

Emergency Embolectomy For Synchronous Embolism In A Patient With Cirrhosis And Dilated Cardiomyopathy

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Citation

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Abstract

Background: Correct and quick diagnosis of superior mesenteric artery embolism with subsequent adequate therapy can save a patient's life.

Methods: We describe a 43-year-old male with potentially fatal synchronous embolism, secondary to dilated cardiomyopathy, affecting the superior mesenteric and femoral artery treated with staged embolectomy.

Conclusions: This case should heighten the awareness of embolic events in non-anticoagulated patients with dilated cardiomyopathy.

SUMMARY

Acute massive ischemic bowel injury due to embolism of the superior mesenteric artery is a potentially fatal complication. Surgical approach with rapid embolectomy is the gold standard to treat this condition. However, many recent publications show that endovascular treatment of a superior mesenteric artery occlusion with local urokinase may be a life-saving alternative.

We present a case report of a 43-year-old patient with dilated cardiomyopathy who presented to emergency with sudden abdominal and lower limb pain secondary to multiple arterial emboli diagnosed by CT-scan and successfully treated with staged embolectomy.

CASE REPORT

A 43-year-old patient was admitted to the emergency department for sudden abdominal and lower limb pain lasting approximately 3 hours (no vomiting and diarrhoea). He had a history of long-term alcohol consumption with dilated cardiomyopathy and cirrhosis (Child-Pugh class A-6) with mild to moderate portal hypertension and had no prior episode of decompensated congestive heart failure. He had a past episode of upper gastrointestinal bleeding from gastric lesion (non-variceal bleeding) and a recently isolated episode of ascites decompensation. He was not anticoagulated and had not taken any medication for his cardiomyopathy. He was afebrile and his vital signs were

stable. His right lower limb was ischemic but without external signs of necrosis. Pulses were absent at the site of the right femoral and popliteal artery and distally. Abdominal examination revealed abdominal tenderness and no guarding. Signs of frank peritonitis were absent and no pulsatile mass could be felt.

Laboratory test showed: white blood cell count $11.5 \times 10^9/L$, platelet count $139 \times 10^9/L$, haemoglobin 13.1 g/dL, prothrombin time 73%, and bilirubin level 1.3 mg/dL. A CT-scan was further considered to discard acute aortic dissection. To our surprise, CT-scan showed superior mesenteric artery occlusion near the ostium from the aorta (figure 1) and another filling defect of contrast medium in the right femoral artery (figure 2a, 2b). It also revealed the presence of left ventricular apical thrombi (figure 2c) and poor enhancement of liver and spleen parenchyma suggesting the possibility of distal embolism to branches of the celiac artery.

Figure 1

Figure 1: Filling defect of the SMA at the level of the pancreas neck (arrow), approximately 6cm beyond its origin (near the origin of the middle colic artery). There is also a poor contrast enhancement of the spleen (of unknown etiology).

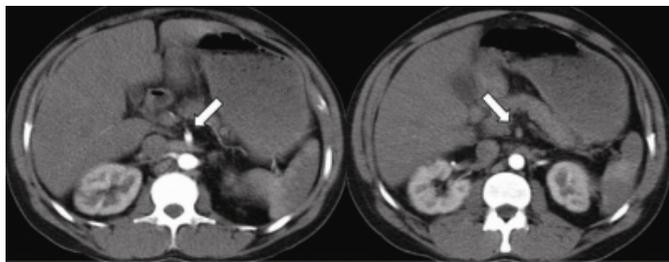
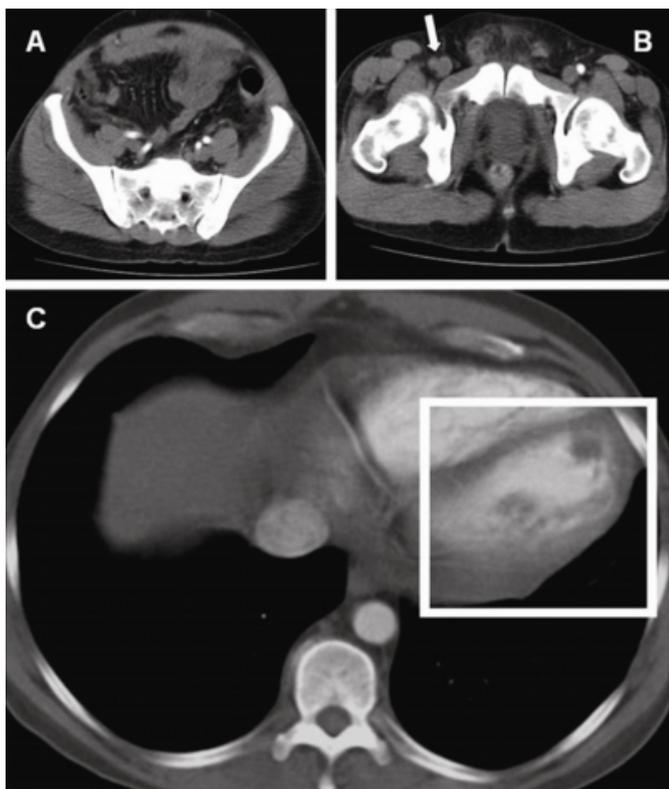


Figure 2

Figures 2ab: Patency of the right external iliac artery and filling defect of the femoral artery in the right limb (arrow.)
Figure 2C. Left ventricular thrombi.



