Update In Management Of Mesenteric Ischemia

An Essay Submitted For Partial Fulfillment Of Master Degree
In General Surgery

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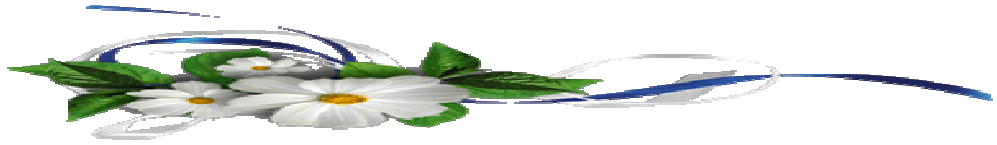
بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

سورة البقرة الآية: ٣٢



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Ahmed Khalil

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GIT	Gasterointestinal tract
CA	Celiac artery
SMA	Superior mesenteric artery
IMA	Inferior mesenteric artery
ACA	Anterior caecal artery
PCA	Posterior colic artery
IPDA	Inferior pancreaticoduodenal artery
SMV	Superior mesenteric vein
SFV	Superficial femoral vein
SV	Saphenous vein
AMI	Acute mesenteric ischemia
CMI	Chronic mesenteric ischemia
CI	Colonic ischemia
MVT	Mesenteric venous thrombosis
NOMI	Nonocclusive mesenteric ischemia
AMAE	Acute mesenteric artery embolism
AMAT	Acute mesenteric artery thrombosis
DUS	Duplex ultrasonography
CT	Computed tomography
CTA	Computed tomography angiography
MDCT	Multidetector computed tomography
MRA	Magnetic resonance angiography
BMFT	Barium meal follow through
ROMS	Retrograde open mesenteric stenting
PTA	Percutaneous transluminal angioplasty

PTFE	Polytetrafluoroethylene
AAA	Abdominal aortic aneurysm
MAL	Median arcuate ligament
DVT	Deep venous thrombosis
DIC	Disseminated intravascular coagulation
VWF	Von Willebrand factor
IMP	Idiopathic mesenteric phlebosclerosis
VKA	Vitamin K antagonist
HPVG	Hepatic portal venous gas

Introduction

Mesenteric ischemia disorders are precipitated by a circulation insufficiency event that deprives one or several abdominal organs of adequate respiration to meet metabolic demands. The mortality rate is high, ranging between 50–90%, and depends on the etiology, the degree and length of ischemic bowel segments, and the amount of time between the clinical onset of symptoms and the establishment of diagnosis ***(Chang et al., 2011)***.

An early diagnosis and treatment are essential to improve the outcome ***(Wasnik et al., 2011).***

This spectrum of disorders can be roughly categorized by the acuity or chronicity of presentation. Acute mesenteric ischemia (AMI) is further subdivided based on the etiology of the occlusion; embolic, thrombotic or nonocclusive. It has been estimated that one third of acute cases are caused by arterial embolism, one third caused by acute arterial thrombosis, and the remaining majority of acute cases are caused by a nonocclusive etiology, with a small proportion of cases from venous thrombotic etiology ***(Trompeter et al., 2002).***

Unfortunately, contemporary population-based studies on the epidemiology of AMI are lacking owing to low autopsy rates and reporting only of patients who have surgery. The overall

incidence of AMI between 1970 and 1982 in the city of Malmö, Sweden, diagnosed at either autopsy or operation, was 12.9 per 100 000 person-years. The autopsy rate in the population was 87%. Among 402 patients, 270 (67.2%) had thromboembolic SMA occlusion, 63 (15.7%) mesenteric venous thrombosis (MVT), 62 (15.4%) nonocclusive mesenteric ischemia (NOMI) and 7 (1.7%) had indeterminate aetiology. The embolus to thrombus ratio was 1.4 : 1 among the 213 patients with acute SMA occlusion diagnosed at autopsy. Acute SMA occlusion was more common than ruptured abdominal aortic aneurysm (AAA) ***(Acosta., 2010)***.

Most patients of acute mesenteric ischemia complain of severe abdominal pain that is usually much out of proportion to the physical findings, and many will have been vomiting and/or defecating. Leukocytosis is also a frequent finding. Tenderness in the right lower quadrant and hyperactive bowel sounds are usually found. Acute venous thrombosis can be asymptomatic or patients present with vague, generalized abdominal pain ***(Montgomery et al., 1997)***.

Chronic mesenteric ischemia presents itself with a more indolent course. The typical form of presentation is recurrent abdominal postprandial pain. The main cause of that entity is the atherosclerotic plaque, which is slowly formed. Since it is a slow process, the affected patients develop collateral vessels in an

attempt to maintain an appropriate intestinal perfusion. The symptoms appear when there are no sufficient collateral vessels ***(Cognet et al., 2002).***

Angiography was traditionally the gold standard for the diagnosis of mesenteric ischemia. The development of multidetector row computed tomography (CT), however, has permitted detailed analysis of vascular flow that was never before possible, thereby relegating angiography to more of a confirmatory role ***(Horton& Fishman.,2001)***.

Optimal treatment may include open or endovascular surgery and patients are best treated in a vascular centre. The use of endovascular therapy for mesenteric ischemia is predominantly limited to treatment of the chronic form of the disease. When the results of open surgery are compared to those of percutaneous angioplasty and stenting, there is a higher incidence of recurrent symptoms after percutaneous angioplasty ***(Kasirajan et al., 2001).***

Patients who have suspected mesenteric ischemia must receive adequate fluid resuscitation, because capillary leak in the setting of visceral ischemia may lead to significant fluid shifts ***(Falkensammer& Oldenburg., 2006).***