

# Aorto-Hepatic By-Pass Grafting as Treatment Option After Acute Thrombosis of a Celiac Trunk Stenting. Report of a Case

Mohamed Ben Hammamia\*, Jalel Ziadi, Sobhi Mlaih, Zied Daoud, Faker Ghedira, Malek Ben Mrad, and Raouf Denguir

Department of Cardiovascular Surgery La Rabta Tunis, Tunisia

\*Corresponding author: Dr Ben Hammamia Mohamed, La Rabta Hospital Center, Department of Cardiovascular Surgery La Rabta, Tunis, Tunisia, Tel: +0021698620209; E-mail: [benhammamiamohamed@gmail.com](mailto:benhammamiamohamed@gmail.com)

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## Abstract

Celiac trunk thrombosis is a rare event after percutaneous stenting. Treatment options include surgery or endovascular approach. We report the case of a diabetic female patient of 56 years old with a recurrent chronic mesenteric ischemia related to celiac trunk stenosis. We choose endovascular approach and we performed a stenting of this lesion with a balloon expandable stent of 6 × 29 mm. Acute abdomen occurred at the first postoperative day. Acute mesenteric ischemia was suspected. CT scan objectified a stent thrombosis and beginning of intestinal distress. Because of doubt of intestinal viability, we performed urgently a laparotomy and an antegrade aorto-hepatic bypass. Post-operative course was satisfactory. We put the patient on platelet antiaggregant therapy. One year after, CT scan confirms graft patency. Acute thrombosis of a celiac trunk stenting is an emergency and diagnosis must be performed before the development of end-organ damage. Aorto hepatic bypass can be a good alternative.

**Keywords:** Thrombosis; Aorto hepatic; Celiac trunk; CT scan; Intestinal distress

## Introduction

Celiac trunk Thrombosis is an uncommon event after percutaneous stenting. The manifestation is rare because a high number of collaterals between celiac trunk and superior mesenteric artery. It carries a high mortality and morbidity mostly when diagnosis and treatment are delayed [1]. Treatment options include surgery or endovascular approach. We present a patient with acute mesenteric ischemia caused by early thrombosis of a celiac trunk stent who was successfully treated by an aorto-hepatic by pass.

## Case Report

We report the case of a diabetic female patient of 56 years old with a recurrent chronic mesenteric ischemia related to a severe celiac trunk stenosis at its origin. There were lesions in the two other digestive trunks but less significant. The stenosis was anatomically well adapted to endovascular repair.

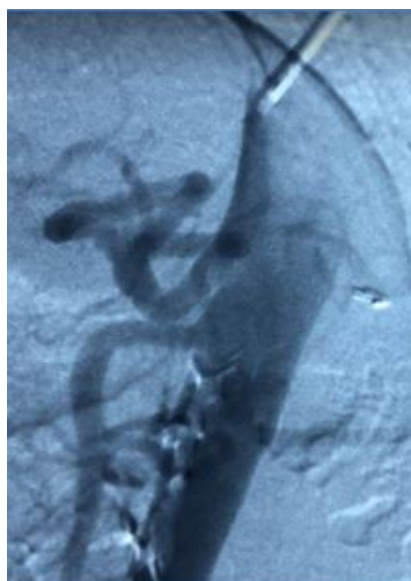
We performed a stenting of the celiac trunk stenosis by a double brachial and femoral percutaneous approach (Figure 1). A balloon expandable stent of 6 × 29 mm was deployed for a celiac trunk of 5.2 mm. The angiography performed in the end of the procedure was satisfaisant (Figure 2).

The postoperative course was marked by the occurrence of an acute abdomen one day after. Physical examination objectified a generalized abdominal defense. The diagnosis of acute mesenteric ischemia was suspected.

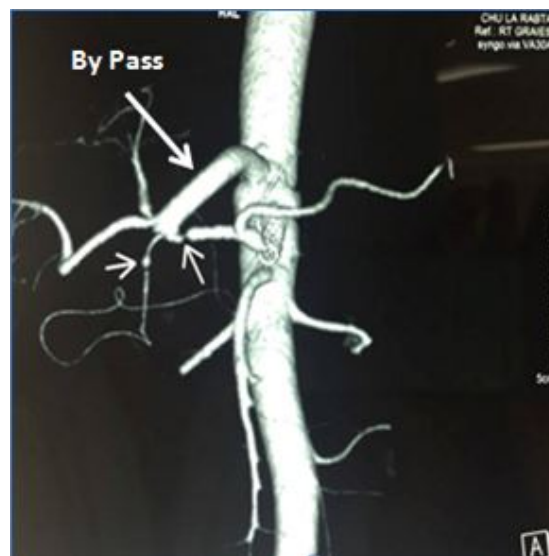
The CT scan objectified a thrombosis of the stent (Figure 3) and a beginning of radiological signs of intestinal distress. Because of doubt of intestinal viability, we decide for an open surgery.



