Rheumatic heart disease presenting as mesenteric artery embolism and left common femoral artery occlusion following atrial fibrillation

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Abstract: Mesenteric artery embolism is an acute abdominal emergency with very high mortality rate which requires a high index of suspicion for its diagnosis. We hereby report a 45 years old female patient with rheumatic heart disease with atrial fibrillation with thromboembolic mesenteric artery occlusion and left common femoral artery occlusion. Patient is not an known case of rheumatic heart disease.

Keyword: Atrial Fibrillation Acute Mesenteric Ischemia

Introduction
Mesenteric vascular occlusion is an uncommon condition which accounts for less than 1% of acute abdominal pain. The occlusion could be due to thrombotic process, vasculitis or embolic phenomena. The diagnosis of intestinal ischemia begins with the ability of the clinician to suspect and recognize it. The difficulty of diagnosing the condition early and the problem in distinguishing it from less lethal causes of abdominal pain leads to delay in treatment with resultant extensive intestinal infarction and gangrene.

Case report
Patient admitted on 29 September 2011 afternoon 3.40 am. A 45 years old female patient presented at 3.40 AM with history of sudden onset of severe pain abdomen and vomiting of 2 hours duration and vomiting 4 episodes. Abdominal pain was more in the upper abdomen, not radiating to the back. It was continuous, dull aching. Vomitus 4 episodes contained food particles. It was not blood stained/bile stained. Patient was recently diagnosed to be hypertensive and was on regular treatment with T.Amlodipine 2.5mg 2OD. Not a Diabetes Mellitus/ Tuberculosis/Coronary artery heart disease/SEIZURES. Not an alcoholic or smoker or tobacco chewing. On clinical examination, the patient was restless. There was severe pallor, no cyanosis, clubbing or lymphadenopathy. Pulse rate was 106/min which was irregularly irregular, felt in all palpable peripheral vessels. Bp was 170/100 mm Hg. On examination of the cardiovascular system.
there was variable first heart sound, mid diastolic murmur heard over apex. Respiratory system examination was within normal limits. On abdominal examination there was uniform distention with tenderness all over the abdomen with no guarding or rigidity. Bowel sounds were absent. Per rectal – normal rectal tone, no mass felt, black colored fecal staining. Routine haematological investigations Haemoglobin 68%, Total Count(14000) mild leucocytosis, Differential Count(P80 L20), Platelet Count(2 Lakhs), RBS(104Mg/dl), Blood Urea 42 Mg), Serum Creatinine (1.5 Mg), Serum Sodium (127 meq/L), Serum Potassium (4.4 mEq/L), LFT S.Bilirubin (1.5mg), SGOT(35 IU), SGPT(40 IU), SALP (52 IU), Total Cholesterol(178 IU), Total Triglycerides (122 IU). ECG showed evidence of atrial fibrillation, and chest x-ray showed features of left atrial enlargement, prominent MPA. Echo revealed Chronic Rheumatic Heart Disease, Severe mitral stenosis, Mitral orifice – 0.9 cm², Pulmonary Hypertension +, Tricuspid Regurgitation +, TAPSE – 22, Left Ventricular Ejection Fraction- 72%, Left atrial clot present. Erect Abdominal X-ray showed dilated bowel loops, no air fluid levels with dilated intestinal coils, no air under diaphragm. Ultrasound scanning of abdomen showed dilated intestinal loops, sluggish bowel movements, other organs normal. The diagnosis of rheumatic heart disease with atrial fibrillation with superior mesenteric artery embolism with intestinal ischemia was made. she was then referred to the duty surgeon on the same day. Patient was posted for an emergency laparotomy.

Operative findings:
- 500 ml of serosanguinous fluid in peritoneal cavity,
- Omentum inflamed with adherence to loops of small bowel.

