

# Treatment of acute upper gastrointestinal bleeding non-variceal using technique combined with EVOH and coils.

C.D. Córdoba Muñoz, J.F. Antezana Tapia, J.M. Cabrera González, M. Arroyo López, A. Pla Romero, A. Sánchez Guerrero, R. San Román Manso, R. Villar Esnal.  
Hospital Universitario 12 de Octubre.  
Madrid – Spain.



## INTRODUCTION:

Non-variceal upper gastrointestinal haemorrhage is defined as bleeding proximal to the ligament of Trietz, the most common cause is peptic ulcer disease (35-50%). Endoscopy is the primary invasive technique for the diagnosis and treatment of upper gastrointestinal haemorrhage. When medical and endoscopic treatments fail, surgery or transcatheter embolization are the treatment options, without evidence of superiority of either.

The surgery has two major drawbacks: the high mortality rate and the need for complementary tests that allow us to locate the lesion.

According to many reports, the technical and clinical success rates associated with endovascular treatment are high, ranging from 69%–100% and 63%–97%, respectively. The optimal embolic agent remains a matter of debate. The most commonly used embolic material are microcoils, but existing an association between the use of coils alone and the incidence of bleeding recurrence, especially in patients with coagulopathy. Onyx has the remarkable advantage of acting independently of any underlying coagulopathy or low platelet count, also has some theoretical advantages owing to its controlled delivery injection, non adhesive nature, high radiopacity ,and high hemostasis effect. We use a sandwich technique with EVOH assisted with metallic distal microcoils, to prevent the progression distal of EVOH and shorten embolization time, demonstrating that it is a safe technique.

## PURPOSE:

We described in our study the technical, efficacy and clinical outcomes obtained in the endovascular treatment of acute upper gastrointestinal bleeding (AUGB) non-variceal in which we used the liquid embolic agent Onyx™ (ethylene-vinyl alcohol - EVOH) and assisted with metallic distal coils.

## MATERIAL AND METHODS:

Retrospective descriptive study that includes 10 patients (1 woman / 9 men), mean age of 63 years, with acute upper gastrointestinal bleeding non-variceal, underwent urgent embolization by combined technique (liquid embolic agent and distal protected with coils), performed between December 2017 and November 2019.

## RESULTS:

Of the total cases of HDA, 5 were secondary to duodenal ulcers (50%), 2 pseudoaneurysms as a surgical complication / endoscopic treatment (20%), 1 duodenal diverticular bleeding (10%), 1 complication endoscopic sphincterotomy treatment (10%) and 1 for acute necrohemorrhagic pancreatitis (10%).

The gastroduodenal artery was embolized in 7 cases (70%), the right hepatic in 1 case (10%) and the superior pancreaticoduodenal in 2 case (20%). The technical and clinical success were 100%, with no evidence of bleeding or major or minor complications in a minimum follow-up period of 1 month and a maximum of 2 year.

There was one death secondary to associated comorbidities.

## CONCLUSIONS:

Transarterial embolization in patients with acute upper gastrointestinal bleeding non-variceal is a safe and effective technique. Although rebleeding rates of up to 34% have been reported in the published series depending on the material used, in our experience, through the use of liquid embolic agent (EVOH – Onyx™) and distal embolization with coils, there were no bleeding or associated complications in the follow-up.

## BIBLIOGRAPHY:

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**CASE1:** 42-year-old male, second episode of upper gastrointestinal bleeding with hypovolemic shock secondary to deep bulbar ulcer, multiphase abdominal CT study shows a 5-mm pseudoaneurysm in the gastroduodenal artery, confirmed in arteriography ( Arrow in the image A). B. Embolization by sandwich technique, microcoil distal to the pseudoaneurysm (arrowhead) and retrograde filling with EVOH (arrow). Note the permeability of the coil prior to the administration of EVOH. C. Arteriographic control with good results without contrast extravasation and exclusion of the gastroduodenal artery. The arrow and arrowhead show the mold of the liquid embolization agent and the microcoil



**CASE 2:** Patient with a second episode of upper gastrointestinal bleeding with hemodynamic instability, recent history of prior arterial embolization the right hepatic artery with coils. A and B. MIP reconstruction of the abdominal arterial CT study and visceral trunk arteriography shows repermeabilization of the coils (arrow) and an imaging of pseudoaneurysm (arrowhead) C: embolization using the sandwich technique with distal coil of the pseudoneanerysm and EVOH in a retrograde manner (arrow).