**Figure 1:** Stenting of the celiac trunk.



**Figure 2:** Final angiography.



**Figure 4:** Aorto hepatic by pass.

The patient underwent an emergency laparotomy. We performed an antegrade aorto-hepatic bypass with an 8 mm Polytetrafluoroethylene (PTFE) prothesis. We did not perform a bowel resection because there was no intestinal necrosis. The subsequent evolution was favorable. Patient's medication consists on platelet antiaggregant therapy. On follow up, one year later, the patient is still asymptomatic and CT scan confirms the patency of the graft (Figure 4).



**Figure 3:** Thrombosis of the stent.

## Discussion

Acute mesenteric ischemia represents a medical emergency, and intestinal blood flow must be restored as quickly as possible to reduce the risk of ischemic bowel. Mortality rates of acute mesenteric ischemia can reach up to 40%–70% [2]. In 70%–80% of the patients, the etiological factor is the obstructive embolism or thrombosis of superior mesenteric artery [2]. In the literature, there have been reports regarding also celiac trunk occlusion in rare situations. The originality of our report relies on the acute obstruction of a celiac trunk stenting which is in our knowledge the first case reported. Thrombosis of the stent can be explained by a technical error or by the outflow compromise. Diagnosis of celiac trunk in stent thrombosis can be made by transesophageal echography [3] but for our patient we conducted CT scan to have complete cartography of digestive arteries so that we can consider revascularization. After the diagnosis is certain, treatment options must be discussed. Management of celiac trunk stent thrombosis is well treated in other reports [4–6], but in case of acute mesenteric ischemia it is rarely reported in the literature. Treatment depends on many factors. The level of occlusion, collateral vasculature, and clinical state of the patient are among them. Treatment options for acute mesenteric ischemia have improved [7]. Endovascular treatment is usually successful in restoring intestinal blood flow acutely, but we think that traditional surgery remains the best option for patients with intestinal infarction and signs of acute peritoneal irritation. In diagnosed patients without these signs, endovascular interventions can be performed with low rates of complication compared to traditional surgical mesenteric by pass [8]. Initial management for acute mesenteric ischemia includes hemodynamic monitoring and support, correction of electrolyte imbalances, and broad-spectrum antibiotics. Anticoagulation, usually an unfractionated heparin drip, is recommended to prevent further propagation of the thrombus [9]. Surgical therapy is indicated for all patients who have evidence of bowel ischemia. Based on the patient's presenting symptoms, we believed that our patient had impending intestinal infarction, thus necessitating emergent surgery instead of

radiologic intervention. We chose surgery option for our patients to see bowel viability before the development of permanent intestinal injury. Do et al. [10] reported in 2010 a less invasive technique called retrograde superior mesenteric artery stenting which combines both open surgical and endovascular methods as an option to treat acute mesenteric ischemia. In this approach, the superior mesenteric artery was exposed at the transverse mesocolon base for retrograde cannulation and the stent was then placed to revascularize the viscera. Benefits of this technique include rapid revascularization, avoiding aortic clamping, prosthetic conduit contamination, and potential kinking associated with vein bypass.

Until now, no prospective controlled trials comparing conventional surgery and endovascular treatment are available for acute mesenteric ischemia. Early diagnosis and intervention is required in acute thrombosis of celiac trunk stent so that to prevent irreversible intestinal ischemia, bowel necrosis and patient death. After the development of end-organ damage, the morbidity and mortality of any procedure can reach high rates.

Despite the occurrence of this rare complication, endovascular repair still holds its place in the management of chronic mesenteric ischemia because it is safer than surgery with 0%-11% mortality and 0%-18% morbidity in the short term. It remains a less invasive technique and have slightly inferior technical and clinical success rates compared to surgery [11].

## Conclusion

Acute thrombosis of a celiac trunk stenting is an emergency and the diagnosis must be performed before the development of end-organ damage. Surgical option with an aorto hepatic by pass can be a good alternative.

## Conflict of Interest

We wish to declare that there are no conflicts of interest.

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