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Case report

Step-up approach and video assisted retroperitoneal debridement in infected necrotizing pancreatitis: A case complicated by retroperitoneal bleeding and colonic fistula

Eugene Lim [a, *], R.S. Sundaraamoorthy [a], David Tan [b], Hui-Seong Teh [c], Tzu-Jen Tan [a], Anton Cheng [a]

[a] Department of Surgery, Khoo Teck Puat Hospital, 90 Yishun Central, Singapore 768828, Singapore
[b] Department of Anaesthesia, Khoo Teck Puat Hospital, 90 Yishun Central, Singapore 768828, Singapore
[c] Department of Radiology, Khoo Teck Puat Hospital, 90 Yishun Central, Singapore 768828, Singapore

HIGHLIGHTS

- Step-up approach consists of the 3 D's: Delay, Drain, Debride.
- VARD is generalizable in most surgical units using standard laparoscopic equipment.
- Defunctioning ileostomy diverts faecal stream and controls sepsis in colon fistula.
- Endoscopic clips and histoacryl glue may help to treat colo-cutaneous fistulas.

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ABSTRACT

Introduction: Infected Necrotizing Pancreatitis carries a high mortality and necessitates intervention to achieve sepsis control. The surgical strategy for proven infected necrosis has evolved, with abandonment of open necrosectomy to a step-up approach consisting of percutaneous drains and Video-assisted retroperitoneal debridement (VARD). We present a case that underwent VARD complicated by bleeding and colonic perforation and describe its management.

Presentation of case: A 38 year-old male with acute pancreatitis developed infected necrotizing pancreatitis. Initial treatment was by percutaneous drainage under radiological guidance and intravenous antibiotics. The infected retroperitoneal necrosis was then debrided using gasless laparoscopy through a mini-incision. Post-operatively, he developed peripancreatic bleeding which was controlled with angioembolisation. He also developed a descending colon fistula which was treated with laparotomy and defunctioning loop ileostomy. He recovered and subsequently had his ileostomy closed twelve months later. The colonic fistula recurred and was treated with endoscopic clips and histoacryl glue injection and finally closed.

Discussion: Step-up approach consists of the 3 D's: Delay, drain and debride. VARD is recommended as it is replicable in general surgical units using standard laparoscopic instruments. Bleeding and colon perforation are potential complications which must have multi-disciplinary input, aggressive resuscitation and timely radiologic intervention. Defunctioning ileostomy is recommended to control sepsis in colonic fistulation. Novel fistula closing methods using endoscopic clips and histoacryl glue are potential treatment options.

Conclusion: Step-up approach and VARD is the new paradigm to treat necrotizing pancreatitis. Complications of bleeding and colon fistula are uncommon and require multi-disciplinary management.

1. Introduction

Necrotizing Pancreatitis carries a high mortality rate of 15%. When necrotizing pancreatitis gets infected the mortality rate rises

* Corresponding author.
E-mail address: limkw2@yahoo.com (E. Lim).

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to 39% [1], this necessitates intervention to achieve sepsis control. The surgical strategy for necrotizing pancreatitis has been evolving, with traditional open necrosectomy largely abandoned for the Step-up approach and minimally invasive necrosectomy [2]. We present our experience of a case of infected necrotizing pancreatitis treated with the Step-Up approach and Video-assisted Retroperitoneal Debridement (VARD) and discuss the management of subsequent retroperitoneal bleeding and colonic fistula.

2. Presentation of case

A 38 year-old man was admitted for acute pancreatitis secondary to alcohol and hypertriglyceridemia. He had a past history of essential hypertension not treated with medications. He presented with generalized abdominal pain without radiation for one day. He had stable vital signs and abdominal examination revealed tenderness in the epigastrium. His serum amylase was 436 U/L (normal < 100 U/L) and Lipase 1400 U/L (normal 5–50 U/L). Glasgow score was 2 on admission for leukocytosis and hypocalcaemia, CRP was 60.4 mg/L and Triglyceride level of 11.77 mmol/L. Abdominal contrast-enhanced computed tomography (CECT) scan showed diffuse enlargement of the pancreas and peripancreatic fluid without areas of non-enhancement. He was given targeted fluid resuscitation with crystalloids to achieve a urine output of 0.5 ml/kg/h. Subsequently, he was started on total parenteral nutrition as enteral feeding via nasogastric tube failed because of vomiting and abdominal distension. He continued to have Systemic Inflammatory Response Syndrome (SIRS) but blood cultures were negative. He was not started on antibiotics. 2 further CECT scans were performed at one week interval showed no acute necrotic collections. He was classified as moderately severe acute pancreatitis because of peripancreatic fluid collections. He improved clinically with decreasing CRP from a peak of 267 mg/L and resumed oral feeding and discharged himself after 3 weeks in hospital.

