

FAST FACTS AND CONCEPTS #308
TUNNELED INDWELLING CATHETERS FOR MALIGNANT ASCITES
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Background Malignant ascites can develop in almost half of patients with certain cancers and may portend a survival of one to four months (1,2). When ascites recurs after a large volume paracentesis (LVP), physical symptoms along with the need for travel to an office for repeat procedures, can carry significant burden (3). Tunneled indwelling peritoneal catheters are an alternative, permanent drainage system that allows patients to control symptoms in the home setting. This *Fast Fact* will review the use of tunneled indwelling catheters, including indications, use, and associated risks. See *Fast Facts* 176 and 177 for further information on the diagnostic and treatment approaches for malignant ascites.

Indication As of 2015, the FDA has approved multiple tunneled indwelling catheter systems, such as PleurX®, Asept®, and Aspira®, for the management of malignant ascites requiring frequent therapeutic LVPs (4). Timing of placement for malignant ascites is empiric; though usually it is considered after a patient has had at least two prior LVPs (2,4). Placement may also be considered in patients for whom disease burden makes frequent clinic visits difficult, and when post-procedural symptoms, such as discomfort, fatigue, and dizziness, are troublesome (3,4). The same considerations are relevant for non-malignant ascites; however, due to survival and infection concerns many clinicians limit the off-label use for non-malignant ascites to patients with an anticipated survival of less than two months. Due to the cost of the initial procedure, catheter placement is often performed prior to hospice enrollment.

Contraindications Single or multifocal loculated pockets of ascites, peritonitis, and non-correctable coagulopathy (4). While the literature does not have set guidelines for platelet counts or safe INR levels, some experts caution against catheter placement with INR levels greater than 2.

Complications If obstruction or accidental removal occurs, replacement of a new catheter can be pursued (4,5). Insertion site erythema, bacterial peritonitis, and exudative drainage have been documented; associated superficial infections are often manageable with oral antibiotics (2,4). Recent studies have shown much lower complication rates with the tunneled indwelling catheters, with 0.12 events per 100 catheter-days, compared with non-tunneled catheter systems. Consequently, the use of non-tunneled catheter systems for malignant ascites is essentially archaic (3). Overall rate of procedural complications, including immediate and delayed infections, are similar to repeat LVPs (6).

Use Using radiographic guidance, a single cuff, 15.5 French silastic catheter is tunneled under the skin into the peritoneum (1). This is usually performed as an outpatient procedure by an Interventional Radiology clinician (2). Technical success rates for placement are near 100%. Catheters usually remain in place until death; a recent study found a mean length of retention of 113 days (4). Patients and their families can be trained to perform drainage at home or use home health staff (5). Most systems utilize low-vacuum drainage bottles or bags; other alternatives are wall or portable suction, or water seal. The one-way valve is opened with sterile technique and up to two liters can be drained daily (2). The drainage valve is closed when flow slows to a trickle, and fluid is disposed of in the toilet. During use, transient pain and cough may be experienced. Once completed, the catheter is coiled against the skin, and a cover dressing is replaced (2). Drainage frequency is determined by the rate of ascites recurrence and patient's symptoms, with some patients requiring daily drainage (1). Using a protective dressing, patients can shower; however product information recommends against bathing. If wet, the catheter should be dried immediately, and the dressing replaced. If required, sterile samples of peritoneal fluid can be drawn directly from the catheter (7).

Cost According to Medicare's 2015 Ambulatory Payment Classifications, including imaging guidance and equipment, the initial outpatient placement of a tunneled indwelling catheter can cost five to seven times that of a LVP. Even considering the cost of drainage containers plus placement cost, tunneled indwelling catheters can have a potential financial benefit over LVPs in as early as a week (8).

Conclusion Peritoneal indwelling tunneled catheters are safe and effective for the management of refractory malignant ascites. Patient satisfaction has been quite high, with a relatively low complication rate (5).

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