Segment of jejunum 3 feet in length one foot from duodenal flexure was gangrenous,

Other viscera found to be normal

Procedure undertaken:
Emergency laparotomy / resection and anastomosis. On 3rd post operative day—Patient developed sudden onset of pain in the left lower limb, with cold periphery. There was absence of left popliteal, anterior and posterior tibial and dorsalis pedis artery pulses. We suspected acute embolic vascular obstruction in the left lower limb. Urgent arterial doppler of left lower limb done: Dampened flow noted in common femoral artery with no evidence of flow in the distal circulation.
Aorta, common iliac, external iliac, internal iliac arteries showed normal flow with normal triphasic flow. Impression: Possibility of arterial occlusion at the level of left common femoral artery. Cardiothoracic surgeon was urgently called over who performed Emergency Embolectomy. Post operative period uneventful. Patient discharged from hospital after general condition improved. Patient was on regular follow up. Patient was treated with Inj. Enoxaparin, Antibiotics,
Acute mesenteric ischemia is a relatively rare medical emergency, with a high mortality rate of 60-70%. Intestinal ischemia can result from an acute reduction in the arterial supply either due to embolism, thrombosis or poor cardiac output or by blockage of the venous drainage or by a combination of both factors. Mesenteric embolism accounts for 25-30% of patients with intestinal ischemia. In all, 90-95% of emboli arise from the heart in patients with atrial fibrillation. The presence of a cardiac arrhythmia with or without associated rheumatic heart disease or a history of recent myocardial infarction in a patient with sudden onset of diffuse, severe, unremitting and generalized abdominal pain should raise the possibility of superior mesenteric artery occlusion. No laboratory tests are pathognomonic of acute mesenteric ischemia. Thrombi in AF patients almost always originate in the Left Atrial Appendage, rather than in the smooth-walled atrium proper. In patients with suspected Acute Mesenteric Ischemia (AMI) and AF, TEE is recommended. The lack of visualization of LAA thrombi on TEE after an embolic event does not exclude the LAA as the embolic source. Because blood stasis is fundamental to the formation of LAA thrombi in AF, the transesophageal echocardiographic readings of blood stasis (i.e. Decreased LAA ejection fraction and flow velocity, dense spontaneous echo contrast) are accepted as independent predictors of embolic risk.

Once a SMA embolus is suspected a prompt diagnosis of AMI is needed. Although plain films of the abdomen have a low sensitivity and specificity, they are almost always obtained as part of the work-up in such patients. However, early in the course of AMI, an abdominal X-ray is usually normal. Furthermore, standard CT of the abdomen lacks sufficient sensitivity to be used as a diagnostic test for AMI. More recently, multidetector CT and MR angiography have replaced plain film and standard CT use and have become the cornerstones of AMI diagnosis. Multidetector CT angiography represents a fast and accurate investigation tool for the diagnosis of AMI. In addition, it can capture associated findings/pathology through the anatomical detail window. On angiography, emboli to the SMA are typically manifested as sharp, rounded filling defects in the contrast column with high-grade or subtotal occlusion of distal flow. Disadvantages of traditional angiography are its limited availability and potential renal toxicity as well as its monetary and time constraints.

Selective catheter angiography is the gold standard investigation for acute mesenteric ischemia having specificity (100%) and sensitivity (90-100%). Its also having therapeutic advantage also like embolectomy and thrombolysis during the procedure itself. Treatment is dependent upon the type of AMI, but in most situations any patient with peritoneal signs should be operated upon without delay. Standard surgical therapy for AMI involves resection of irreparably damaged bowel and reestablishment of mesenteric blood flow through embolectomy. Patients with minor emboli, defined as emboli limited to SMA branches or to the SMA distal to the ileocolic artery, may be managed nonoperatively with volume resuscitation, broad-spectrum antibiotics, vasodilators, and anticoagulants. Patients with thrombosis, there may be a history of postprandial pain or mesenteric angina and the onset is rarely as sudden and dramatic as with embolism, so that delay in seeking treatment may occur. In our case there is an acute presentation of symptoms.
So we directly proceeded with the operative procedures to save the patient and the patient also had features of bowel infarction such as fecal soiling with black tarry blood. To conclude mesenteric artery embolism is a rare and urgent acute abdominal emergency with a very high mortality rate, which requires a high index of suspicion in its diagnosis. Delay in diagnosis results in extensive intestinal infarction and gangrene which cannot be reversed even by successful restoration of blood flow. This patient reached the hospital with in 2 hours of symptoms. Early suspicion, decision making, surgical intervention saved the patient. Hence timely recognition is essential for a favorable outcome.

References:
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