Closure of an Iatrogenic Duodenal Perforation using a Novel Tack and Suturing System

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Introduction

The novel endosopic tack and suturing system, X-Tack endoscopic HeliX tacking system (Apollo Endosurgery, Austin, Tex, USA), is an emerging technique used for the closure of large tissue defects, but our understanding of its role in the closure of full-thickness defects remains limited. We describe a case of a successful closure of a full-thickness iatrogenic defect in the duodenum.

Case Description

We present a case of a 65-year-old female diagnosed with an iatrogenic duodenal perforation. The patient was initially referred for an upper gastrointestinal tract endoscopic ultrasound (EUS) for evaluation of an asymptomatic 6mm pancreatic tail cyst found incidentally on computed tomography (CT). This routine EUS was complicated by a duodenal perforation in the first portion of the duodenum. The defect was 20mm in size and was immediately repaired using the tack and suture device. The patient was admitted for observation post-procedure. She was treated with broad spectrum antibiotics to prevent intra-abdominal infection. Tight closure was confirmed by absence of oral contrast extravasation on CT imaging. Her hospital course remained uncomplicated and she was discharged on day 5 after advancing her diet. She remains stable and asymptomatic on follow up.

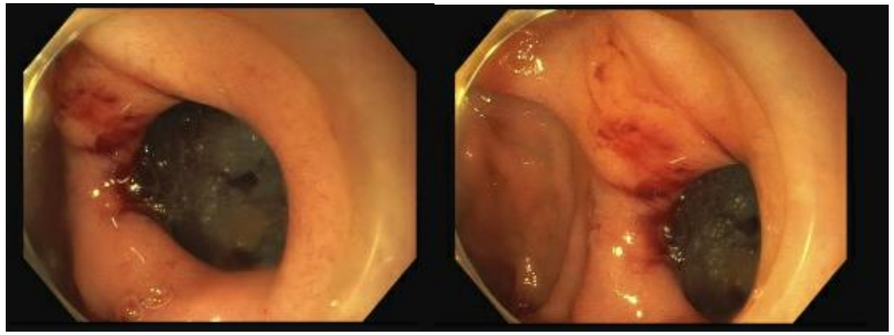

Figure 1: Perforation in the first portion of the duodenum

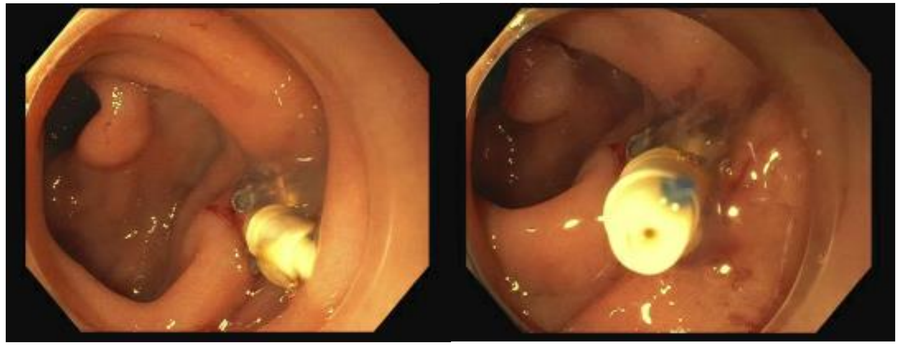

Figure 2: Defect closure using the novel tack and suturing system

Discussion

This case demonstrates the utility and safety of the X-Tack endoscopic suturing system for full thickness gastrointestinal perforations of the upper GI tract. Other methods include endoscopic clips as well as endoscopic suturing devices. The advantages of using the tack and suturing device include its ease of use, since it was considered intuitive and did not require extensive additional training. In fact, general GI fellows at our institution were able to use it after a demonstration. In this case, the location of the defect in the first portion of the duodenum made the use of other methods challenging. Endoscopic suturing devices require extensive training as well as a dual channel endoscope in certain cases that may not be widely available.

It may also be superior to clips since it allows for closure of irregular defects, and one decide may substitute the use of multiple clips which makes it more cost-effective.

The majority of the data on its use is on closure of post-polypectomy defects in the colon. Further data is needed to make recommendations on its routine use in the closure of full-thickness defects and defects in the upper GI tract.