



Case Report

Fibrinolysis in the management of malignant ascites and nonfunctioning intraperitoneal tunneled catheters



Nicholas Lawrance,¹ Nabil Kibriya,² Damian Mullan,^{2,*} Hans-Ulrich Laasch²

ABSTRACT

The use of tunneled semipermanent intraperitoneal catheters is becoming increasingly widespread in the management of intractable malignant ascites. There is a lack of published data on the successful management of complications of these catheters in cases of malignant ascites. The current study reports four cases of nonfunctioning catheters due to fibrin blockage or ascitic loculation, all of which were successfully treated with intraperitoneal fibrinolysis with streptokinase.

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Introduction

Malignant ascites is a common condition in patients exhibiting an intraperitoneal tumor spread. It is a frequent cause of morbidity, causing intractable nausea, anorexia, dyspnea, and painful abdominal distension, all of which markedly reduce a patient's quality of life. Traditionally this has required repeated inpatient admissions with temporary intraperitoneal catheter placement.

Tunneled semipermanent intraperitoneal catheters have now gained acceptance as the primary method for long-term paracentesis, allowing out of hospital management. Literature reviews have demonstrated it to be a safe and effective technique with a similar or lower complication profile to standard large volume nontunneled paracentesis. Tunneled catheter malfunction due to fibrin formation, ascitic loculation, and peritonitis appear uncommon in the setting of malignant ascites.¹ In a large, single-center study, 170 patients had tunneled intraperitoneal catheter placement for malignant ascites. The dwell time ranged between 0 and 796 days (mean 60 days) with five occlusions/tube malfunctions.²

Tube malfunction is a well-recognized complication in similarly designed long-term tunneled catheters inserted for continuous ambulatory peritoneal dialysis (CAPD), eventually occurring in up to 65% of cases, and has recognized management strategies.³ No standardized protocol exists for the management of catheter malfunction in respect to malignant ascites and long-term tunneled catheters. This study reports the experience of four cases of catheter blockage and ascitic loculation, successfully treated with intraperitoneal streptokinase administered via 15.5F tunneled

intraperitoneal PleurX (UK Medical Ltd, Sheffield, UK) catheters, and suggests a management strategy for malfunctioning catheters.

Case reports

Case 1

A 34-year-old male with Stage IV gastric adenocarcinoma and recurrent malignant ascites presented with a nonfunctioning tunneled catheter 9 weeks post insertion. Initial ultrasound showed a large volume densely loculated ascites (Fig. 1A). A tubogram showed a patent catheter lumen with reduced dispersal beyond the side holes in keeping with the ascitic loculation. In an attempt to salvage the catheter without requiring removal, fibrinolysis with 250,000 IU of streptokinase was delivered once daily for a total of 5 days via the tunneled catheter. Follow-up ultrasound on Day 2 showed a reduction in ascites with a functioning catheter permitting drainage of ascites. Sequential daily ultrasounds demonstrated almost complete resolution of the loculated ascites by Day 5 (Fig. 1B). No adverse events were reported following intraperitoneal fibrinolysis and the patient had successful palliation of ascites at home until death 3 weeks later.

Case 2

A 59-year-old male with Stage IV renal cell carcinoma presented with a nonfunctioning catheter 10 weeks post insertion. Ultrasound showed a large volume of loculated ascites, and a tubogram

¹ The University of Sheffield, The Medical School, Beech Hill Rd, Sheffield, South Yorkshire S10 2RX, UK

² The Christie NHS Foundation Trust, Wilmslow Road, Withington, Manchester, M20 4BX, UK

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* Corresponding author. The Christie NHS Foundation Trust, Wilmslow Road, Withington, Manchester, M20 4BX, UK.

E-mail address: Damian.mullan@christie.nhs.uk (D. Mullan).

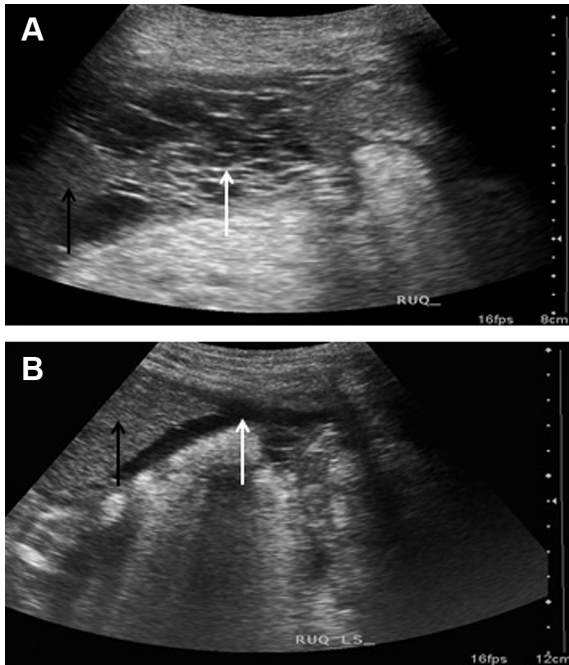


Fig. 1. (A) Longitudinal ultrasound scan through the right upper quadrant demonstrating dense loculated ascites with a honeycomb appearance (white arrow) and inferior liver (black arrow). (B) Longitudinal scan of the right upper quadrant on Day 5 on fibrinolysis showing liver (black arrow) and minimal residual ascites (white arrow).

