Canadian Journal of Rural Medicine | Journal canadien de la médecine rurale

Winter 1996/97 Contents • Hiver 1996/97 Table des matières

The occasional paracentesis

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Can J Rural Med 1997; 2 (1): 23-25

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Abstract

Paracentesis is the draining of large amounts of unwanted fluid from the abdominal cavity. The less common, but sometimes essential, peritoneal lavage is the instillation of liquid into the abdominal cavity, the retrieval of that liquid and its subsequent analysis to disclose free blood, intestinal contents or pus in the abdomen.

Rural physicians are sometimes called upon to drain an abdomen, usually for such conditions as ascites secondary to cirrhosis or metastatic liver disease. Although there are many methods to accomplish abdominal drainage, the use of a kit that can double for occasional peritoneal lavage carries distinct advantages, particularly for the maintenance of skills.

In cases of trauma, CT scanning of the abdomen has replaced peritoneal lavage as a diagnostic tool in many tertiary care centres, but rural hospitals do not have this luxury. Furthermore, many trauma centres still perform peritoneal lavage in cases of suspected intra-abdominal bleeding before requesting the CT scan because of the very real possibility that a patient with undiagnosed bleeding could go into shock in the CT room. If physicians in tertiary care centres worry about transport within the building, then those in rural hospitals should be very concerned about transport times and what might happen during a transfer.

Peritoneal lavage can be used in a variety of situations by rural doctors who are not going to "scoop and run" with their trauma patients, even if transport times are short. Peritoneal lavage takes so little time that it can even be performed before transport to give valuable information on potential problems that might occur during the transfer, such as shock.

Paracentesis can be done safely in any rural hospital. This article outlines the method that we use at our hospital, a method that can also be used for peritoneal lavage.

Materials

We use the Arrow peritoneal lavage kit*, which comes with all the necessary materials, including lidocaine, povidone-iodine and drapes.

*Available from Arrow Medical Products Ltd., 150 Brittannia Rd. E, Unit 20, Mississauga ON L4Z 1S6; tel. 800 387-7819 or 905 890-0173.

Procedure

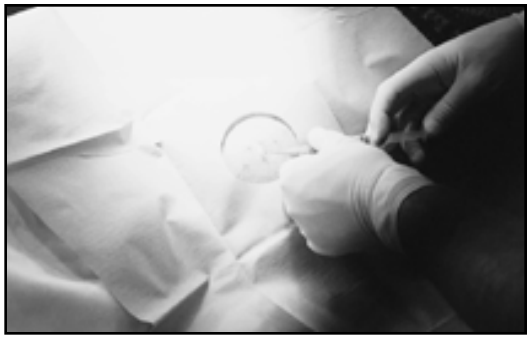
The patient should be supine and free of large, tense, dilated loops of bowel (as in obstruction). For trauma patients who undergo peritoneal lavage, a Foley catheter and a nasogastric tube should be inserted. Neither paracentesis nor peritoneal lavage is recommended for pregnant patients.

In paracentesis, as illustrated in this article, the incision can be made lateral to the rectus muscles, so as to avoid the hypogastric artery. In peritoneal lavage the puncture point should be at the midline, midway between the umbilicus and the symphysis pubis. For both procedures, it is best to avoid areas around previous abdominal incisions, where bowel might be adherent to the abdominal wall.

Step 1

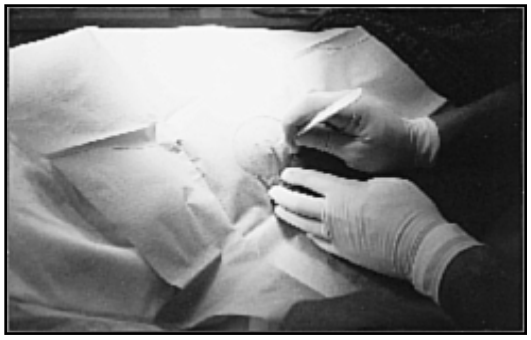
Shave, prep and drape the patient using the materials in the kit.

Step 2



Infiltrate the area liberally with the lidocaine, using the materials in the kit.

