Case Report

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Cysto-Gastric Bypass Os Post-Traumatic Hepatic Subcapsular Colletion Using Luminal Apposition Stent

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Abstract

Endoscopic ultrasound-guided drainage with a lumen-apposing metal stent (LAMS) represents a less invasive alternative to surgical and percutaneous approaches for intra-abdominal collections. We report the case of a 43-year-old male with a large post-traumatic hepatic subcapsular collection, successfully treated with endoscopic drainage using LAMS (Hot Axios), with evacuation of approximately 3,000 mL of hemopurulent content and complete resolution after replacement with double pigtail stents. We conclude that LAMS is a safe and effective option, although further studies are needed to consolidate its indication in hepatic subcapsular lesions.

Keywords: LAMS, Endoscopic Drainage, Hepatic Subcapsular Collection, Post-Trauma, Hot Axios.

Introduction

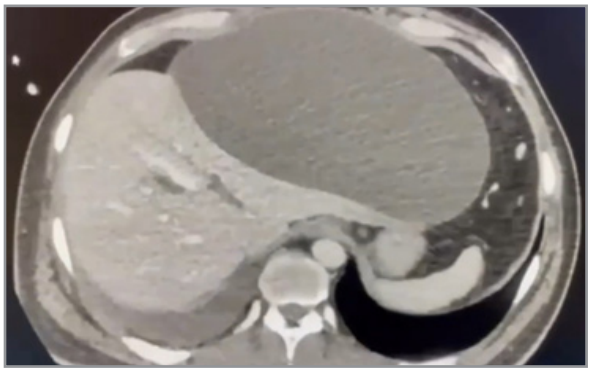
Ultrasound-guided drainage has already become a well-established and advantageous option over percutaneous drainage, as it provides greater comfort and safety, in addition to a shorter hospital stay for the patient, since it is an internal drainage and consequently more physiological than percutaneous drainage. The tissue apposition stent (LAMS) further enhances the efficacy and safety of ultrasound-guided drainages, as it features a larger lumen diameter, improving the speed and efficiency of drainage. It also allows for intraluminal access with an endoscope, with proximal and distal flanges, reducing the stent migration rate, along with a simpler operational system. Its main indications include drainage of intra-abdominal fluid collections, decompression of obstructed bile ducts, creation of anastomoses, or creation of fistulous tracts between organs that can facilitate other endoscopic interventions.

Case Report

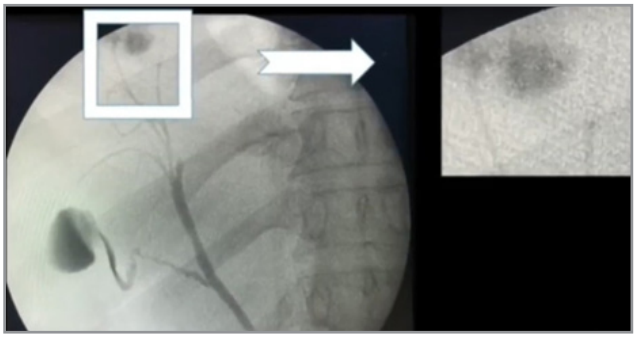
We report the case of a 43-year-old male patient, victim of a motorcycle x truck collision, initially diagnosed with a clavicle fracture. Opting for conservative treatment, he was discharged from hospital. Thirty days after the accident, he sought medical attention due to pain and increased abdominal volume. Abdominal computed tomography (CT) showed grade III liver laceration, with hepatic subcapsular collections, the largest measuring 21x18x12cm (image 1), in addition to a collection next to the hepatocholedocus suggestive of biliary fistula.

Endoscopic Methods

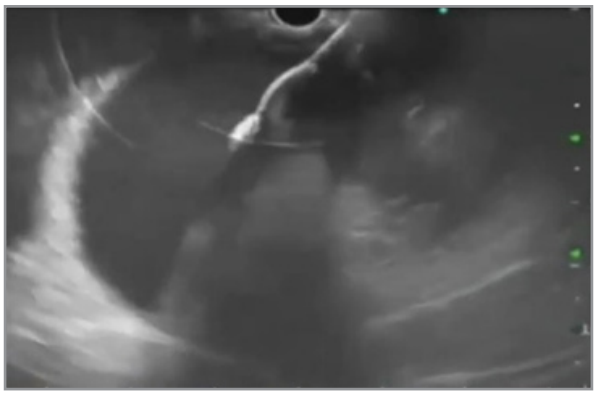
We opted for endoscopic retrograde cholangiopancreatography (ERCP) and ultrasound-guided drainage of the collections. During ERCP, papillotomy was performed to correct the proximal biliary fistula (image 2). During ultrasound endoscopy, a subcapsular lesion was assessed in close contact with the gastric wall, followed by ultrasound-guided drainage using LAMS (image 3). There was drainage of 3.000 mL of hematic-purulent content (image 4). Endoscopic control after 7 days revealed improvement in the capsular pattern. On the 14th day of evolution, the LAMS was removed, followed using 2 double-pigtail stents to maintain residual drainage (image 5,6). A new CT scan was performed 30 and 60 days after endoscopic drainage, which demonstrated resolution of the collections and resulted in the removal of the double-pigtail stents (image 7).



