

A case of inferior vena cava thrombosis and pulmonary embolism secondary to acute exacerbation of chronic pancreatitis: A rare finding in radionuclide venography

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A rare case of inferior vena cava (IVC) thrombosis and pulmonary embolism secondary to acute exacerbation of chronic pancreatitis was reported.

Radionuclide venography and lung perfusion scintigraphy were performed on a 46-year-old male with acute exacerbation of chronic pancreatitis who complained of mild swelling of a leg and shortness of breath. Scintigraphy showed an abnormal large hot spot at the level of the pancreas and a pulmonary embolism. Enhanced abdominal CT revealed an IVC thrombus and a cystic mass adjacent to the IVC. Despite the absence of severe abdominal pain, the serum amylase and elastase-1 levels were very high. These findings indicated that a pancreatic cyst had penetrated into the IVC, where it triggered the formation of a thrombus and caused a pulmonary embolism. Scintigraphic examination was useful for the evaluation of this rare condition.

Key words: pancreatitis, pulmonary embolism, thrombus, radionuclide venography, inferior vena cava

INTRODUCTION

VASCULAR THROMBOSIS and systemic hypercoagulable states are known complications of pancreatitis.^{1–3} We report a rare case of inferior vena cava (IVC) thrombosis and pulmonary embolism associated with acute exacerbation of chronic pancreatitis in which Tc-99m MAA scintigraphy was useful for evaluation of this rare condition.

CASE REPORT

A 46-year-old male was referred to our hospital because of anemia and hyperamylasemia. The patient was a heavy drinker and has been diagnosed with chronic pancreatitis. The relevant laboratory findings on admission were: erythrocyte count, $270 \times 10^4/\text{mm}^3$; hemoglobin, 8.6 g/dl; hematocrit, 25.0%; amylase, 16070 IU/l; elastase-1, 73100 ng/dl.

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Two days after admission, the patient complained of mild swelling of the right lower extremity and shortness of breath. Radionuclide venography with Tc-99m MAA showed an abnormal large hot spot at the level of the pancreas. The breadth of the hot spot was much greater than that of the IVC (Fig. 1↑). Lung perfusion scintigraphy after radionuclide venography showed multiple defects suggesting pulmonary embolism (Fig. 2). Enhanced abdominal CT revealed an IVC thrombus (Fig. 3↑) and a slightly high density cystic mass adjacent to the IVC (Fig. 3⇑). The cystic mass was thought to represent a pancreatic complicated cyst. These scintigraphic and CT findings suggested that a pancreatic cyst secondary to chronic pancreatitis had penetrated into the IVC, where it triggered the formation of a thrombus and gave rise to a pulmonary embolism.

Surgery could not be performed, and medication for pancreatitis was started. After the pancreatitis improved, endoscopic retrograde cholangiopancreatography (ERCP) was performed to clarify the relation between the pancreatic cyst and IVC. ERCP showed narrowing of the main pancreatic duct and a cyst measuring 2.3×2.0 cm (Fig. 4). Follow-up CT after ERCP showed a high density

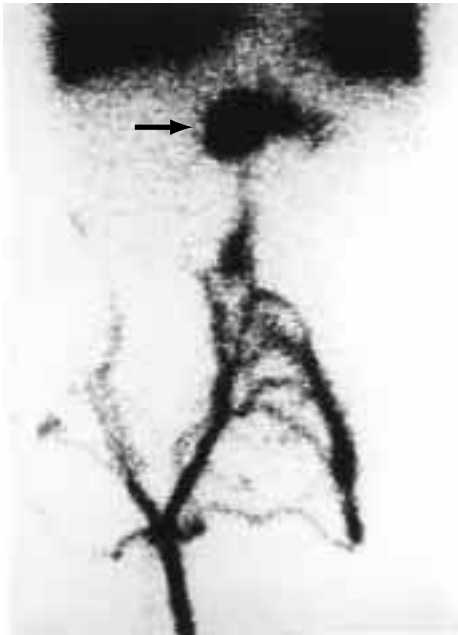


Fig. 1 Radionuclide venography with Tc-99m MAA showed abnormal large hot spot at the level of pancreas (*arrow*).

