

## Case Report

# Enterocutaneous fistulas due to stent migration. How reliable is its use on duodenal benign pathology? a case report

Aldo Edyair Jiménez Herevia<sup>1\*</sup>, Luis Montiel Hinojosa<sup>2</sup>, Diego Hinojosa Ugarte<sup>1</sup>,  
Erick Martín Páez Hernández<sup>1</sup>, Enrique Obregón Moreno<sup>1</sup>

<sup>1</sup>Department of Surgery, Hospital Regional Alta Especialidad del Bajío. León, Guanajuato, México

<sup>2</sup>Department of Hepatopancreatobiliary Surgery, Hospital Regional Alta Especialidad del Bajío. León, Guanajuato, México

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### \*Correspondence:

Dr. Aldo Edyair Jiménez Herevia,

E-mail: [aldojmzherevia@hotmail.com](mailto:aldojmzherevia@hotmail.com)

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## ABSTRACT

Duodenal stenting has been widely used on malignant pathology on selected patients with poor prognosis and advanced disease. In these last years, there has been a clear ampliation of the clinical applications of endoscopy procedures and stents. Its use on benign pathology is spreading but there is a lack of literature about the complications in this context. The incidence of stent migration is about 10-25% in self-expandable metal stent (SEMS), and 2-5% on covered self-expanding metal stents (CSEMS). We reported a clinical case of a 48 years old patient who developed a duodenal ulcer. The patient was submitted to exploratory laparotomy, with duodenal primary closure of the ulcer. Later, the patient developed a enterocutaneous fistula because of the duodenal leak. It was referred to our third level hospital to the hepatopancreatobiliary surgery service. A new exploratory laparotomy with duodenal exclusion was planned, but it was impossible to access due to frozen abdomen. CSEMS was placed in the duodenal bulb resulting in the resolution of leaking, but the stent could not be removed because of migration. The stent trajectory was followed by abdominal x ray and tomography. The patient developed multiple intestinal an fecal enterocutaneous fistulas. It was submitted to multiples endoscopies, colonoscopies and enteroscopy without any success to reaching it. It was decided to perform a right lumbotomy to extract the prothesis. The stent was surgically removed, a planned stoma was left on the right flank on the extraction site.

**Keywords:** Benign duodenal stenting, Duodenal fistula, Duodenal stent, Stent migration

## INTRODUCTION

With the development of endoscopy and new prosthetic devices in the two last decades, provisional insertion of stents has been introduced in several pathologies, making it an useful alternative to more radical or aggressive surgical procedures. There is a lot of evidence supporting the uses of stents on malignant pathology, there are reasonable risks that can be taken on selected patients because of their underlying poor prognosis, but there is a lack of reports on the international literature about the complications that carry within the use of stenting. It is mainly used in benign strictures on the esophagus and

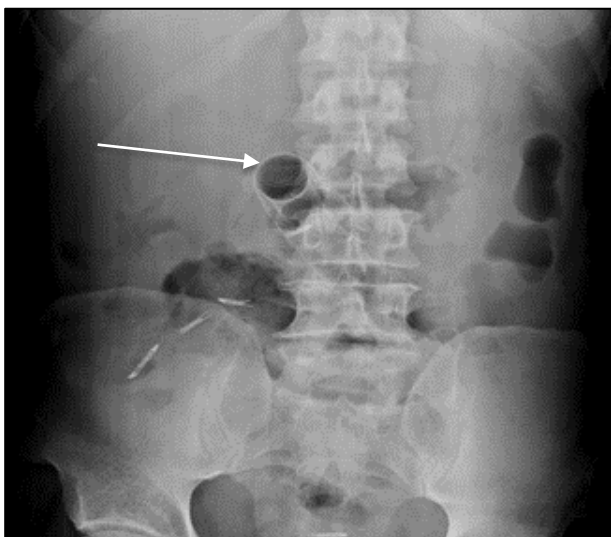
widely used in duodenal malignant pathology for palliative purposes, mainly on gastric outlet obstruction. It has been proven to be an excellent alternative on selected patients.<sup>1</sup> There has been a trending in the use for benign pathology, mainly on benign strictures, biliary and intestinal leaks.<sup>2</sup>

There are a few reports about enterocutaneous fistula due to duodenal leak supporting its use with resolution and good outcome for the patient.<sup>3</sup> Some cases of duodenal ulcers treated with stent has been published with favorable results. It has been reported that CSEMS seems to be a feasible and safe alternative in patients who were

not good candidates for surgery because of their poor general conditions, comorbidities, previous surgical procedures or technical difficulties.<sup>4</sup> However, can be safely used on benign pathology on duodenum?

