Amniotic Fluid Testing for Infection

Send a minimum of 3cc amniotic fluid to Microbiology laboratory for:
1) gram stain (unspun)
2) Mycoplasma/Ureaplasma cultures
3) Aerobic culture
4) Anaerobic culture

AND

Send a minimum of 2cc to Core laboratory for:
5) Cell count

Note: if karyotype/microarray desired; send additional fluid (20cc minimum) in separate containers to Core laboratory for cytogenetics

Positive gram stain

- Presume positive amniotic fluid culture

Negative gram stain

- WBC ≥30 cells/mm³
  - Glucose ≥20 mg/dl
    - Presume negative amniotic fluid culture
  - Glucose <20 mg/dl
    - Presume positive amniotic fluid culture
- WBC <30 cells/mm³
  - Glucose ≥20 mg/dl
    - Presume positive amniotic fluid culture
  - Glucose <20 mg/dl
    - Presume negative amniotic fluid culture

\[
\text{WBC/mm}^3 = \text{Total Nucleated Cells} \times \frac{\text{(% Neutrophils + % Lymphocytes)}}{100}
\]
References


| Diagnostic indices of different amniotic fluid tests in the detection of positive amniotic fluid culture in patients with preterm labor and intact membranes |
|---------------------------------|-----------------|----------------|
| Gram stain                     | 7/11 (63.64%)   | 108/109 (99.08%) |
| IL-6 (≥11.30ng/ml)             | 11/11 (100.0%)  | 90/109 (82.57%)  |
| WBC (≥30cells/mm³)             | 7/11 (63.64%)   | 103/109 (94.50%) |
| Glucose (≤14mg/dl)             | 9/11 (81.82%)   | 89/109 (81.65%)  |
| Gram stain + WBC(≥30cells/mm³) | 10/11 (90.91%)  | 102/109 (93.58%) |
| Gram stain + Glucose (≤14mg/dl) | 10/11 (90.91%)  | 88/109 (80.73%)  |
| Gram stain + IL-6              | 11/11 (100.0%)  | 89/109 (81.65%)  |
| Gram stain + Glucose (≤14mg/dl) + WBC(≥30cells/mm³) | 10/11 (90.91%) | 85/109 (77.98%) |
| Gram stain + WBC(≥30cells/mm³) + IL-6 (≥11.30ng/ml) | 11/11 (100.0%) | 87/109 (79.82%) |
| Gram stain + Glucose (≤14mg/dl) + IL-6 (≥11.30ng/ml) | 11/11 (100.0%) | 78/109 (71.56%) |
| Gram stain + WBC(≥30cells/mm³) + IL-6 (≥11.30ng/ml) + Glucose (≤14mg/dl) | 11/11 (100.0%) | 76/109 (69.72%) |


3. Abdel-Razeq SS, Buhimschi IA, Bahtiyar MO, Rosenberg VA, Dulay AT, Han CS, Werner EF, Thung S, Buhimschi CS. Interpretation of Amniotic Fluid White Blood Cell Count in “Bloody Tap” Amniocentesis in Women with Symptoms of Preterm Labor. Obstet Gynecol 2010; 116:344-54. In the setting of an amniotic fluid sample contaminated with 1,000 RBCs/mm³ or more, WBC count is less accurate indicator of inflammation and infection. In such samples, correction of WBC count enhances diagnostic performance (threshold 123 WBCs/mm³).

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Notification to Users

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina at Chapel Hill School of Medicine. They cannot be reproduced in whole or in part without the expressed written permission of the school.

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