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Surgical Management Of Gangrenous And Ischemic Mesentery: A Case Report

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Abstract

Background:

Mesenteric ischemia is a life-threatening condition caused by inadequate blood supply to the intestines and may lead to bowel gangrene if not managed promptly.[1]

Case Presentation:

We report a case of a 45-year-old female presenting with acute abdominal pain, nausea, and fever. Conventional imaging was inconclusive. Diagnostic laparoscopy revealed a gangrenous segment of the omentum adherent to the abdominal wall. Surgical resection was performed.

Management and Outcome:

The patient underwent laparoscopic resection of the infarcted omentum with satisfactory postoperative recovery.

Conclusion:

Early diagnostic laparoscopy can be key in identifying intra-abdominal ischemic pathology not detected by imaging, facilitating timely intervention and improved outcomes.

Keywords: Mesenteric ischemia; omental infarction; diagnostic laparoscopy; acute abdomen; case report

Introduction

The mesentery is a double fold of peritoneum anchoring the intestines to the posterior abdominal wall and housing the vascular supply from the superior and inferior mesenteric arteries.[2] Compromised mesenteric blood flow results in ischemia, which, if prolonged, leads to gangrene and significant morbidity and mortality.[3] Acute mesenteric ischemia presents non-specifically, often with abdominal pain out of proportion to clinical findings. The preoperative mortality can be high, ranging widely depending on timing of intervention and underlying etiology.[4]

Despite advances in imaging, definitive diagnosis may remain challenging. Diagnostic laparoscopy has emerged as a useful modality in acute abdomen and elusive intra-abdominal pathology.[5]

Aim

To evaluate the surgical management of gangrenous and ischemic mesentery with emphasis on clinical presentation, operative findings, and outcomes.

Objective

To observe and analyze the surgical management of gangrenous and ischemic mesentery in a patient undergoing operative intervention.

Case Presentation

A 45-year-old Hindu female housewife presented with a 5-day history of abdominal pain, significant nausea, and mild intermittent fever. Prior symptomatic treatment provided no relief.

The patient's obstetric history included two full-term normal deliveries. She had undergone laparoscopic tubal ligation five years earlier. There was no history of chronic illness; she was not known to have diabetes mellitus, hypertension, asthma, or tuberculosis. Family history was non-significant.

General and Systemic Examination

The patient was conscious, oriented, and afebrile. Vital signs were within normal limits (pulse 80/min, BP 130/80 mmHg). Cardiovascular, respiratory, and central nervous system examinations were unremarkable.

Abdominal examination revealed tenderness in the right iliac fossa, periumbilical, and supraumbilical regions without palpable mass. Bowel movements were normal; micturition was unremarkable. There was no pallor, icterus, or regional lymphadenopathy.

Investigations

Hb: 10 g/dL

Total leukocyte count: 7,500/mm³

Differential count: N 60%, L 38%, E 6%, M 3%, B 2%

Urine analysis, blood sugar, renal function tests — within normal limits

ECG and chest X-ray — normal

Serology: HIV and HBsAg — negative

Abdominal ultrasonography was unremarkable

Treatment and Management

Initial Conservative Management

The patient received:

IV fluids

Inj. Ceftriaxone 1 g IV twice daily

Inj. Metronidazole 500 mg IV three times daily

Inj. Pantoprazole 40 mg IV once daily

Analgesics

No symptomatic relief was observed, prompting diagnostic laparoscopy.

Surgical Procedure

Anaesthesia: Spinal

Position: Supine

After aseptic preparation, pneumoperitoneum was established via a Veress needle at Palmer's point due to prior infraumbilical scarring. Trocars were placed as follows:

10 mm supraumbilical

5 mm suprapubic

10 mm left midclavicular port

Laparoscopy revealed a gangrenous segment of the omentum adherent to the anterior abdominal wall with twisting near the previous infraumbilical trocar site; other intra-abdominal organs including gallbladder, stomach, uterus, small and large bowel appeared normal. The appendix was visualized and appeared normal.

The ischemic omental segment (~5 × 3 cm) was mobilized, adhesiolysed, cauterized, resected, and extracted from the abdomen. Hemostasis was confirmed. Closure was performed with Vicryl 2-0 (fascia) and Ethilon 3-0 (skin).

Postoperative Course and Follow-Up

The postoperative period was uneventful. Oral clear liquids were started on postoperative day 2, gradually advancing to a regular diet. The patient was clinically improved and discharged on postoperative day 3 in stable condition.

Discussion

Mesenteric ischemia has diverse etiologies, including arterial embolism, thrombosis, non-occlusive hypoperfusion, and mesenteric venous thrombosis.[6] Omental infarction with ischemia is rarer and may mimic common causes of acute abdomen.[7]

In this case, advanced imaging including contrast-enhanced CT and coagulation profile were normal, and ultrasonography did not reveal pathology. Despite imaging, definitive diagnosis was achieved only through diagnostic laparoscopy. This underscores the limitations of standard imaging in early or localized ischemia and supports laparoscopy's role in unexplained acute abdominal pain when non-invasive modalities are inconclusive.[5],[8]

Laparoscopy allowed both diagnosis and therapeutic management via minimally invasive resection, avoiding a full laparotomy and reducing postoperative morbidity. However, conventional laparotomy remains the definitive approach in extensive ischemia or hemodynamic instability.[9]

Conclusion

Diagnostic laparoscopy is valuable in the assessment of acute abdomen when clinical and radiological evaluations are inconclusive. It enables early diagnosis and intervention, potentially avoiding laparotomy and its associated morbidity. Nevertheless, laparotomy remains the gold standard in complex or extensive intra-abdominal pathology.

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