Common Celiacomesenteric Trunk Originating from Aorta Involved in Atherosclerotic Occlusion Manifested as Acute on Chronic Mesenteric Ischemia

Suchin Dhamnaskar*, Prashant Sawarkar2, Priyadarshini Manay2, Janesh M3, Richard Meninges3 and Varsha Kulkarni4

1Associate Professor, Seth G.S. Medical College, K.E.M Hospital, Parel, Mumbai, India
2Assistant Professor, Seth G.S. Medical College, K.E.M Hospital, Parel, Mumbai, India
3Surgical Resident, Seth G.S. Medical College, K.E.M Hospital, Parel, Mumbai, India
4Professor, Seth G.S. Medical College, K.E.M Hospital, Parel, Mumbai, India

Abstract

60 year old male patient was admitted with acute on chronic mesenteric ischemia. He was found to have rare anatomical variant of common celiacomesenteric trunk which had atherosclerotic occlusive disease. Revascularisation by endovascular techniques can effectively treat this condition and avoid catastrophe of massive bowel gangrene in future.

Keywords: Common Celiacomesenteric Trunk; Anatomical Variation; Endovascular Procedures

*Corresponding Author: Suchin Dhamnaskar, Associate Professor, Seth G.S. Medical College, K.E.M Hospital, Parel, Mumbai, India; E-mail: suchinsd@gmail.com

Introduction

Common celiacomesenteric trunk with the celiac and superior mesenteric arteries having common origin from aorta is the least frequently reported anatomical variation of all abdominal vascular anomalies (< 1 %). Atherosclerotic occlusion of celiacomesenteric trunk predisposes patients to significant risk of mesenteric ischemia. Low index of suspicion is needed to identify the condition. Endovascular interventions like plasty or stenting can be used effectively as treatment options.

Case Report

60 year old non diabetic, hypertensive patient presented to emergency department with history of diffuse central crampy abdominal pain of 2 months duration aggravated since last few days. Patient had history of postprandial pain and significant weight loss. Patient denied history of vomiting, malena or hematemesis.

His vital parameters were normal .On palpation he had diffuse tenderness in peri umbilical region. Hematological and biochemical lab investigations were within normal limits. Chest and erect abdominal radiography was unremarkable. USG showed jejunal wall edema. CECT showed diffuse long segment jejunal wall edema with preserved perfusion (Figure 1). It also revealed a common celiacomesenteric trunk originating from aorta with significant atherosclerotic plaques at origin causing significant (> 50%) luminal occlusion of both the major arteries especially the superior mesenteric artery (Figure 1).
Figure 1: Showing atherosclerotic occlusion of common celiacomesenteric trunk and resultant jejunal wall edema.

Discussion

Celiac and superior mesenteric artery having a common origin from aorta accounts for less than 1% of all abdominal vascular anomalies [1] and is estimated to have incidence of 0.25% [2]. Primitive aorta in embryo gives segmental branches to developing digestive tube which are called vitelline arteries. These are paired arteries initially and later fuse to represent three major arteries in dorsal mesentry of the gut namely, celiac, superior mesenteric and inferior mesenteric arteries which supply foregut, mid gut and hindgut respectively [3]. Celiac and superior mesenteric arteries arise from 10th and 13th vitelline arteries. Embryologically occurrence of celiacomesenteric common trunk can be explained by regression of 10th and persistence of 13th roots which are united ventrally [4].

Prior knowledge of this anomaly is of utmost importance during surgical procedures like pancreaticoduodenectomy or lymphadenectomy in this area to avoid complication of injuries to these important vessels with grave untoward outcome [5].

The diagnosis of chronic mesenteric ischemia due to superior mesenteric artery occlusive disease alone is usually delayed due to presence of collateral circulation between superior mesenteric and celiac arteries [6] which compensate to some extend for reduced blood flow to small intestine. Anastomosis between superior pancreaticoduodenal artery (from celiac artery) and inferior pancreaticoduodenal artery (from superior mesenteric artery) is one of the important collateral channels [7, 8].

Such compensatory mechanism of collateral circulation between celiac and superior mesenteric arteries is not possible in patients having common celiacomesenteric trunk when common trunk is involved into occlusive disease as in our patient. In these patients one common trunk supplies a vast area of gastrointestinal tract ranging from stomach up to proximal transverse colon, liver, spleen and pancreas. Thus severe thrombotic occlusions of this common trunk in patients with this anatomical variant can lead to life threatening complications like massive bowel gangrene extending from stomach to transverse colon, ischemic hepatitis and splenic infarction.

Treatment options available include surgical bypass grafting [9] and percutaneous trans luminal angioplasty and stenting [10, 11]. Advances in technique of endovascular procedures, widespread availability, affectivity in achieving successful revascularization and comparatively increased morbidity of surgical bypass grafts procedure, are the reasons of these trans luminal / endovascular techniques becoming the first choice for treatment of patients with chronic mesenteric ischemia due to occlusive diseases of common celiacomesenteric trunk.
References


