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Amniotic Fluid Testing for Infection

Send a minimum of 3cc amniotic fluid to Microbiology laboratory for:

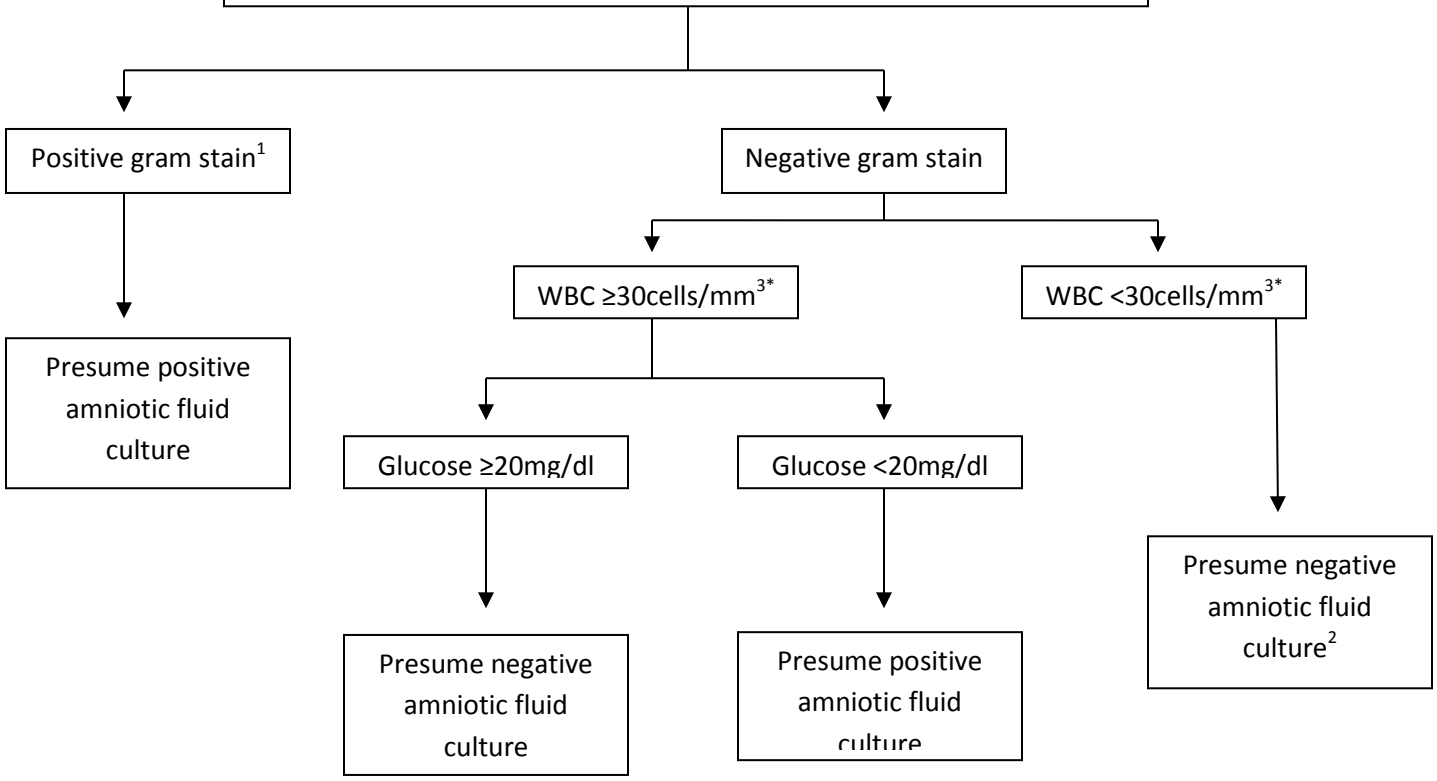
1) gram stain (unspun)
2) Mycoplasma/Ureaplasma cultures
3) Aerobic culture
4) Anaerobic culture

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



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

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References

1. Romero R, Yoon BH, Mazor M, Gomez R, Diamond MP, Kenney JS, et al. The diagnostic and prognostic value of amniotic fluid white blood cell count, glucose, interleukin-6, and Gram stain in patients with preterm labor and intact membranes. **Am J Obstet Gynecol 1993; 169:805-816.** *Amniotic fluid IL-6 determination had the highest sensitivity (100% 11/11) for the detection of a positive amniotic fluid culture, but the Gram stain had the highest specificity (99.1%, 108/109).*

Diagnostic indices of different amniotic fluid tests in the detection of positive amniotic fluid culture in patients with preterm labor and intact membranes		
	Sensitivity	**Specificity**
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/mm^3)	7/11 (63.64%)	103/109 (94.50%)
Glucose (≤14mg/dl)	9/11 (81.82%)	89/109 (81.65%)
Gram stain + WBC(≥30cells/mm^3)	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/mm^3)	10/11 (90.91%)	85/109 (77.98%)
Gram stain + WBC(≥30cells/mm^3) + 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/mm^3) + IL-6 (≥11.30ng/ml) + Glucose (≤14mg/dl)	11/11 (100.0%)	76/109 (69.72%)

2. Romero R, Yoon BH, Mazor M, Gomez R, Gonzalez R, Diamond MP, et al. A comparative study of the diagnostic performance of amniotic fluid glucose, white blood cell count, interleukin-6, and Gram stain in the detection of the microbial invasion in patients with preterm premature rupture of membranes. **Am J Obstet Gynecol 1993, 169:839-51.** *The combined use of the Gram stain and amniotic fluid white cell count determinations (>30/mm^3) showed the highest specificity (77.9%, 53/68)… in the detection of a positive amniotic fluid culture.*

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/mm^3 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/mm^3).*

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