

## CASE REPORT

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# Pancreatico-Colonic Fistula after Acute Necrotizing Pancreatitis. Diagnosis with Spiral CT Using Rectal Water Soluble Contrast Media

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### ABSTRACT

**Context** Colonic complications are rare but lethal events in acute pancreatitis.

**Case report** We report the case of a 42-year-old man who suffered from a pancreatico-colonic fistula following a necrosectomy for severe pancreatitis; the fistula was demonstrated by spiral computed tomography using rectal water soluble contrast media.

**Conclusion** Computed tomography with rectal contrast detects pancreatico-colonic fistulas.

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### INTRODUCTION

Colonic involvement is a rare but potentially lethal complication of severe acute pancreatitis which has a frequency of 3.3% [1]. The spectrum of colonic complications includes a localized ileus with “pseudo-obstruction”, obstruction, necrosis, hemorrhage, fistula and ischemic colitis [2]. Fistulous complications of severe pancreatitis are reported to be around 40% and these gastrointestinal complications increase the morbidity [3, 4, 5].

A pancreatico-colonic fistula which causes persistent abdominal sepsis requires early diagnosis and treatment [3, 4, 5]. Although several methods have been seen to be effective for the demonstration of fistulas, endoscopic retrograde cholangiopancreato-

graphy (ERCP) was reported to be the best radiological method [2, 6, 7, 8]. Although much emphasis has been given to computed tomography (CT) and barium enema findings, the use of CT with rectally administered water soluble contrast media has rarely been reported previously [2, 6, 7, 8]. In the present report, a case of a pancreatico-colonic fistula detected and followed by spiral CT with water soluble contrast media enema is presented.

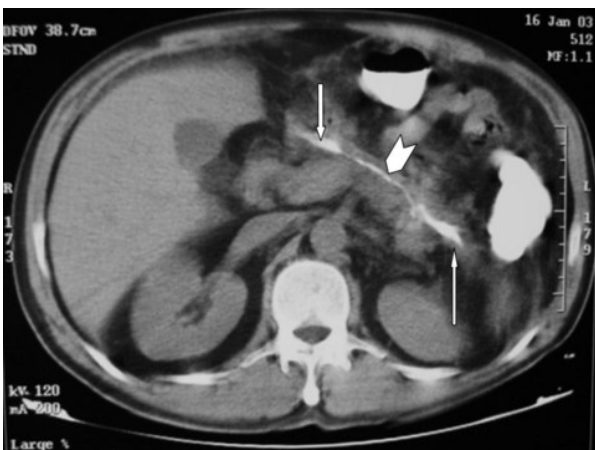
### CASE REPORT

A 42-year-old man with severe alcoholic pancreatitis was admitted to the general surgery clinic and was transferred shortly after to the intensive care unit with signs of sepsis. According to the Balthazar classification, CT examination revealed grade E pancreatitis [9]. During the conservative management of the patient, repetitive CT scans demonstrated the presence of pancreatic necrosis which occupied less than 30% of the pancreatic parenchyma, with localized fluid collections and eventual peripheral contrast enhancement of the collections (Figure 1). Since the collection was infected with gram negative bacteria, percutaneous drainage was instituted initially but, due to the persistence of the septic symptoms, the patient underwent a necrosectomy under general anesthesia. During the laparotomy which was performed for the necrosectomy, colonic involvement at the descending portion of the colon was discovered. After proper drainage was

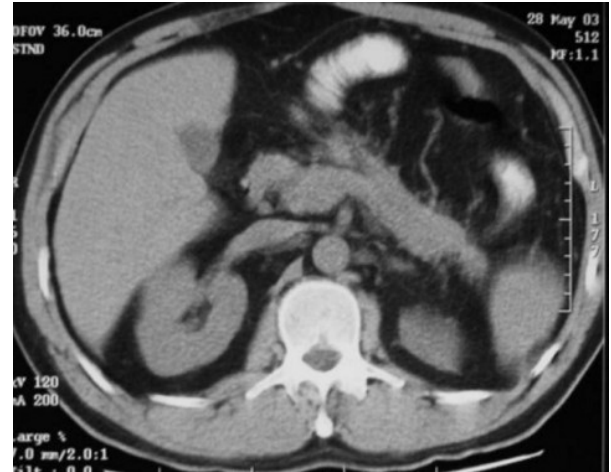


**Figure 1.** Oral and i.v. contrast-enhanced spiral CT demonstrated the presence of acute pancreatitis with pancreatic necrosis and peripherally enhanced peripancreatic fluid collections.

established, an ileostomy was carried out. Following the surgery, all the septic findings subsided gradually, but the presence of a persistent pancreatic juice discharge through the anus led us to a diagnosis of pancreaticocolonic fistula. Although the previous CT scans, which were obtained using oral



**Figure 2.** Spiral CT with rectally administered contrast medium showed the fistulous tract (thick white arrow) located between the hepatic flexura and the pancreatic canal at the level of the pancreatic head. The fistulous tract filled with the contrast material was in direct continuation with the pancreatic canal (arrowhead). At the level of the pancreatic tail posteriorly, contrast extravasation from the pancreatic canal to the left paracolic space and the perisplenic area (thin white arrow) was detected. This finding suggests the existence of a pancreatico-peritoneal fistula because of the disruption of the pancreatic canal and parenchyma at the level of the extravasation of the contrast material.



