

## Single-step endoscopic ultrasound-guided fluoroless gallbladder drainage using the Axios lumen-apposing metal stent

**Carmelo Barbera, Giuseppe Grande, Nadia Alberghina, Mauro Manno, Rita Luisa Conigliaro**

Gastrointestinal Endoscopy Unit, NOCSAE Hospital, Modena, Italy

Severe acute cholecystitis is a condition that requires urgent surgical intervention to prevent sepsis and death. Elderly patients can be unfit for surgery because of comorbidities so alternative techniques are required for gallbladder drainage [1].

Here we report the case of a 93-year-old woman with abdominal pain, fever, and vomiting who was referred to our unit to undergo gallbladder drainage. An abdominal computed tomography (CT) scan showed cholelithiasis, gallbladder distension with wall thickening, and pericholecystic fluid. However, because of renal and cardiorespiratory comorbidities, the patient was judged unfit for surgery.

Fluoroless endoscopic ultrasound (EUS)-guided transluminal gallbladder drainage was therefore performed using a fully covered metal stent (10 mm in diameter; Hot Axios, Boston Scientific Inc., Natick, Massachusetts, USA). The gallbladder was directly punctured using the cautery tip of the device. This was possible owing to a favorable position of the gallbladder, which was closely abutting the duodenum. The lumen-apposing metal stent (LAMS) was then deployed, with subsequent rapid drainage of the gallbladder. The patient became asymptomatic in the days following the procedure and was discharged 5 days later.

EUS-guided transmural gallbladder drainage, which has been practiced since 2007, requires multiple steps and devices to achieve gallbladder access, dilation of the duodenal wall, and stent deployment [1]. The need for device exchange over a wire can result in an increased risk of adverse events, such as perforation, bleeding, and infection. Furthermore, until now, the stents used for these indications have had

### Video 1



Acute cholecystitis is shown on abdominal computed tomography (CT) scanning and is successfully treated using the endoscopic ultrasound (EUS)-guided Axios stent and delivery system.

to be borrowed from those intended for use during endoscopic retrograde cholangiopancreatography (ERCP).

The Axios system is a new specifically designed fluoroless EUS-guided fully covered lumen-apposing metal stent, which is used for drainage of pancreatic fluid collections, the gallbladder, and the bile duct [2,4,5]. The Axios delivery system provides good maneuverability and visibility, making the sheath suitable for direct puncture.

Our experience suggests that EUS-guided gallbladder drainage should be considered as a first option in patients unfit for surgery [3]. This new device may be easier to deploy than other stents and maintains good apposition of the two walls to create an iatrogenic anastomosis.

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**Competing interests:** None

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### Corresponding author

**Giuseppe Grande, MD**  
 Gastrointestinal Endoscopy Unit  
 NOCSAE Hospital  
 via Pietro Giardini 1355  
 Baggiovara di Modena  
 Modena 41126  
 Italy  
 Fax: +39-059-3961216  
[giuseppegrande1984@gmail.com](mailto:giuseppegrande1984@gmail.com)