Types and Management of Chronic Intestinal Ischemia

A Systematic Review

Submitted for Partial Fulfillment of Master Degree in General Surgery

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Khaled Ibrahim

List of Contents

List of Tables

List of Figures

List of Figures (Cont...)

List of Figures (Cont...)

List of Figures (Cont...)

List of Abbreviations

Abb.	Full term
ACA	*Anterior ceacal artery*
AMI	*Acute mesenteric ischemia*
BF	*Blood flow*
CA	*Celiac artery*
CABG	*Coronary artery bypass grafting*
CAD	*Coronary artery disease*
CHF	*Congestive heart failure*
CI	*Confidence intervals*
CMI	*Chronic mesenteric ischemia*
COPD	*Chronic obstructive pulmonary disease*
CT	*Computed tomography*
CTA	*Computed tomography angiography*
DUS	*Duplex ultrasonography*
ET	*Endoscopic treatment*
FMD	*Fibromuscular dysplasia*
IMA	*Inferior mesenteric artery*
IPDA	*Inferior pancreaticodoudenal artery*
MAS	*Mesenteric artery stenosis*
MBV	*Mean blood velocity*
MI	*Myocardial infarction*
MIP	*Maximum intensity projection*
MPR	*Multiplantar reconstruction*
MRA	*Magnetic resonance angiography*
MV	*Mesenteric vasculitis*

List of Abbreviations (Cont...)

Abb.	Full term
MVI	*Mesenteric vascular ischemia*
OD	*Odds ratio*
OT	*Open treatment*
PCA	*Posterior ceacal artery*
PV	*Portal vein*
PVD	*Peripheral vascular disease*
SMA	*Superior mesenteric artery*
SMV	*Superior mesenteric vein*
VLS	*Visible light spectroscopy*

INTRODUCTION

Chronic intestinal ischemia is unusual but important cause of abdominal pain. Although this condition accounts for only 5% of all intestinal ischemic events, it can have significant clinical consequences ***(Sreenarashimhaiah, 2005).***

Chronic intestinal ischemia is uncommon condition that accounts for about 2% of revascularization procedures in

patients with atheroma. Most patients are older than 60 years; women are affected three times more often than men. Ischemia occurs when the blood supply to the intestines is inadequate as a result of lesions affecting one or more of the three mesenteric arteries: the celiac artery, the superior mesenteric artery and inferior mesenteric artery ***(Loffroy, 2009).*** The most common cause of chronic intestinal ischemia is atherosclerotic occlusion or severe stenosis of the mesenteric arteries. A stenosis of >50% is present in *18%* of patients older than 65 years, but very few are symptomatic ***(Chang et al., 2006).***

The clinical presentation is seen in patient mostly between 60 and 80 years old, with or without concurrent disease in other vascular beds. This manifestation of systemic arteriosclerosis carries the risk factors of: smoking, hypertension, dyslipidemia and coronary artery disease. Some of these patients have associated comorbidities including chronic obstructive pulmonary disease, diabetes, aortic artery aneurysm and peripheral vascular disease. The severity of clinical presentation depends on:

1. The site, grade, and cause of vascular obstruction.
2. The degree of collateralization.
3. The stage of the disease ***(Sanjiv, 2001).***

Diagnosis can often be made by non- invasive methods such as computerized axial tomographic angiography, magnetic

resonance angiography, and duplex ultrasonography as well as by invasive catheter angiography ***(Sreenarashimhaiah, 2005).***

Angiography was traditionally the gold standard for the diagnosis of intestinal ischemia. The development of multidetector row computed tomography (CT), however, has permitted detailed analysis of vascular flow that was never before possible ***(Herbert and Steele, 2007).*** The use of endovascular therapy for intestinal ischemia is predominantly limited to treatment of chronic form the disease ***(Herbert and Steele, 2007).***

Various surgical techniques are available for splanchnic revascularization including transaortic endarterectomy, antegrade or retrograde bypass grafting, angioplasty with or without stenting ***(Illuminati et al., 2004).***

Aim of the Work

The objective of this systematic review is to assess the value of different types of management of chronic intestinal ischemia (open surgery versus endovascular interventions).

Chapter 1

ANATOMY

Small Intestine:

The normal adult human small intestinal length varies from about 275-850 cm as measured from the duodeno-jejunal flexure at autopsy or surgery and tends to be shorter in women. The full intestinal length is achieved by 10 years of age ***(Nightingale, 2001).***

Radiological anatomy:

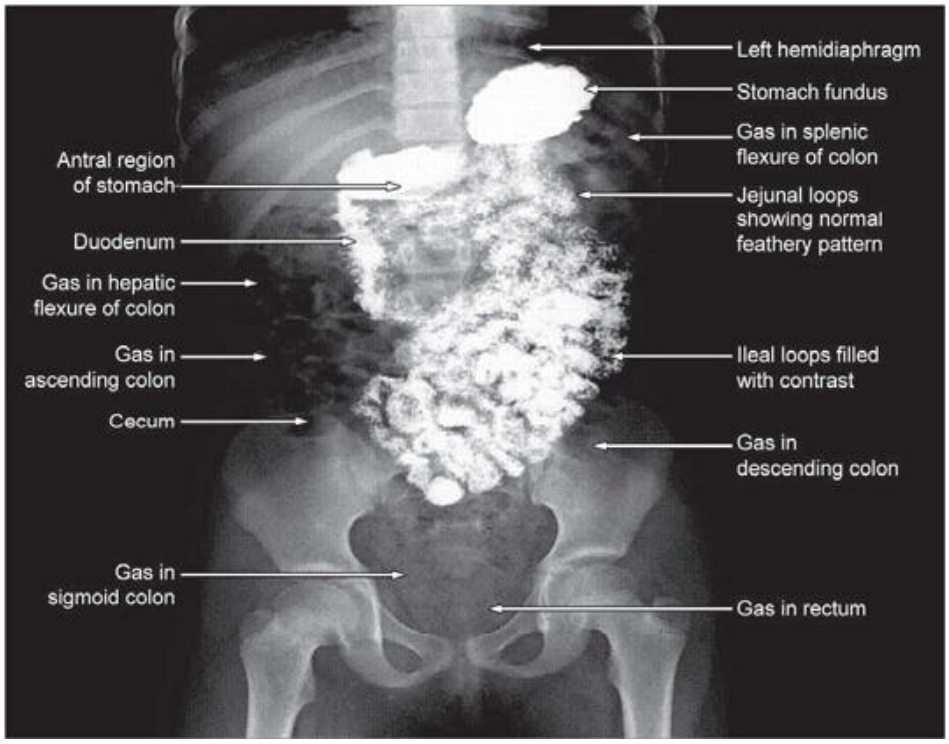

Figure (1): BMFT (BARIUM MEAL FOLLOW-THROUGH) study-Supine posteroanterior (PA) view of stomach with ileal loops ***(Hariqbal& Parvez., 2013).***