**Figure 3.** In the control spiral CT performed with rectally administered contrast medium, the pancreaticocolonic and pancreatico-peritoneal fistulas were not visualized. This finding implies the closure of the fistulous tracts.

contrast media (50 mL non-ionic iodinated contrast medium diluted with 1,500 mL water), could not demonstrate the fistulous tract; repeated examination with rectally administered water soluble contrast media demonstrated the tract successfully (Figure 2). Rectal contrast media are administered using an enema where a small plastic tip is inserted into the rectum while the patient lies on his side. This tip is connected through a tube to a bag filled with the iodinated solution. After the tip is inserted, the patient lies flat and the bag is raised above head level to allow the contrast to fill the colon. The contrast medium quickly passed through the colon and reached the transverse colon within minutes. The patient was followed using the same technique and, at the end of six months, spontaneous closure of the fistula was demonstrated (Figure 3) concomitant with an apparent improvement in the general condition of the patient, who also reported that the rectal discharge had ended. Therefore, the ileostomy was closed. The postoperative course was uneventful and one year later he is still doing well.

## DISCUSSION

In acute necrotizing pancreatitis, colonic infarction secondary to the necrotizing inflammatory process is frequent and requires colon resection [1]. Intervention is mandatory

in order to decrease the septic complications early [3, 5]. Pancreatico-colonic fistulas usually occur during the course of acute pancreatitis or after the operation performed for pancreatic debridement [1, 6]. During the follow-up, if persistent diarrhea, infection or hemorrhage develops, pancreatico-colonic fistulas should be kept in mind [2, 3]. As in the case presented, patients usually suffer from septic complications and require surgical intervention [2] and resective surgery. Few authors have advocated conservative management for the closure of a pancreatico-colonic fistula [10]; in the present case, closure of the fistula was achieved using ileal diversion.

In the radiological diagnosis of fistulas, ERCP, colonography with barium enema or CT can be used [2, 7]. ERCP is the best modality for the detection of pancreatico-colonic fistulas [6]. Furthermore, ERCP can be used to treat the fistulas by the placement of stents [6]; however, this is an invasive method which can cause serious complications. On the other hand, colonography with a barium enema has a low sensitivity in demonstrating the fistulous tracts as compared to ERCP [2, 6]. The appearance of the bowel on MR images is unpredictable. However, it has become apparent that the accuracy of these studies would be greatly improved by the use of a contrast agent to demonstrate fistulas. But, there is nothing in the literature regarding the detection of pancreatico-colonic fistulas using abdominal MRIs.

Conventional spiral CT is not accepted as a successful method in demonstrating pancreatico-colonic fistulas and its sensitivity is low as compared to ERCP [6]. The most probable reason for the low sensitivity is the failure of the contrast material to fill the fistulous tracts. Since orally administered contrast media cannot provide adequate luminal distension and pressure, the passage of the contrast media through the fistulous tract cannot be achieved. Therefore, in the present case, in order to provide adequate luminal distension and pressure, water soluble ionic contrast media diluted with water was

administered via the rectal route. In this way, the fistulas, which could not be detected in the previously performed CT scans using oral contrast material, could be visualized. Since this radiological study was done after the establishment of the fistula tract, there was no risk of retrograde contamination. According to the literature, the administration of contrast media via the rectal route has rarely been performed for detecting pancreatico-colonic fistulas using spiral CT [2]. We believe that the sensitivity of the spiral CT in detecting fistulas can be increased by using rectally administered contrast material.

In the present case, treatment was conservative. Six months later, after the clinical improvement of the patient, it was demonstrated that the fistulous tracts had disappeared. Spiral CT with rectally administered contrast media was also successful in evaluating the response to the therapy in the follow-up period. Therefore, this technique can also be used in the follow-up of pancreatico-colonic fistulas.

In conclusion, this method allowed the correct imaging of the fistula and therefore represents a simple, inexpensive, and efficient modality for the CT study of the colon. When clinical findings suggest a pancreatico-colonic fistula, spiral CT with rectally administered water soluble contrast media can be used for the diagnosis. We believe that the use of a water soluble contrast media enema would increase the sensitivity of CT in the diagnosis and follow-up of pancreatico-colonic fistulas.

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Received September 26<sup>th</sup>, 2007 - Accepted October 15<sup>th</sup>, 2007

**Keywords** Fistula; Pancreatitis, Acute Necrotizing; Tomography, Spiral Computed

**Conflict of interest** The authors have no potential conflicts of interest

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Document URL: <http://www.joplink.net/prev/200801/05.html>

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