demonstrated a reduced luminal caliber with poor dispersal of contrast beyond the fenestrated side holes suggesting catheter occlusion (Fig. 2A). An attempt to recanalize the catheter with a stiff 0.035 inch guide wire was unsuccessful, and it was felt that intraperitoneal fibrinolysis might not be deliverable through the occluded catheter lumen. This prompted catheter removal, confirming a fibrin plug causing the occlusion (Fig. 2B). A new tunneled catheter was inserted allowing fibrinolysis to be delivered once daily for 5 days. Follow-up ultrasound studies showed decreasing loculation with successive daily fibrinolysis. A tubogram on Day 5 showed free dispersal of contrast between bowel loops in the pelvis. The catheter had spontaneously repositioned in the lower abdomen (Fig. 2C) suggesting dissolution of the loculation. Free drainage of ascites to resolution, was confirmed with same-day ultrasound. The patient had uneventful and successful drainage of ascites at home, until death 7 weeks later.

Case 3

A 55-year-old female with Stage IV breast carcinoma presented with a nonfunctioning tunneled catheter 11 weeks post insertion. An ultrasound study demonstrated densely loculated ascites throughout the abdomen and pelvis (Fig. 3A). A same-day computed tomography (CT) scan underestimated the extent of ascitic loculation but showed no evidence of catheter kink, migration, or misplacement. A subsequent tubogram demonstrated an obvious catheter lumen with poor dispersal around the catheter tip, again in keeping with ascitic loculation. As the lumen was evident on the tubogram study, the catheter was not removed on this occasion and fibrinolysis was delivered once daily for 5 days. An ultrasound performed on Day 2 of fibrinolytic therapy showed markedly reduced loculation with a clinically functioning catheter (Fig. 3B). Ultrasound examination on Day 5 of therapy demonstrated further radiological improvement with complete resolution

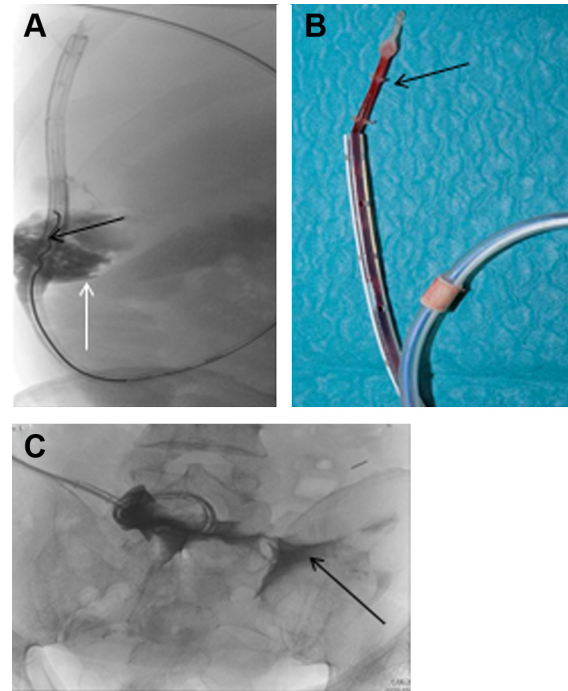


Fig. 2. (A) Tubogram showing an occluded distal lumen. A stiff 0.035 inch guidewire has buckled within a fibrin plug during attempted recanalisation (black arrow). Poor dispersal of contrast beyond the catheter side holes (white arrow) is in keeping with loculation. (B) Removal of the PleurX catheter shows a fibrin plug occluding the lumen (black arrow). (C) Post fibrinolysis tubogram shows a mobile catheter with free dispersal of contrast amongst bowel loops (black arrow) in keeping with the dissolution of loculation.

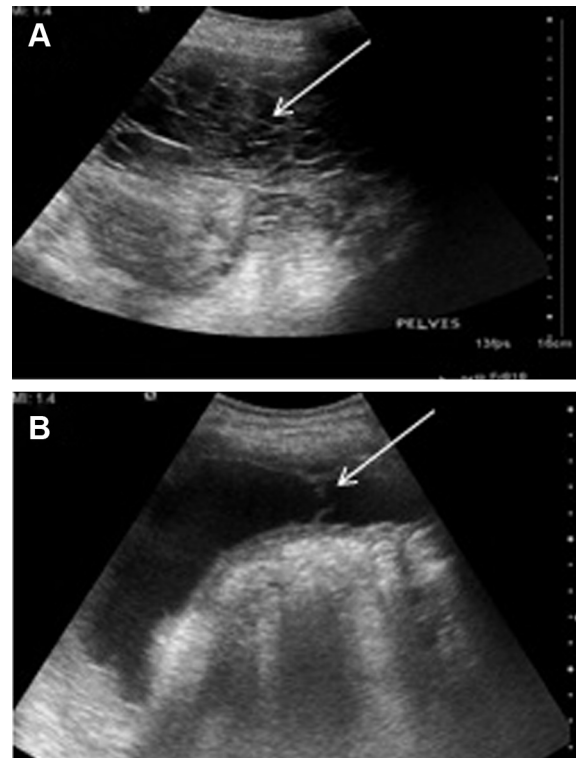


Fig. 3. (A) Transverse ultrasound image of the pelvis showing a honeycomb appearance (white arrow) indicating densely loculated ascites. (B) Transverse ultrasound image of the pelvis on the second day of fibrinolysis showing markedly reduced loculation with some residual fibrin stranding in the midline (white arrow).

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