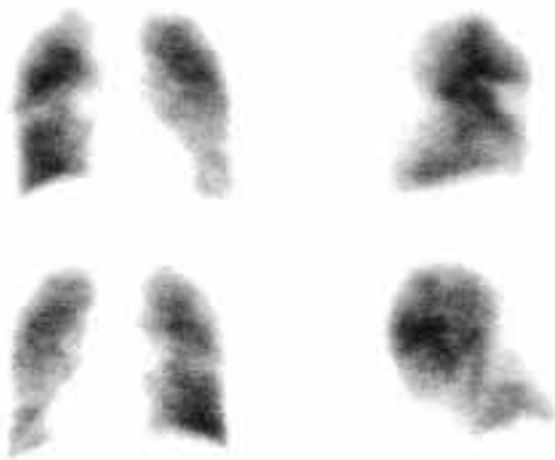


Fig. 2 Lung perfusion scintigraphy after radionuclide venography showed pulmonary embolism.

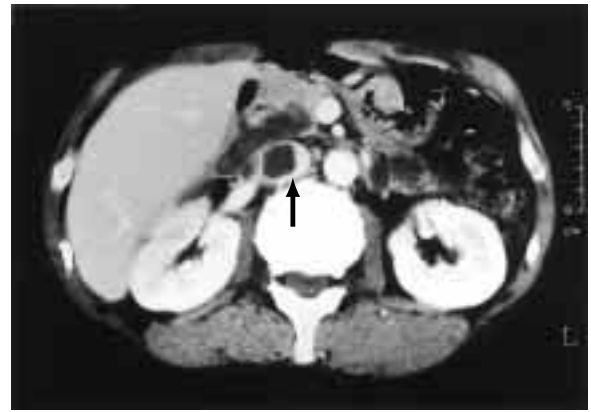


Fig. 3 Enhanced abdominal CT revealed IVC thrombus (*arrow*) and cystic mass adjacent to the IVC (*open arrow*). This cystic mass was considered pancreatic complicated cyst.



Fig. 4 ERCP showed narrowing of the main pancreatic duct and cyst measuring 2.3 × 2.0 cm.



Fig. 5 Follow-up CT after ERCP showed high density area adjacent to the IVC (*arrow*).

area adjacent to the IVC (Fig. 5↑). After performing stent drainage for main pancreatic duct stenosis, the pancreatic cyst decreased in size and the IVC thrombus resolved.

DISCUSSION

This case report described a rare finding of radionuclide venography in a patient with IVC thrombosis associated with pancreatitis, and was reported for two reasons: because IVC thrombus is a rare complication of pancreatitis, and because Tc-99m MAA scintigraphy was useful in evaluating this rare condition.

IVC thrombus is a rare complication of pancreatitis, and there have been very few descriptions of it.²⁻⁴ We considered the mechanism of formation of the IVC thrombus in the present case to be as follows: (1) a cyst communicating with the pancreatic duct penetrated into the IVC, and (2) pancreatic juice entered the IVC and triggered the formation of a thrombus.

Tc-99m MAA is known to adhere to thrombi.^{5,6} The large hot spot of Tc-99m MAA in our patient was thought to reflect the IVC thrombus and the leakage of Tc-99m MAA from the IVC into the cyst. Follow-up CT after ERCP revealed that the pancreatic cyst was located adjacent to the IVC. In addition, despite the absence of severe abdominal pain due to the pancreatitis, the serum amylase and elastase-1 were very high, which also suggested that pancreatic juice had entered the IVC.

In conclusion, we report a rare case of IVC thrombosis and pulmonary embolism associated with pancreatitis. Tc-99m MAA scintigraphy was useful for evaluation of this rare condition.

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