

Case Report

Acute Abdomen: An Enigma

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ABSTRACT

Mesenteric infarction is a surgical emergency presenting as acute abdomen. Here we present a case of unexpected diagnosis of acute mesenteric infarction. He underwent emergency laparotomy with resection of the gangrenous bowel and end- end anastomosis of remaining 140 cm small bowel left. In two weeks period patient develop recurrence of disease which was successfully managed with conservative treatment. Further detailed investigation revealed the bizarre arterial anatomy with occlusion at multiple sites.

Key words: Mesenteric infarction, resection and anastomosis, short bowel

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INTRODUCTION

Mesenteric ischemia is a surgical emergency but is an uncommon cause of acute abdomen, affecting 1 in 1000 admission cases.¹ Acute mesenteric ischemia can occur due to arterial thrombosis and/ or embolism, nonocclusive mesenteric ischemia, and mesenteric venous thrombosis. Due to vague nature of symptoms the diagnosis gets delayed leading to high mortality of as much as 60 to 80%.^{1,2} History, clinical examination, and laboratory investigations lack the sensitivity and specificity so, only computed tomographic angiography can rapidly and accurately confirm the diagnosis but which may not be available everywhere especially in underdeveloped nations.^{2,3}

Here we present the case of on table diagnosis of mesenteric infarction in provisionally diagnosed case of acute appendicitis. He had undergone resection and anastomosis of gangrenous bowel and encountered second episode of mesenteric thrombosis during recovery period and managed successfully conservatively. This case is presented to highlight the possible rarity of the etiology of acute abdomen in the surgical field as challenge in diagnosis and management.

CASE REPORT

A fifty-three years-old trekker from UK presented with complaint of acute onset, pricking type, non-radiating progressive right iliac fossa pain of 3 days duration. Pain was continuous with no known aggravating or relieving factors. It was associated with 2 episodes of non-projectile vomiting with vomitus containing food particles not admixed with blood or bile. He complained of feverish sensation during the illness but temperature was not recorded. There was no history of chest pain, shortness of breath or burning micturition with essentially normal appetite and sleep.

On examination, he was conscious and well oriented with temperature of 99^o Fahrenheit. Other vital parameters, gross neurological, chest and cardiovascular examinations were normal. Per-abdominal examinations revealed soft abdomen with tenderness over umbilical and right iliac fossa region with rebound tenderness. His total leukocyte count was 14500/mm³ with 84% neutrophils. With this clinical impression of acute appendicitis of 3 days duration, he was subjected to ultrasound which was essentially normal. Contrast enhanced computed tomography (CECT) of abdomen showed dilated small bowel loops with collapse large bowels. With this, diagnosis of resolving appendicitis was made and was managed accordingly.

The next day patient developed progressive colicky abdominal pain with guarding and tenderness. He was planned for diagnostic laparoscopy. Laparoscopy revealed fluid in peritoneal space with gangrenous small bowel loop so it was converted to explorative laparotomy (fig.1). Gangrenous bowel (approximately, 245cm) was resected and single layer interrupted suture anastomosis of proximal end (about 80 cm distal to duodeno-jejunal flexure) with distal end (approx. 60 cm proximal to ileo-caecal junction) done.

Post-operatively period was uneventful. He was put under enoxaparin 60 mg subcutaneous once daily. Deep vein thrombosis stocking applied and arterial and venous Doppler study of both lower limbs done was normal. His cardiac investigations including echocardiography were normal. Oral feed was allowed from 5th post-operative day. Tablet Warfarin 5 mg once daily was added and adjusted according to prothrombin time and international normalized ratio. Suddenly on 13th post-operative day he again developed the signs and symptoms of bowel ischemia suggesting relapse of mesenteric ischemia. His laboratory investigations including coagulation profile repeated and were normal. CT scan of abdomen revealed dilated small bowel loop with no



Figure 1: Gangrenous loops of small intestine seen following opening the abdomen.

intra-abdominal collection while CT-angiogram revealed partial occlusion of the superior mesenteric artery near its origin with complete thrombotic occlusion of the one of the terminal branch (fig. 2A, B and 3). He was managed conservatively with intent to re-exploration if condition deteriorates clinically being there was only short segment of small intestine (approx. 140cm) was left. If again resection has been done patient might have suffered more with morbidity and mortality from short bowel syndrome with disastrous consequences.⁴ Patient improved clinically and later discharged after full recovery and now doing well.

DISCUSSION

Mesenteric ischemia is not common with incidence of 0.1 to 1 per 1000 admissions in hospital and 1 per 100 admissions among acute abdomen based on source of information.^{2,5} Coronary artery disease, peripheral arterial disease, hypertension, diabetes, hyperlipidemia, obesity are common comorbidities² but none of them were there in our case. Among cases of mesenteric ischemia arterial thrombosis and embolism each counts about one third of the total cases and rest by venous thrombosis and non-occlusive ischemia.² In some no risk cases also mesenteric ischemia leading to gut infarction can occur as first episode in our case and it is classified as non-occlusive mesenteric ischemia(NOMI).⁶

Mesenteric infarction is the surgical emergency with guarded



Figure 2 A and B : Computed Tomographic Angiography showing thrombus in the Superior Mesenteric Artery.



Figure 3: Computed Tomographic Angiography 3D reconstruction showing thrombus in Superior Mesenteric Artery

outcome. Mesenteric infarction leading to gangrene of the bowel occurs due to blockade of the supply whether arterial or venous of the dependent segment most commonly due to thrombus or emboli.^{1,2} Commonest source of mesenteric arterial embolism is from the heart.⁷ Due to fatal nature of the condition, patients with arterial mesenteric infarction have more than three times chances of dying during their initial hospital admission in contrast with venous mesenteric infarction.⁸ Patient having mesenteric infarction can present with vague symptoms like any acute abdomen and signs also cannot differentiate early. Until and unless the patient is evaluated properly with suspicious mind in the setting of sophisticated investigations, the case of mesenteric infarction will be diagnosed late with poor outcome in terms of mortality. In recent era CT-angiogram can detect the mesenteric infarction quite early with reliable accuracy than any other tests.^{2,3,5} Surgical option is the treatment of choice of acute

arterial mesenteric ischemia, whether embolic or thrombotic in origin being emergent nature of the condition due to need of revascularization after careful evaluation of ischemic bowel.⁹ At present time, sophisticated modalities have been introduced to improve the outcome of mesenteric ischemia like endovascular advancement in intervention but is only available in highly equipped hospital of developed nation in contrast to ours.¹⁰ Also, early detection and conservative management being reported with notable outcomes in NOMI¹¹ and mesenteric vein thrombosis¹² but not in mesenteric arterial thrombosis as about second bout in our case. Though some study has correlated the venous thromboembolism in trekkers blaming the hypoxia¹³ as the culprit which may be the case we have presented here.

Short bowel syndrome (SBS) is the condition which affects small intestine, characterized by loss of intestinal capacity to absorb the nutrients leading to malabsorption and its consequences like dehydration, and malnutrition. This condition arises due to resection of large segment of bowel in almost all cases of acquired cases of SBS which leads to sepsis, intestinal failure characterized by biochemical derangements and ultimately mortality of the case.¹⁴ To prevent these consequences of the over-zealous resection we defer the re-exploration in second episode giving trial of conservative management.

CONCLUSIONS

Though mesenteric infarction is rare and fatal surgical emergency, timely surgical intervention can save the patients and these cases need to be observe carefully till full recovery and judicious decision should be taken to prevent the morbidity or mortality associated with intervention.

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