plasma cells
Tissue from a cat

Multinucleated giant cells and fungi
Tissue from a cat

Necrosis, hemorrhage, and fibrin accumulation
Tissue from a cat

Morphologic Diagnosis(es) (2 points):

Pyogranulomatous dermatitis and panniculitis with intralesional yeast

Cause(es) (4 points):

*Blastomyces dermatitidis*
Histopathologic Description (16 points)

Name the disease (4 points)
Tissue from a baboon

Small intestine: Mass extends from the submucosa to the serosa, effacing the tunica muscularis
Tissue from a baboon

Branching glands of variable size lined by cuboidal to columnar epithelial cells; ectasia of some glands; apical blebbing; sloughed cells within lumens
Tissue from a baboon

Proliferative stroma surrounds the glands; disorganized spindle-shaped cells with mitotic activity; eosinophils
Tissue from a baboon

Name the disease (4 points):

Endometriosis
Interpretation Section

- 100 multiple choice questions
- 50-70% gross images
- 20-50% microscopic images, which can include histopathology, immunohistochemistry, electron microscopy, cytology, hematology
- 0-10% clinical pathology data items
- Multiple items can be combined in a single question
Alpaca (*Vicugna pacos*). The cause is:

A. *Trichostrongylus axei*
B. *Strongyloides papillosus*
C. *Ostertagia ostertagi*
D. *Haemonchus contortus*
Answer:

C. Ostertagia ostertagi
Calf. An associated lesion is:

A. Myelofibrosis
B. Thymic atrophy
C. Pancreatic necrosis
D. Pharyngeal lymphoproliferation
Answer:

B. Thymic atrophy
Proventriculus of a budgerigar (*Melopsittacus undulatus*). The cause is:

A. *Candida albicans*
B. *Aspergillus fumigatus*
C. *Macrorhabdus ornithogaster*
D. *Clostridium perfringens* type A
Answer:

C. *Macrorhabdus ornithogaster*
Ox. The pathogenesis involves:
A. Leukotoxin
B. Hyaluronidase
C. Lipoteichoic acid
D. 3-methyleneindolenine
Answer:

D. 3-methyleneindolenine
Tiger (*Panthera tigris*). The cause is:

A. *Candida albicans*
B. *Histoplasma capsulatum*
C. *Prototheca wickerhamii*
D. *Cryptococcus neoformans*
Answer:

B. *Histoplasma capsulatum*
Clinicopathologic data from a dog. The likely cause of anemia is:

A. Myelophthisis
B. Iron deficiency
C. Chronic inflammation
D. Immune-mediated erythrocyte destruction
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hct (%)</td>
<td>14 (L)</td>
<td>35-57</td>
</tr>
<tr>
<td>Hb (g/dL)</td>
<td>4.2 (L)</td>
<td>11.9-18.9</td>
</tr>
<tr>
<td>RBC (x10^6/μL)</td>
<td>2.8 (L)</td>
<td>4.95-7.87</td>
</tr>
<tr>
<td>MCV (fl)</td>
<td>50 (L)</td>
<td>66-77</td>
</tr>
<tr>
<td>MCH (pg)</td>
<td>15 (L)</td>
<td>21.0-26.2</td>
</tr>
<tr>
<td>MCHC (%)</td>
<td>30 (L)</td>
<td>32.0-36.3</td>
</tr>
<tr>
<td>Retic %</td>
<td>2.3 (H)</td>
<td>0.1-1.0</td>
</tr>
<tr>
<td>Absolute Retic (/μL)</td>
<td>64,400</td>
<td>&lt;80,000</td>
</tr>
<tr>
<td>nRBC/100WBC</td>
<td>0</td>
<td>0-1</td>
</tr>
<tr>
<td>RBC Morphology</td>
<td>Anisocytosis Hypochromasia Schistocytes</td>
<td></td>
</tr>
<tr>
<td>Plasma Protein (g/dL)</td>
<td>4.8 (L)</td>
<td>6.0-8.0</td>
</tr>
</tbody>
</table>

Answer:

B. Iron deficiency
Knowledge Section

- 100 multiple choice questions
- The focus is on entry-level knowledge
- Textbooks are emphasized over journals, but review articles and other articles that contain pertinent new knowledge for the entry-level pathologist are fair game
- Questions concentrate on natural disease, not experimental disease
This concludes the presentation. Just remember... the well prepared candidate will be successful!