

ANSWERS TO MEDICAL QUIZ

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A1. The cause of his cold limb was an embolus from the left ventricle confirmed by echocardiography, other probable conditions associated with arterial occlusion include:

- a) Atherosclerotic thrombus
- b) Aneurysm
- c) Trauma
- d) Diabetes mellitus

A2. Percutaneous femoral angiography shows complete embolic occlusion of the left common femoral artery. Note the fine mesh of collaterals around the hip joint (Fig 1 straight arrow).

A3. Intravenous contrast enhanced abdomen CT revealed ascites with portal venous gas in the liver seen peripherally distributed and extending to liver edge (Fig 2 arrow). The typical pneumatosis intestinalis, intramural bowel gas (Fig 3 straight arrow) is depicted in addition to extensive mesenteric venous gas consistent with mesenteric infarction. Note the focal well-defined hypodense area (arrowhead) in the right kidney suggestive of a focal renal infarct. Incidentally a small cyst is seen in the left kidney.

A4. Acute Mesenteric ischaemia leading to massive infarction of small and large bowel due to embolisation occurring proximal to superior and inferior mesenteric arteries (= limited collateral flow) from emboli in the left ventricle.

DISCUSSION

Acute Mesenteric ischaemia (AMI) secondary to vascular disease remains a significant problem in patients presenting with acute abdominal conditions especially in the aging population¹. It has been shown that there is an increase in the diagnostic accuracy of this disease in the last 30 years because of a heightened awareness of the many clinical conditions that precipitate the condition². Moreover, the actual incidence has risen as well².

Acute occlusion of the coeliac and or inferior mesenteric artery generally is asymptomatic in an otherwise normal person. However, acute occlusion of the

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superior mesenteric artery by an embolus is the commonest cause for AMI and accounts for 40%-50% of AMI episodes. The thrombus is usually dislodged from the left atrium or ventricle during a period of dysrhythmia or following cardiac catheterization².

Non-Occlusive Mesenteric Ischaemia (NOMI), which accounts for 20%-30% of AMI and results mainly from splanchnic vasoconstriction initiated by a period of hypotension or vasoactive medications. The predisposing factors for NOMI include acute myocardial infarction, congestive heart failure, hepatic and renal diseases and major cardiac and abdominal operations³. Other causes include Superior Mesenteric Artery Thrombosis (SMAT) in preexisting atherosclerotic lesions².

The spectrum of presentation varies from chronic to acute, mild to catastrophic, arterial to venous, extensive to limited, or precisely diagnosed to accidentally found¹.

These patients present with triad of symptoms severe pain out of proportion to the physical findings, a history of gut emptying, usually a massive bowel emptying with or without vomiting and at times atrial fibrillation or other cardiac condition predisposing to embolus formation¹.

The diagnosis of AMI can be a medical challenge. Leukocytosis exceeding 15,000 cell/mm³ occurs in 75% of patients². Elevations of serum amylase and phosphate have been described⁴. Plain abdominal radiograph can be normal before infarction, as the disease progresses this can reveal a dynamic ileus pattern, gasless abdomen or small bowel pseudo-obstruction. Barium studies may show dilated loops with thickened folds "scalloping and thumbprinting". In the chronic stage smooth pliable strictures are formed². Specific findings on CT include pneumatosis intestinalis (22%-57%) and mesenteric gas (28%). Mesenteric angiography and radioisotopes studies can identify the level and extent of infarction⁵⁻⁷. Massive infarction of small and large bowel is seen if mesenteric embolisation occurs proximal to middle colic artery. Focal segments of intestinal ischaemia occur if mesenteric embolisation occurs distal to middle colic artery⁸.

The management is directed toward correcting the predisposing factors, relief of acute congestive heart failure, correction of hypotension, hypovolaemia and cardiac arrhythmia. All patients suspected of having AMI should be hydrated and given broad-spectrum antibiotics. Treatment is by laparotomy and resection of necrotic bowel if the rest of bowel is salvageable. Intraoperative embolectomy has been tried as well. Vasodilators like Papavarine or nitroglycerine have been used. Sometimes a "second look" operation is needed to ensure the viability of the residual bowel or to complete the resection of the non-viable one².

The prognosis is gloomy as in our patient who died within hours of the CT examination. The mortality rate for mesenteric ischaemia is in the range of 70%-90%⁸. Salvage of these patients will continue to depend on a high index of clinical suspicion and prompt diagnosis and treatment¹.

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