

# Acute Mesenteric Ischemia—A Rare and Fatal Emergency; Our Experience in the Management of 40 Patients

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**Abstract:-** Acute mesenteric ischemia is an life threatening emergency has poor prognosis with an in hospital mortality rate of 59%-93%.<sup>1</sup> we collected data of 40 patients in our department over 5 years( July 2014 to July 2019) who presented with acute abdomen and on table were found out to have acute mesenteric ischaemia. M:F ratio 4.44:1. Among them 75% were diabetic,42.5% were hypertensive, and 67.5% had previous cardiac interventions. Investigations were done in only 10 patients before surgery. Rest 30 were directly taken for surgery in view of septicaemic shock. Out of these 26 patients expired(65%). Hence we concluded that Long term survival rates are still remain poor because of age of presentation and associated comorbidities and delay in the time of diagnosis with subsequent multi organ failure.

**Keywords:-** Acute Mesenteric Ischaemia, Superior Mesenteric Artery Occlusion, Jejunostomy.

## I. INTRODUCTION

Acute mesenteric ischemia is an life threatening emergency has poor prognosis with an in hospital mortality rate of 59%-93%.<sup>1</sup>This much high mortality of mesenteric ischemia associated with lack of specific clinical signs and laboratory tests which results in delay in the diagnosis and management despite considerable advances in diagnostic methods.The serological markers like an elevated white blood cell counts, metabolic acidosis may present, but they are non specific.Toxic free radicals which damage the cell membrane through lipid peroxidation Cause an increased capillary permeability.The damaged micro circulation with increased capillary permeability leads to bacterial translocation which further results in sepsis and multi organ failure.Even after diagnosis ,management was either

multiple surgery (primary ,second look,thirdlook) or angioplasty /thrombolysis, managing the complications of short bowel syndrome, prolonged ICU care and long term need of total parenteral nutrition .In this study we reported our experience in managing Acute mesenteric ischemia and its complication.

## II. METHODS

Data was collected from the inpatient and outpatient clinical records of 40 patients who presented with acute abdomen in emergency department and diagnosed to have acute mesenteric ischemia for which they underwent various surgical procedures in the Department of General surgery.VMMC& Safdarjung hospital during July 2014 - July 2019.

### ➤ Inclusion Criteria

- All the patients with age more than 12yrs, who diagnosed to have acute mesenteric ischemia due to superior mesenteric artery occlusion

### ➤ Exclusion Criteria

- Age <12yrs
- Patient with AMI Other than SMA thrombosis/ emboli
- Patient who already operated outside in view of mesenteric ischemia

## III. RESULTS

A total of 40 patients of acute mesenteric ischemia 31(77.5%)of them were men and 9(22.5%) of them were women and predominantly above the age of 50 yrs( mean 56.4) are presented in Safdarjung emergency department.

➤ The demographic profile of the patients were as follows(table 1)

| Demographic profile               | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| No of patients                    |           |            |
| Male                              | 31        | 77.5%      |
| Female                            | 9         | 22.5%      |
| Comorbidities                     |           |            |
| H/o Smoking /tobacco              | 21        | 52.5%      |
| H/o Alcohol intake                | 13        | 32.5%      |
| Dyslipidemia                      | 5         | 12.5%      |
| Hypothyroidism                    | 1         | 2.5%       |
| Diabetes mellitus                 | 20        | 50%        |
| Hypertension                      | 7         | 17.5%      |
| Diabetes with HTN                 | 10        | 25%        |
| H/O previous cardiac intervention | 27        | 67.5%      |
| On antiplatelets                  |           |            |
| CAD/PVD                           | 21        | 52.5%      |
| Hyper-coagulable state            | 15        | 37.5%      |
|                                   | 6         | 15%        |

Table1:- Demographic profile of the patients

After evaluation and initial assessment, patient who had clinical signs of AMI without peritonitis and those who are not in shock (10 patients)are subjected to CT-angiography pre operatively.But majority of the patients presented with shock (30/40) due to the mean duration of presentation after symptoms was 3-4 day mainly due to delayed referral. So these patients underwent laparotomy and post operatively all the patients are evaluated by CT-angiography, D-dimer assay, serum level of Protein C,Protein S ,Anti-thrombin III and 2D-echocardiography to look for the aetiology of AMI.(table 2)

|                   |    |       |
|-------------------|----|-------|
| Cause of AMI      |    |       |
| SMA thrombosis    | 29 | 72.5% |
| Emboli            | 9  | 22.5% |
| Venous thrombosis | 2  | 5%    |
| NOMI              | -  | -     |

