



ASCLS Continuing Education

Clinical Lab Investigations: Case Studies for the Lab Professional Case set #3 – Microbiology - Blastomycosis

Final Quiz

Select the single best answer for each of the following multiple-choice questions and record on the answer sheet.

1. A fungus that has both a yeast and a mold form is referred to as being:
 - a. Bipolar
 - b. Dimorphic
 - c. Dichotomous
 - d. Pleomorphous
2. The natural habitat of *Blastomyces dermatitidis* is:
 - a. River banks
 - b. Sewer systems
 - c. Bird droppings
 - d. Air conditioning systems
3. Primary infections caused by *B. dermatitidis*, *Coccidioides immitis*, *Histoplasma capsulatum* and *Paracoccidioides brasiliensis* are usually:
 - a. Cutaneous
 - b. Pulmonary
 - c. Genito-urinary
 - d. Gastrointestinal
4. A 55-year man who has never traveled outside the Midwestern United States is being evaluated for a possible mycotic fungal infection. Which two dimorphic organisms can be ruled out as a causative agent based on his lack travel outside the Midwest?
 - a. *B. dermatitidis* and *C. immitis*
 - b. *P. brasiliensis* and *C. immitis*
 - c. *H. capsulatum* and *S. schenckii*
 - d. *B. dermatitidis* and *H. capsulatum*
5. Tests for detecting *B. dermatitidis* antibodies in patient sera such as immunodiffusion are not always helpful due to their:
 - a. Expense
 - b. Lack of specificity
 - c. Long turn-around time
 - d. Lack of reproducibility
6. Acridine orange stain detects microorganisms by:
 - a. Binding to their cell wall lipids
 - b. Binding to their nucleic acids
 - c. Reacting with cytoplasmic enzymes
 - d. Attaching to their membrane antigens

7. Upon direct examination of sputum or pus, *B. dermatitidis* will appear as:
 - a. Small, budding yeast 5-7 μm in diameter
 - b. Hyaline hyphae are 1-2 μm in diameter
 - c. Dematiaceous hyphae are 2-5 μm in diameter
 - d. Large, round, thick-walled yeast 6-15 μm in diameter

8. What characteristic of 10% KOH solution allows the clinical microbiologist to more readily observe fungi in clinical specimens? 10% KOH solution:
 - a. allows fungi to be stained using the Gram stain
 - b. causes fungi to fluoresce apple green when exposed to UV light
 - c. dissolves background and keratin allowing better visualization of fungi
 - d. dissolves the lipids in the cell wall of the fungi allowing it to react with PAS stain

9. A liver biopsy culture produced a mold colony, white to brown in color with a cottony appearance, appeared on fungal media after 30 days of incubation at room temperature. Microscopically, the colony had hyaline hyphae 1-2 μm in diameter with both micro- and macroconidia. The macroconidia were thick-walled with tuberculate projections. What species of dimorphic fungi is most likely present?
 - a. *C. immitis*
 - b. *P. brasiliensis*
 - c. *H. capsulatum*
 - d. *B. dermatitidis*

10. A direct KOH prep of a sputum revealed large yeast with the typical appearance of *B. dermatitidis*. The sputum was inoculated on to Sabouraud brain heart infusion agar and incubated at room temperature. On the 4th week of culture, growth of a gray-brown colony with a silky appearance was seen. Microscopically, the hyaline hyphae were 1-2 μm in diameter with oval or pyriform conidia borne on long or short conidiophores. What additional testing could be done to support the clinical laboratory scientist's conclusion that the mycelial growth is that of *B. dermatitidis*?
 - a. Subculture to enriched media and incubate at 37 °C to convert to the yeast phase.
 - b. Test growth from the culture with a nucleic acid probe specific for *B. dermatitidis*.
 - c. Perform complement fixation testing on growth from the culture to detect *B. dermatitidis* antigen.
 - d. Either a and b.

Record all answers on the answer sheet. Detach and mail or fax your answer sheet.

Faxed forms only accepted with credit card payment.

Send completed P.A.C.E.[®] evaluation form with payment to ASCLS to:

Sherry Miner
ASCLS PACE Coordinator
720 West Main
Rochester, IL 62563
Fax) 217- 498-2075

ASCLS Continuing Education Answer Sheet

Clinical Lab Investigations: Case set #3 – Blastomycosis



Multiple Choice Questions

Circle the single best answer for each question:

1. A B C D
2. A B C D
3. A B C D
4. A B C D
5. A B C D
6. A B C D
7. A B C D
8. A B C D
9. A B C D
10. A B C D

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Program/Session Title: Clinical Lab Investigations: Case set #3 – Blastomycosis
Date Completed: _____ Program Number: 015-622-08

Use this form to evaluate the above titled session. Circle the number (1-low, 5-high) to indicate your ratings of this program, objectives, and speaker; use one response per line. Please complete this form to fulfill the session requirements.

AUTHOR RATING	Low/Poor	High/Excellent	Not Applicable
To what extent: Did the authors present a knowledgeable, organized and concise case study?	1 2 3 4 5		N/A
Did the authors clarify and focus on the stated objectives?	1 2 3 4 5		N/A
Were the presentation methods & graphic information appropriate & effectively used?	1 2 3 4 5		N/A

OBJECTIVES RATING	Low/Poor	High/Excellent	Not Applicable
To what extent was each objective achieved?			
1. Describe the mode of transmission of <i>B. dermatitidis</i> as well those of other dimorphic fungi.	1 2 3 4 5		N/A
2. Compare various staining methods for identifying fungi in clinical specimens.	1 2 3 4 5		N/A
3. Identify dimorphic fungi (<i>B. dermatitidis</i> , <i>S. schenckii</i> , <i>P. brasiliensis</i> , <i>C. immitis</i> and <i>H. capsulatum</i>) by the microscopic appearance of either its yeast or its mold form.	1 2 3 4 5		N/A

CONTENT RATING	Low/Poor	High/Excellent	Not Applicable
To what extent did the content relate to each case study's objectives?	1 2 3 4 5		N/A
Rate the contribution of reading this case study to your overall knowledge of these subjects.	1 2 3 4 5		N/A
Rate your overall degree of satisfaction with this activity.	1 2 3 4 5		N/A
Rate your level of expertise in these subjects prior to reading this case study.	1 2 3 4 5		N/A
Comments:			

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