


Table – Abdominal Effusion (Ascites) Evaluation

Test	Abnormal Result	Interpretation and Comments
AFAST® and Abdominal Fluid Scoring		
*AFAST® Negative for Free Fluid	Abdominal Fluid Score (AFS) = 0	*Always Repeat the Exam Post-Resuscitation and Rehydration and Continue as Part of the Physical Exam (Patient Rounds, Recheck Exams)
*AFAST® Positive for Free Fluid	Small Volume Effusion AFS < 3 Large Volume Effusion AFS ≥ 3	
Global FAST® should always be performed to stage the patient as localized versus disseminated disease (TFAST® and Vet BLUE®).		AFAST® Fluid Scoring Allows Tracking of Ascites Static (same AFS) Worsening (increasing AFS) Improving (decreasing AFS) Resolved (AFS=0) Note: Must Sample and Test Fluid when Safely
Biochemical Analysis		
Hemoabdomen – Packed Cell Volume	PCV ≥ 10-25% peripheral PCV	Must spin down sample as PCV as low as 3-5% can appear grossly like blood and in fact it's blood contamination
Septic Peritonitis - Glucose	≥ 20 mg/dL less than the venous Glucose	*Bacteria consume Glucose is a way to remember this test Do AFAST® and fluid score and sample fluid (abdominocentesis) when safely accessible
Lactate	≥ 2mmol/L greater than the venous Lactate	*Bacteria metabolically produce Lactate is a way to remember this test Do AFAST® and fluid score and sample fluid (abdominocentesis) when safely accessible
Uroabdomen - Creatinine	≥ 2:1 Peritoneal to Venous	Blood Urea Nitrogen (BUN) not used because unreliable (small molecule and to freely diffusible)
Potassium	≥ 1.9:1 (Feline) and ≥ 1.4:1 (Canine) Peritoneal to Venous	Do AFAST® and fluid score and sample fluid (abdominocentesis) when safely accessible
Bilioabdomen – Total Bilirubin	≥ 2:1 Peritoneal to Venous	Cytology very helpful Do AFAST® and fluid score and sample fluid (abdominocentesis) when safely accessible
Pancreatitis - Lipase	≥ 4 times the upper reference range OR ≥ 2:1 Peritoneal to Serum	Do AFAST® and fluid score and sample fluid (abdominocentesis) when safely accessible Patients with Pancreatitis can get Pancreatitis-related Pleural Effusion
Others – Total Protein	< 2.5 g/dL – Transudate plus low Cellularity ≥ 2.5 – 5.0 g/dL – Modified Transudate plus low Cellularity > 3.0 g/dL – Exudate (Non-septic, Septic) plus high Cellularity > 3.0 g/dL – Hemorrhagic > 2.5 g/dL – Neoplastic	Transudate – Pre-hepatic Portal Hypertension (lymph from weeping small intestine), Liver Disease, Low Albumin (< 1.6 g/dl), Vasculitis Do Global FAST® for any obvious soft tissue abnormalities. Modified Transudate – Post-hepatic Portal Hypertension (lymph from weeping liver [or less commonly spleen]), Liver Disease, *Right-sided Congestive Heart Failure, Splenic Torsion, Liver Lobe Torsion Do Global FAST® for TFAST® echocardiography views and AFAST®-TFAST® Diaphragmatico-Hepatic View for a distended caudal vena cava and hepatic veins Do Global FAST® for any masses, evidence of comorbidities, that could provide additional helpful information Do Global FAST® for any masses, evidence of comorbidities, that could provide additional helpful information Do Global FAST® for any masses, evidence of comorbidities, determining if localized versus disseminated disease (Global FAST® Staging) that could provide additional helpful information including possible locations for tissue biopsy
Microscopic Evaluation		
Predominant Cell Type	Neutrophils Lymphoblasts Red Blood Cells Small Mature Lymphocytes Sheets of Cells of ≥ 8-16 cells	Consider Inflammatory disease, Non-septic and Septic (when degenerate, engulfed bacteria, fungal organisms), Chronic hemorrhage when engulfed red blood cells Consider Lymphoma Consider Blood Contamination versus True Hemorrhage (run comparative PCVs) Consider Chylous (high Triglycerides) and Pseudo-chylous effusion (high Cholesterol and protein-lectin compounds), both grossly milky white to milky pinkish appearance. Rule of thumb – Chylous is more common and does NOT clear with centrifugation Consider Carcinoma/Neoplasia
Bile Pigment	Gold, green, black-brown, free or engulfed in neutrophils, macrophages	Consider Bile peritonitis
Intracellular Organisms	Intracellular bacteria, fungal organisms Extracellular bacteria, fungal organisms	Consider Septic (bacterial, fungal) peritonitis Consider (bacterial, fungal) contamination from bowel aspirate
*Total Nucleated Cell Count	Mononuclear <1,000/ul – Transudate Mononuclear 1,000-8,000/ul – Modified Transudate Neutrophils >3,000/ul – Non-septic Exudate Neutrophils >3,000/ul – Septic Exudate Similar to Blood with Variable Counts – Hemorrhagic Tumor Cells with Variable Counts - Neoplasia	*Combine findings of Cytology with Biochemical analysis
*Cytology has been estimated to vary between 60-80% sensitive for the presence of bacterial septic peritonitis, combine with Glucose and Lactate testing.		
References: Alleman AR, Abdominal, thoracic, and pericardial effusions. The Veterinary Clinics Small Animal Practice 33(2003): 89-118.		
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