Step 3

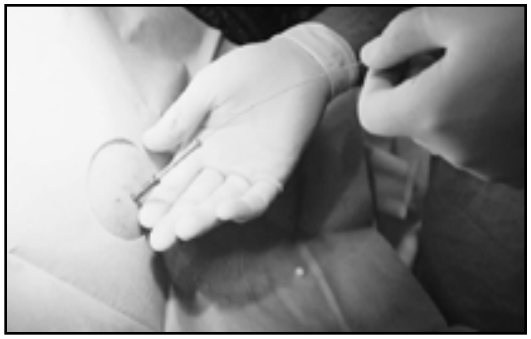


Using the scalpel, make a small incision through the skin and the subcutaneous tissue.

Step 4

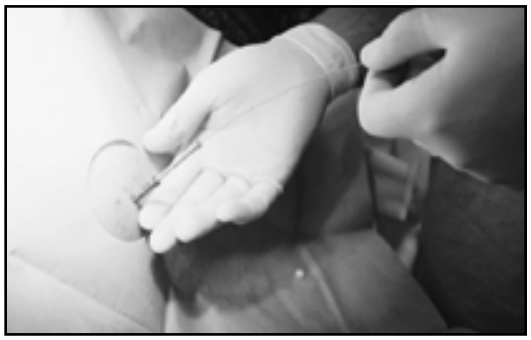
Puncture the abdominal cavity (the peritoneum will give a distinct "pop"), with either the atraumatic needle or the catheter and needle provided. A syringe (not illustrated) can be used to perform aspiration (to ensure that the needle is in the peritoneal cavity).

Step 5



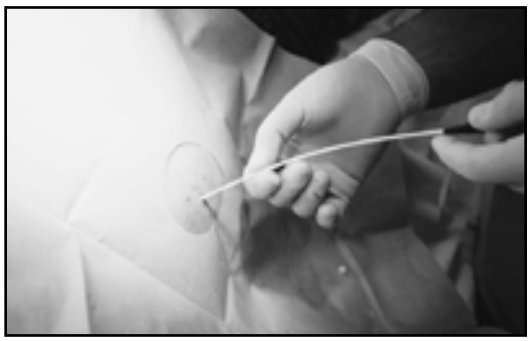
Insert the spring wire guide through the needle or catheter. The blue plastic tube serves to straighten the "J" tip of the wire. The wire should advance freely into the abdominal cavity.

Step 6



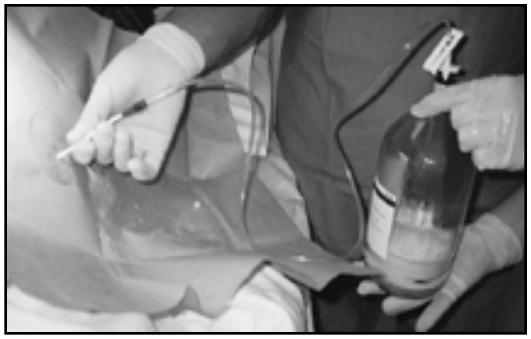
Remove the needle or catheter over the wire, leaving the wire in place within the abdomen. Thread the 8 French catheter, which has multiple distal perforations, over the wire.

Step 7



With a twisting motion, insert the 8 French catheter into the abdominal cavity, holding back sufficient wire at the hub end of the catheter to maintain a firm grip on the wire.

Step 8



Insert the 8 French catheter so that all of the distal perforations are within the abdomen. Remove the wire and, for paracentesis, connect the catheter to a drainage system. Even a sterile basin will do. At the end of the procedure, simply remove the catheter and dress the wound.

Peritoneal lavage can be accomplished in the same manner, usually through a midline incision. For patients undergoing lavage, a Foley catheter and a nasogastric tube should be inserted. Instill 1 L of Ringer's lactate or normal saline into the cavity (unless the aspirate was grossly bloody, which in itself represents a positive tap). Then place the now-empty IV bag or bottle below the patient to facilitate drainage. The results of lavage are considered positive if it is impossible to read newsprint through the tubing for the returning fluid, if pus or intestinal contents are present, or if the erythrocyte count is greater than 100 000/mL.

Conclusions

This method is a simple, quick technique for draining fluid from the abdomen or for documenting internal abdominal bleeding. It should increase the comfort of certain ascitic patients, improve diagnosis in certain trauma patients and boost the confidence of certain rural doctors.