The patient was immediately evaluated by surgeons and staged embolectomy was carried out urgently. After surgical intervention, the patient did well and was discharged from hospital 10 days later. Now he is on an anticoagulant regimen despite the increased risk of bleeding due to cirrhosis.

DISCUSSION

Dilated cardiomyopathy is a primary cardiac disease, the etiology of which is usually unknown although the most frequent secondary cause of dilated cardiomyopathy is chronic alcohol consumption.

Patients with dilated cardiomyopathy have multiple factors that predispose to thromboembolic events. Left ventricular thrombi at autopsy and during life have been frequent findings with a reported incidence of thromboembolic events in this population that varies widely.^{1,2} Usually, these patients have a chronically low cardiac output that may impair hepatic and renal function. Furthermore, they often require multiple medications that may interact with warfarin. That is the reason why risks and benefits of long-term anticoagulation in these patients should be considered.

The only clear-cut indications for anticoagulation in most patients with dilated cardiomyopathy are atrial fibrillation, a previous thromboembolic event or left ventricular thrombi. Evidence from published reports does not demonstrate convincingly that the benefits of anticoagulation exceed the risks in other subgroups.³

Acute mesenteric ischemia (AMI) is associated with a high mortality rate most commonly caused by multiple-system organ failure. Patients tend to present with advanced intestinal ischemia or necrosis.⁴

Tissue injury is caused by events related to the ischemia itself (ischemic injury) and by return of blood flow, either spontaneous or as a result of treatment (reperfusion injury). There is increasing recognition (most from experimental animals) of the importance of reperfusion injury in the outcome of intestinal ischemia.

Abdominal pain is the most frequent symptom and signs of frank peritonitis may be absent. Abdominal distension and motility problems, such as nausea, vomiting, or constipation are frequent. Laboratory abnormalities are common, particularly leukocytosis and high lactate levels with metabolic acidosis, but there remains no pathognomonic finding and this condition requires a high index of clinical suspicion.

CT scanning and contrast arteriography continue to play a major role in the diagnosis of AMI and have been reported to be sensitive in the diagnosis of mesenteric occlusion. Results of CT scan with contrast medium confirmed mesenteric arterial occlusion or suggested ischemic bowel in

a high proportion of patients and also allow the identification of nonvascular causes of acute abdominal pain. CT scan with three-dimensional reconstruction is an increasingly useful technique, which may allow identification of vascular anatomy and pathology with good enough detail for diagnosis and operative planning.

After the final diagnosis in our patient, femoral revascularization was considered first and then dissection was undertaken from the root of the mesentery where the SMA could be quickly localized to perform a transversal arteriotomy. At the same time 5000 IU of heparine were infused through intravenous catheter. Embolectomy with a 3-F fogarty catheter was done to extract an embolus large enough to completely obstruct the SMA.^{5,6}

Local urokinase to manage thrombi propagated down the arterial branches was considered but finally rejected because of marked bleeding during dissection of the SMA trunk in part due to collateral vessels.⁷ Recently, intraarterial fibrinolysis has been considered as a therapeutic alternative in the management of SMA embolism but only in selected patients in whom an early diagnosis can be made.⁸

Ogihara et al.⁹ reported a novel technique of percutaneous transcatheter thromboaspiration in the treatment of acute mesenteric ischemia with successful results. These new alternatives should be carried out with interval laparotomy or laparoscopy allowing visual assessment of the bowel for signs of infarction.

This case should heighten the awareness of embolic events in non-anticoagulated patients with dilated cardiomyopathy. In these patients, an embolic event may be fatal and the only

possibility to save the patient's life during an episode of proximal SMA emboli requires a high index of clinical suspicion and rapid therapy. Urgent CT scan gave us the diagnosis and discarded other pathologies. In the present case, dissection from the root of the mesentery to gain access to the SMA was safe. Although increased bleeding might be expected with this maneuver in cirrhotics, retroperitoneal hematomas can be avoided. Systemic and local heparine was enough to prevent distal thrombosis and thrombolytic therapy was not necessary because embolectomy was performed in early stages.

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