ABDOMINOCECTESIS AND DIAGNOSTIC PERITONEAL LAVAGE
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Abdominocentesis (a.k.a. abdominal paracentesis) and/or diagnostic peritoneal lavage (DPL) should be performed whenever there is suspicion of abdominal fluid. Both are sensitive tests to evaluate for the presence of hemo- or uroabdomen, various forms of peritonitis, neoplasia, pancreatitis, chyloabdomen, or cardiac disease.

ABDOMINOCECTESIS

Indications for Abdominocentesis
Abdominocentesis is indicated whenever you suspect abdominal fluid, or have an animal with acute abdominal pain, unidentified cause of fever or clinical signs of shock. Blind percutaneous abdominocentesis is sensitive when peritoneal fluid volumes are greater than 6 – 20 ml/kg. Single- or four-quadrant abdominocentesis may yield false negative results if the peritoneal fluid volume is less than 6 ml/kg, or if the fluid is pocketed around organs or in the mesentery. False positive results can occur due to penetration of abdominal organs such as the liver or spleen. A general rule of thumb is to monitor any fluid obtained for clotting. Because blood defibrinates quickly, clotting blood is often associated with iatrogenic penetration of the liver or spleen, and not abdominal hemorrhage unless massive ongoing hemorrhage is present. The use of abdominal ultrasound can aid in identifying pockets of fluid in the abdominal cavity.

Risks and Contraindications for Abdominocentesis
Abdominocentesis should not be performed in any animal with suspected pyometra, due to the risk of causing uterine rupture and peritonitis. Abdominocentesis is generally a safe technique and can be performed in most animals without sedation. Potential risks and complications are few and rare, but include iatrogenic vascular damage (hemoperitoneum), iatrogenic penetration of a hollow viscus (peritonitis), spread of infection, and pneumoperitoneum. Abdominocentesis can cause an iatrogenic pneumoperitoneum. Therefore, it is best to always obtain abdominal radiographs prior to performing abdominocentesis. The presence of pneumoperitoneum is an indication for surgery. If abdominocentesis was performed prior to taking abdominal radiographs, it is impossible to determine whether the pneumoperitoneum was caused by your procedure, or was caused by trauma or other underlying disease process that requires surgical intervention.

Technique for Abdominocentesis
To perform abdominocentesis, first, assemble the necessary equipment: clippers, antimicrobial scrub solution, 22 gauge needles, 3 and 6 ml syringes, Port-a-cul for culture, red- and lavender topped tubes for fluid collection, and latex gloves. Next, position the animal in lateral or ventral recumbency (if the animal is able to stand). Clip and aseptically scrub the ventral abdomen with antimicrobial scrub solution. Identify the animal’s umbilicus. Gently but briskly, insert the 22 gauge needle with a twisting motion...
cranial and to the right-, cranial to the left-, caudal to the right, and caudal and to the left of the animal’s umbilicus. If fluid flows freely at any point, it is not necessary to continue insertion of additional needles. In some cases, fluid will not flow freely until a second needle has been inserted into the abdomen, or until gentle suction is placed on the needle with a 3- or 6-ml syringe. Once fluid has been obtained, it can be analyzed for cellularity, protein content, chemical analyses, and bacterial organisms. Several studies have demonstrated that comparison of lactate and glucose from abdominal effusion is a sensitive means of identifying bacterial peritonitis, even in the absence of visible bacterial organisms. Comparison of abdominal fluid creatinine and potassium also is helpful in making a diagnosis of uroabdomen.

DIAGNOSTIC PERITONEAL LAVAGE (DPL)

Indications for Diagnostic Peritoneal Lavage

Diagnostic peritoneal lavage is a useful technique when blind percutaneous or ultrasound-guided abdominocentesis has not yielded fluid or results. Diagnostic peritoneal lavage should be considered in animals with clinical signs of acute abdominal pain, persistent fever of unknown origin, blunt or penetrating abdominal trauma, local peritonitis, and persistent negative taps with abdominocentesis.

Technique for Diagnostic Peritoneal Lavage

Over-the-wire (Seldinger) diagnostic peritoneal lavage kits are available from a variety of veterinary and human manufacturers. Alternately, most veterinary hospitals have the supplies necessary to perform simple DPL at the patient’s cage-side. The supplies required include a number 15 or 11 scalpel blade, 2% lidocaine, over-the-needle catheter (18 or 20 gauge works well), a bag of sterile Lactated Ringer’s solution or 0.9% saline warmed to body temperature, IV fluid set, 22 gauge needles, 3 – 5 ml syringes, sterile gloves, clippers, antimicrobial scrub solution, red- and lavender-topped tubes for fluid collection, and Port-a-cul for bacterial culture and susceptibility testing.

To perform a DPL, place the animal in lateral recumbency. Ideally, empty the animal’s bladder by voiding or urethral catheterization to prevent percutaneous insertion of the catheter into the animal’s urinary bladder. Clip and aseptically scrub the animal’s ventral abdomen. Wearing sterile gloves, place side-ports or fenestrations in the over-the-needle catheter using a number 11 scalpel blade. Take care to not cut more than 50% of the circumference of the catheter, or the catheter can potentially break off within the animal’s abdomen. Place a small amount of lidocaine caudal and to the left of the umbilicus, through to the peritoneal cavity. Make a small nick incision through the skin, to prevent catheter drag as it goes through the skin. Gently insert the over-the-needle catheter caudal and to the left of the umbilicus. Attach the intravenous fluid bag and extension set to the catheter, and infuse 10 – 20 ml/kg of fluid into the abdominal cavity. Watch carefully for signs of overdistension, pain or respiratory distress. If this occurs, stop fluid infusion. Once the volume has been infused into the peritoneal cavity, walk the patient around, if they are able, or gently rock the animal from side to side to distribute the fluid evenly throughout the abdomen. Perform an abdominocentesis as
described above. You will only be able to retrieve a very small volume (sometimes only 1 ml) of the fluid that you infused. Evaluate the fluid for cellularity and the presence of bacterial organisms. The fluid will dilute chemical tests, and therefore, biochemical analyses will largely be inaccurate using this technique.

References:
Available upon request.