However, he was re-admitted 2 weeks later with sepsis and abdominal CT scan showed increased peripancreatic inflammatory changes, bilateral retroperitoneal walled-off necrosis with gas formation indicating infection (Fig. 1). He was started on antibiotics ceftriaxone and metronidazole and underwent radiological guided percutaneous drainage bilaterally. The percutaneous drains were sited on the flanks placed midway between the costal margin and the iliac crest into the retroperitoneal collection using 16Fr Skater catheter on the right and 14Fr on the left, avoiding intercostal vessels. The drains were flushed thrice daily. After 72 h, antibiotics were changed to piperacillin/tazobactam according to culture sensitivities, drain adjustment of position without upsizing and an additional 14Fr transrectal drain was performed because the retroperitoneal collection extended into the presacral space (Fig. 2). The drain microbiological cultures grew gram-negative organisms. After another 72 h, because there was no improvement of his sepsis as evidenced by increasing total white cell counts of 21×10^9/L to 36×10^9/L, hypotension and a CECT scan done prior to VARD showed minimal decrease in retroperitoneal gas and fluid collections, decision was made to perform VARD. This was performed under General Anesthesia, with the patient in a supine position with left flank propped up by a cushion. A 5 cm incision on the left flank drain was made near to the percutaneous drain and deepened. Necrotic material was removed by aspiration and a 10 mm laparoscope was inserted into the retroperitoneal cavity through the incision without gas insufflation and a sponge holder forceps was used to debride the necrotic material under vision. A jet irrigation device (Pulsavac) was used to augment the debridement. There was minimal bleeding encountered and at the end of the procedure 2 Penrose drains were placed into the space superiorly and inferiorly and the fascia closed over (Fig. 3). The procedure was repeated on the right side. The incisions were covered with a ureterostomy bag and continuous saline irrigation through the percutaneous drains was started at 200 ml per hour.

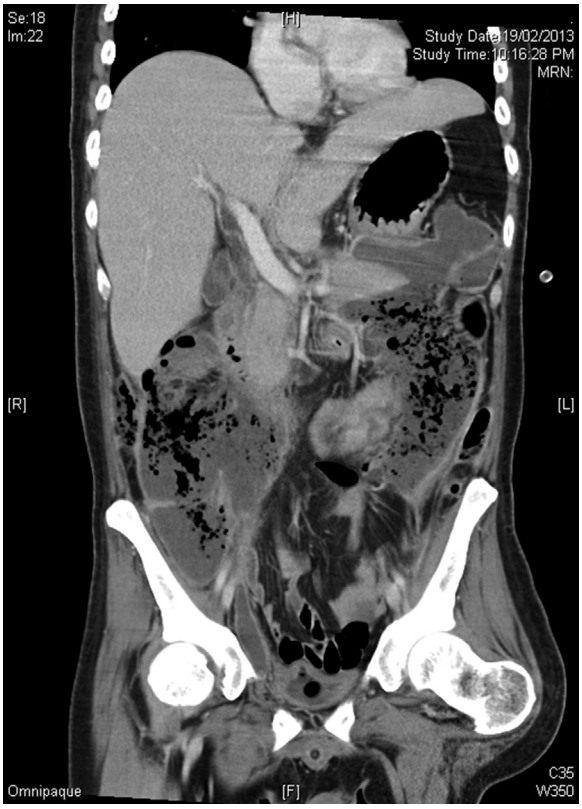

Fig. 1. CT scan showing gas formation and bilateral retroperitoneal peripancreatic necrosis.

His sepsis improved (Fig. 4) but 2 days later he developed bleeding from both flanks and per rectal bleeding. CT angiogram

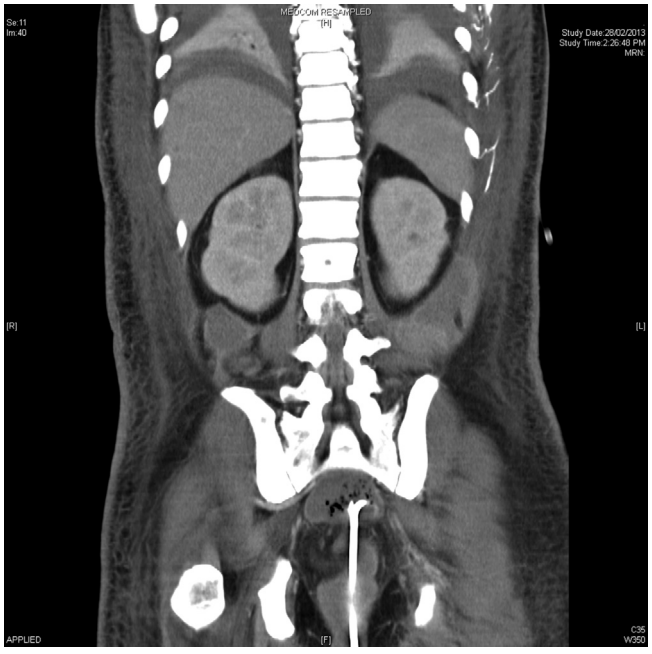

Fig. 2. Transrectal drain to presacral collection.