Original Article

Indwelling Catheters for the Management of Refractory Malignant Ascites: A Systematic Literature Overview and Retrospective Chart Review

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Abstract

*The safety and efficacy of indwelling intraperitoneal (IP) catheters for the management of refractory malignant ascites is unclear. A systematic literature overview and retrospective chart review of patients with malignant refractory ascites who underwent indwelling IP catheter placement was performed. Standardized literature abstraction and chart review templates were used to ensure that consistent information was collected. Fifteen publications met literature search criteria, representing 221 patients. Tenckhoff® (Quinton Instrument Company, Seattle, WA, USA), Pleurex® (Denver Biomedical Inc., Golden, CO, USA), and peritoneal catheters were used, along with IP ports. A median 5.9% of cases (range: 2.5%–34%) had documented peritonitis. In the literature, untunneled catheters were most commonly associated with infections. Our chart review added 19 cases from two academic institutions to this literature (median age: 60 years [range: 31–85]; females: 17 [89%]; gynecological malignancies: 14 [73%]). Palliative management before catheter placement included diuretics (*n *= 4 [21%]) and multiple paracenteses (*n *= 11 [58%] had two or more taps [range: 2–8]). Median time from diagnosis to catheter placement was 25 months (range: 1–77). Interventions were: French pigtail catheters (*n *= 16 [84%]), Tenckhoff catheter (*n *= 1 [5%]), and Port-A-Caths® (Smith Medical MD, St. Paul, MN, USA) (*n *= 2; 11%). Four (21%) catheters were tunneled. Prophylactic antibiotics were prescribed in six cases (32%). Two cases (11%) had documented infections, seven catheters (37%) became occluded, and two leaked (11%). The median time from catheter until death was 36 days (range: 4–660). Nine patients (47%) were admitted to hospice. In these retrospective studies, indwelling IP catheters appear to be a safe and effective palliative strategy to manage refractory malignant ascites, without overwhelming infection rates.* J Pain Symptom Manage 2009;38:341–349. © *2009 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.*

Key Words

Neoplasms (MeSH), quality of life (MeSH), data collection (MeSH), information systems (MeSH), patient care monitor

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Introduction

Refractory ascites, also known as intractable or resistant ascites, has been defined in ovarian cancer clinic trials as ascites of at least 500 mL when disease recurs or the presence of persistent malignant ascites during conventional first-line therapies.[1] It can result from malignant and nonmalignant diseases; common neoplastic etiologies include ovarian, endometrial, gastrointestinal, breast, and lung cancers.[2] Refractory ascites can cause significant symptoms, such as orthopnea, dyspnea, abdominal discomfort, anorexia, nausea, vomiting, and difficulty ambulating, and can severely impact the quality of life.[3] Quality of life may be further impaired by the negative body image related to the physical qualities of a protuberant abdomen, poor coloring, and cachexia. As death approaches, symptoms worsen, and refractory ascites can dramatically exacerbate the multiple symptoms that patients with terminal malignancies experience.

Currently, there is no standardized protocol for the palliative treatment of patients with rapidly accumulating ascites. Options chosen more often reflect local clinician preferences and procedural availability than patient preference. Outside the treatment for the primary disease, strategies include dietary restriction, diuretics, repeated large-volume paracenteses, peritoneovenous shunts, transjugular intrahepatic portosystemic shunt (TIPS), implantable abdominal drains, and permanent indwelling peritoneal access devices.[4] Peritoneovenous shunts and TIPS, common interventions for nonmalignant refractory ascites, are not commonly used in the setting of cancer.

Aggressive medical management with diuretic therapy and dietary modification are important first-line interventions whenever possible, but have a limited role, especially in refractory cancer.[5] The serum-ascites albumin gradient (SAAG) has been proved in prospective studies to categorize ascites better than total protein-based criteria. Calculating the SAAG involves measuring the albumin concentration of serum and ascitic fluid obtained on the same day and subtracting the ascitic value from the serum value. If the SAAG is greater than or equal to 1.1 g/dL, the patient has portal hypertension.[6] Patients with low SAAG ascites, such as that with peritoneal carcinomatosis, usually do not respond to salt restriction or diuretics. In contrast, patients with high SAAG ascites are usually responsive to these measures. However, in some cases, such as massive hepatic metastases, portal hypertension may develop and may be diuretic responsive.[7]

Repeated paracenteses is the most common palliative treatment; however, with the rapid reaccumulation of ascites, repeated drainage subjects the patients to frequent trips to the hospital, and small, but well-defined risks of infection, bleeding, bowel perforation, peritonitis, and hypotension.[8] In many palliative care settings, these repeated paracenteses are elected over indwelling devices.[9] This may reflect local preference, funding constraints limiting access to indwelling catheters, local availability, and limited knowledge regarding the optimal management of refractory ascites. There is also the common palliative practice of avoiding interventions at the end of life.

Given that there is no standardized approach for the palliative treatment of patients with refractory ascites and the paucity of data regarding indwelling intraperitoneal (IP) catheters, we conducted a systematic literature overview and retrospective chart review of patients who had had indwelling IP catheters placed for the management of refractory ascites to describe the historical landscape in terms of the type of procedure and the catheters used, as well as clinical outcomes and complications.

Materials and Methods

Literature Search

The intent of the literature review was to summarize the available published information. This was not a formal systematic review or meta-analysis, as we did not expect there to be an adequate number of high-quality studies to warrant such an approach. Instead, we chose to conduct a systematic literature overview, with explicit criteria for article selection and abstraction.[10]

MEDLINE by means of the Ovid platform and PubMed was searched from 1966 to the first week of April 2008 using key words (Tables 1 and 2). At the abstract screening stage, all identified citations were reviewed and screened against three exclusion criteria:

1. Study subject(s) did not have refractory ascites because of malignancy.