1.Computerized tomographic study

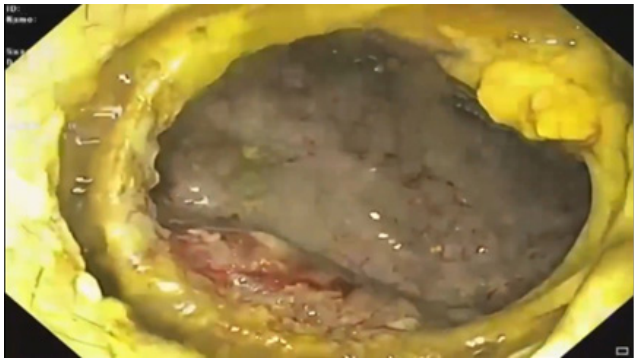


2. Intrahepatic contrast leak in segment VIII
Absence of contrast in the left bile duct.

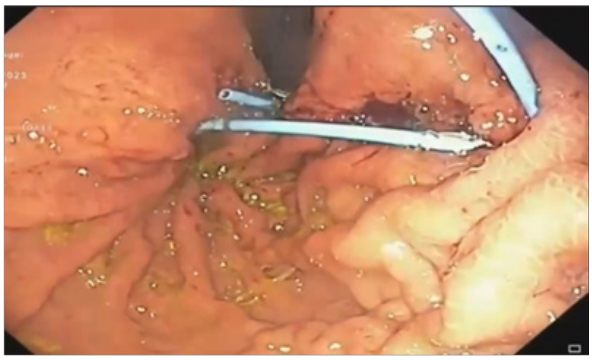


3. Application of the LAMS

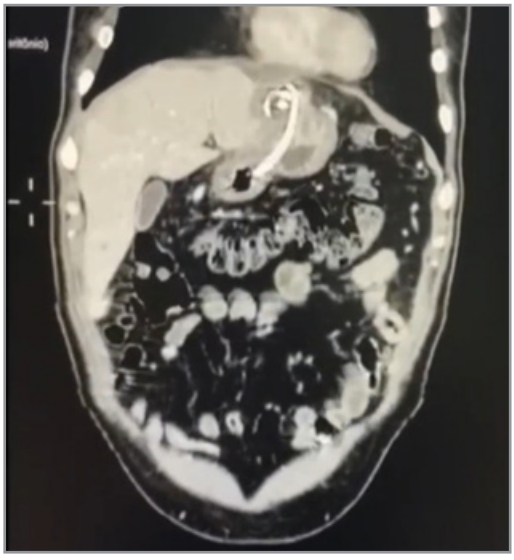
4. Drainage of thick bile contents



5. 14° Post-operative drainage.



6. Double Pig-Tail stents.



7. Radiological control after 28 days.

Discussion

Luminal apposition metal stents (LAMS) allow effective drainage of solid and semi-solid debris [1]. One unique feature of LAMS is their ability to connect adjacent structures, minimizing the potential for leaks and perforations. The most commonly used model, the Axios (Boston Scientific), received FDA approval in 2013 and is widely used for transluminal drainage guided by endoscopic ultrasound (EUS) [2]. It can be stated, therefore, that LAMS have enhanced the ability to perform complex therapeutic interventions as well as reduce the need for high-risk surgical procedures, especially in patients with comorbidities [3].

The main advantage of LAMS is the reduction in the need for repeated endoscopic necrosectomy. In a retrospective study, it was observed that the clinical success rate was significantly higher with LAMS compared to plastic stents [4]. Moreover, the development of safe anastomotic stent technologies has increased interest in endoscopic treatment of conditions that previously required surgical or radiological intervention. The AXIOS system, for example, is a single-step device that uses two large flanges to connect opposite tissue layers and establish large-caliber drainage. Although the use of LAMS for drainage of subcapsular hepatic collections is not widely documented, there are reports of successful drainage of hepatic abscesses located near the stomach [5]. The transgastric or transduodenal approach allows efficient drainage without the need for percutaneous or surgical drainage, reducing the risk of complications such as biliary fistulas [6].

Doyon et al. (2022) described the first successful endoscopic debridement of an infected subcapsular hepatic hematoma using a LAMS. After failed attempts at percutaneous drainage and considering the patient's inability to undergo surgery, the team performed drainage and debridement of the hematoma via a transgastric approach guided by EUS, achieving success without complications associated with the procedure [7]. This case highlights the potential of endoscopic approaches to replace conventional surgical procedures. LAMS carry associated risks, such as bleeding from pseudoaneurysms, stent migration, and obstruction by necrotic debris [8]. The incidence of bleeding can reach up to 21% in some series and is attributed to the rapid collapse of the collection, resulting in compression of adjacent vessels [9]. Studies suggest that early removal of LAMS, ideally within three weeks after placement, can reduce the risk of these complications [10].

While LAMS offer technical advantages in draining intra-abdominal collections and show potential for applications in subcapsular lesions, careful patient selection and rigorous monitoring are essential to minimize complications. Early removal of stents should be considered to reduce risks associated with prolonged use. Regarding the patient in the case described, he remains under observation due to a left hepatic disconnection injury, with tests demonstrating mild dilation of the intrahepatic bile duct. He is clinically well and asymptomatic, but the possibility of left hepatectomy cannot be ruled out.

Conclusion

Several cases are reported in the literature on the use of LAMS for drainage of intra-abdominal collections; however, for post-traumatic subcapsular lesions, only one case was reported in our review, and, like ours, there was a satisfactory outcome. The use of LAMS for this type of intervention is uncommon, but suggests it is an effective alternative. Prospective studies are needed to better evaluate the efficacy of LAMS in hepatic subcapsular lesions.

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