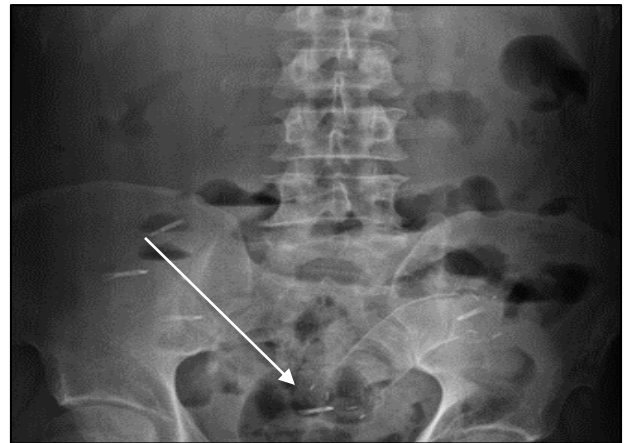
### CASE REPORT

Authors reported a clinical case of a 48 years old male patient with chronic pain due to femoral fractures, who self-medicated with nonsteroidal anti-inflammatory drugs for about 10 years, he developed a duodenal ulcer. In a second level hospital, the patient was submitted to an urgent exploratory laparotomy, with duodenal primary suture. 48 hours later, the patient was re-intervened because of a sepsis. The patient developed acute abdomen because a duodenal leak. It was submitted to a new surgery, and later he developed a duodenal fistula. It was referred to this third level hospital to the hepatopancreatobiliary surgery service. A new exploratory laparotomy with duodenal exclusion was planned, but it was impossible to access due to frozen abdomen. Because of the previous multiple surgeries, authors decided to underwent the patient to duodenal stent placement and total parenteral nutrition and nil per os, the endoscopic procedure reported a 5 mm posterior fistula located on posterior wall at the duodenal bulb. A covered self-expanding metal stents (CSEMS) 20 cm×14Fr was temporary inserted and fixated with clips (Figure 1), planned to be removed after 4-6 weeks. Duodenal leaking was controlled, but the stent could not be removed because of migration to the small intestine. The stent trajectory was followed by abdominal X-ray and tomography for more than 6 months without rejecting it from the body (Figure 2).



**Figure 1: Duodenal stent on adequate position, control radiography after endoscopy.**

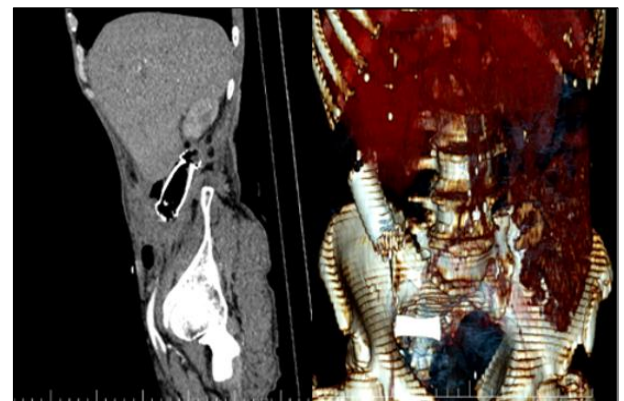
Meanwhile, the patient developed multiple enterocutaneous fistulas in the anterior abdomen due to the foreign body reaction caused by the stent (Figure 3).



**Figure 2: Migration of the stent into the small intestine.**



**Figure 3: Enterocutaneous fistula on anterior abdominal wall due to stent migration.**



**Figure 4: Computed tomography control demonstrating stent proximity to right abdominal wall.**

It was submitted to multiples endoscopies, colonoscopies and enteroscopy without the possibility to reach it. Upon the tomographic control, it was noticed to be near the left abdominal wall, it was decided to perform a right lumbotomy to extract the prosthesis (Figure 4).



**Figure 5: Surgical removal of the stent with right side lumbotomy.**

The stent was found with extraluminal connections to retroperitoneum, anterior wall, terminal ileum and ascending colon. A lumbotomy was done and the stent was surgically removed (Figure 5), but due to the inability to mobilize the intestine because of the frozen abdomen, a planned stoma was left on the right flank on the extraction site. The patient was kept with parenteral nutrition and three weeks later, he got a resolution of anterior wall fistulas, with a favorable clinical outcome.

## DISCUSSION

On malignant pathology, SEMS placement is associated with a higher clinical success rate, shorter delay of oral intake following the procedure, lower incidence of delayed gastric emptying and shorter hospital stay than palliative surgery.<sup>5</sup> Migration in comparison CSEMS vs SEMS is more frequent. It has been reported in the literature from 10 to 25% versus 2-5%, respectively.<sup>6</sup> This can be reduced with clip fixation of the stent.<sup>7</sup> The stent length should be selected by allowing for an additional 2-4 cm to be exposed distally and proximally to the lesion. Generally, the stent is left in place 4 to 6 weeks. In this case, a CSEMS was used. Those stents are the most used in upper gastrointestinal defects, being a successful treatment on perforations and fistulas on esophagus in more of 90% of the cases.<sup>8</sup> This alternative treatment was chosen because of the inaccessibility of the abdomen. Nevertheless, it must be kept in mind all the consequences that a procedure can carry. In this patient, duodenal fistula was solved with the use of stenting, but he was submitted to multiple endoscopic procedures and even a major surgery because of migration.

## CONCLUSION

Stent placement have a significant complication rates, and patients should be adequately selected. Perforations

due to migration is a very rare complication which significantly affects patient life quality and could lead to death. The development of this situation has a difficult and multidisciplinary management. This case team did not found literature about fistula complication due to stent migration on benign duodenal pathology. More research should be carried comparing stents types on benign duodenal benign pathology in order to reduce the complications rates and to establish treatment modalities on this scenario.

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