Table 2: causes of acute mesenteric ischemia

On exploration majority of the patients underwent jejunio-ileo-colic resection followed by jejunostomy and rest of them had limited bowel resection (Figure 1 & 2) .Post operatively these patients had long post operative stay and depends on TPN.Among the 40 patients of AMI, only 14 of them were survived and bowel continuity restored in subsequent days. The rest 26 patients who expired, the cause of death is shown in table 3.

| Cause of death              | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Multi organ failure         | 22        | 84.6%      |
| Sepsis                      | 2         | 7.6%       |
| Cardiac/respiratory failure | 1         | 3.8%       |
| Unknown                     | 1         | 3.8%       |

Table 3:- Cause of Death



Fig 1:- resected specimen from duodenojejunal flexure to proximal 2/3<sup>rd</sup> of transverse colon.



Fig 2:- on table resected specimen of jejunum, ileum, ileocaecal junction and caecum.

#### IV. DISCUSSION

Acute mesenteric ischemia is a potentially life threatening disease if not treated immediately. Most of the patients, who were affected with AMI are often elderly and compromised patients, this results in the negative effect in the outcomes. In our study majority of the patients were more than 50yrs of age with the mean age of 56.4. Among them 75% were diabetic, 42.5% were hypertensive, 67.5% of them with history of previous cardiac interventions, 37.5% were CAD patients and 52.5% were on antiplatelets, 15% of them had hyper-coagulable state. Based on our analysis major risk factor for acute mesenteric ischemia includes diabetes, hypertension and pre existing cardiac illness. Park et al and Merida et al found previous history of cardiac disease to be an independent risk factor which also proven in our study.<sup>2-3</sup>

The high rate of mortality was because of nonspecific signs and symptoms that characterise Acute mesenteric ischemia and mean duration of presentation. The classical teaching says “*pain out of proportion to physical examination findings*” is often seen in the early stage of the disease. Severe tenderness, rebound, abdominal distension, shock are the progressive consequence of bowel ischemia.<sup>4</sup> Diagnosis of AMI requires variety of clinical factors, as there is not a single reliable serological tests is available. Dynamic CT angiography with three dimensional reconstruction had significant diagnostic value.

In our study majority of the patients presented after 3-4 days after the onset of symptoms due to delayed referral and non specific signs. Among them 75% were in shock. Immediately after the diagnosis of the AMI is suspected, the management starts with fluid resuscitations, prophylactic antibiotics, and systemic anticoagulation with heparin. Then we proceeded with exploratory laparotomy and resection of necrotic bowel.

Majority of our patients underwent jejunio-ileo-colic resection (35/40) and jejunostomy. Among them (12/40) underwent relook laparotomy because of the progression of gangrenous segment. This is the only reason we couldn't able to perform revascularisation or bypass procedure. Among them only 14 of them were survived after prolonged ICU care, TPN support and bowel continuity restored after 6 weeks.

The major Cause for the mortality are multi-organ dysfunction (84.6%) followed by sepsis (7.6%). The peri-operative mortality in our study was 65% which is comparable with the below tabulated studies. (table 4)

| Authors                     | No(expired/total) | Percentage |
|-----------------------------|-------------------|------------|
| Ottinger et al <sup>5</sup> | 51/61             | 83%        |
| Smith et al <sup>6</sup>    | 18/20             | 90%        |
| Sachs et al <sup>7</sup>    | 25/37             | 68%        |
| Bergan et al <sup>8</sup>   | 11/14             | 79%        |
| End an et al <sup>9</sup>   | 28/58             | 48%        |

Table 4:- comparative death rates

#### V. CONCLUSION

Management of AMI requires high index of clinical suspicion that will prompt rapid Surgical intervention and aggressive post operative care in order to prevent multiple organ failure. Long term survival rates are still remain poor because of age of presentation and associated comorbidities and delay in the time of diagnosis with subsequent multi organ failure. Until the development of convenient/sophisticated method of diagnosis, early identification and rapid intervention is not possible to provide favourable outcome.

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