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VETERINARY VOICE:
Tips of the Trade

Critical Care - Abdominocentesis

When is abdominocentesis indicated and what equipment is needed?

Abdominocentesis should be performed when abdominal effusion, hemoabdomen, gastrointestinal perforation, urinary tract rupture, or pancreatitis is suspected.

Equipment: 20 – 22ga 1½ inch needles, 16 – 20ga 2 inch over-the-needle catheter, sterile EDTA (purple top) and serum (red top) tubes, glass slides, 3 to 6ml luer tip syringe, clippers and blades for surgical prep, surgical scrub, sterile surgical gloves.

What is the technique?

Place patient in lateral recumbency. Clip and aseptically prepare an area 4 inches in each direction around the umbilicus.
Gently insert the needle, without syringe attached, through the abdominal wall near the umbilicus, watching for fluid within the hub. Twisting the needle may help liberate fluid into the needle's hub. Collect any fluid that flows freely and save for cytological, biochemical analyses, bacterial culture and susceptibility, and fluid smears. If no fluid is obtained, attach a 3 to 6mL syringe and apply GENTLE negative pressure.
If no fluid is obtained, perform a four-quadrant abdominocentesis. Utilizing umbilicus as the center point, insert needle into the dependent cranial quadrant, nondependent cranial quadrant, dependent caudal quadrant, and nondependent caudal quadrant. After insertion of each needle, look for fluid, then attach syringe for gentle negative pressure if fluid does not flow freely. Any positive tap in any quadrant completes the procedure. Placing needles in more than one place at a time provides an air vent that may allow fluid to flow.
Other methods include use of a fenestrated over-the-needle catheter (use 10 blade with sterile technique, do not fenestrate > 50% catheter diameter). If the centesis is still negative, a diagnostic peritoneal lavage is the next step. Ultrasound is an excellent tool for confirming presence of abdominal fluid and can guide the needle into fluid pockets under direct visualization without damaging any vital organs.

How should the fluid be analyzed?

Compare fluid to blood:

- Non-clotting hemorrhagic fluid (in a red top tube), suspect hemorrhage. A PCV/TS ≥ peripheral blood confirms acute hemorrhage
- Fluid with creatinine and potassium greater than serum levels confirms urinary tract rupture (BUN is less sensitive as it equilibrates with the blood more rapidly than creatinine)
- Fluid with amylase or lipase increases suspicion for pancreatitis, especially if greater than that of the serum
- Fluid with total bilirubin greater than that of serum value confirms hepatobiliary or proximal gastrointestinal tract rupture
- For all effusions, perform (or send to laboratory for) total protein, total cell count/analysis and determine whether effusion is pure transudate (<1500 cells/µL, protein <2.5 g/dL), modified transudate (1000-7000 cells/µL, protein 2.5-7.5 g/dL), or exudate (>5000 cells/µL, protein >3.0 g/dL). Determining the difference is important to determine cause of patient's condition

Questions?

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The Veterinary Specialty Center of Tucson has a board-certified criticalist caring for critical cases every day of the week. They are also available to answer questions or accept referrals 7 days a week. The critical care service is open 24 hours a day and is staffed by highly trained doctors and technicians at all times. Board-certified criticalists have four additional years of training after veterinary school and are certified by the American College of Veterinary Emergency and Critical Care to assure competency in advanced veterinary critical care.