

Optimizing Biliary Stent Management: The Impact of Expert Transabdominal Ultrasound in Planning and Follow-up

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Background

Biliary stenting plays a crucial role in the management of biliary obstructions and related complications. Current standard protocols rely primarily on imaging modalities such as computed tomography (CT) and endoscopic ultrasound (EUS) for planning and monitoring of biliary stents. However, the utilization of high-quality expert transabdominal ultrasound (US) in this context remains underexplored.

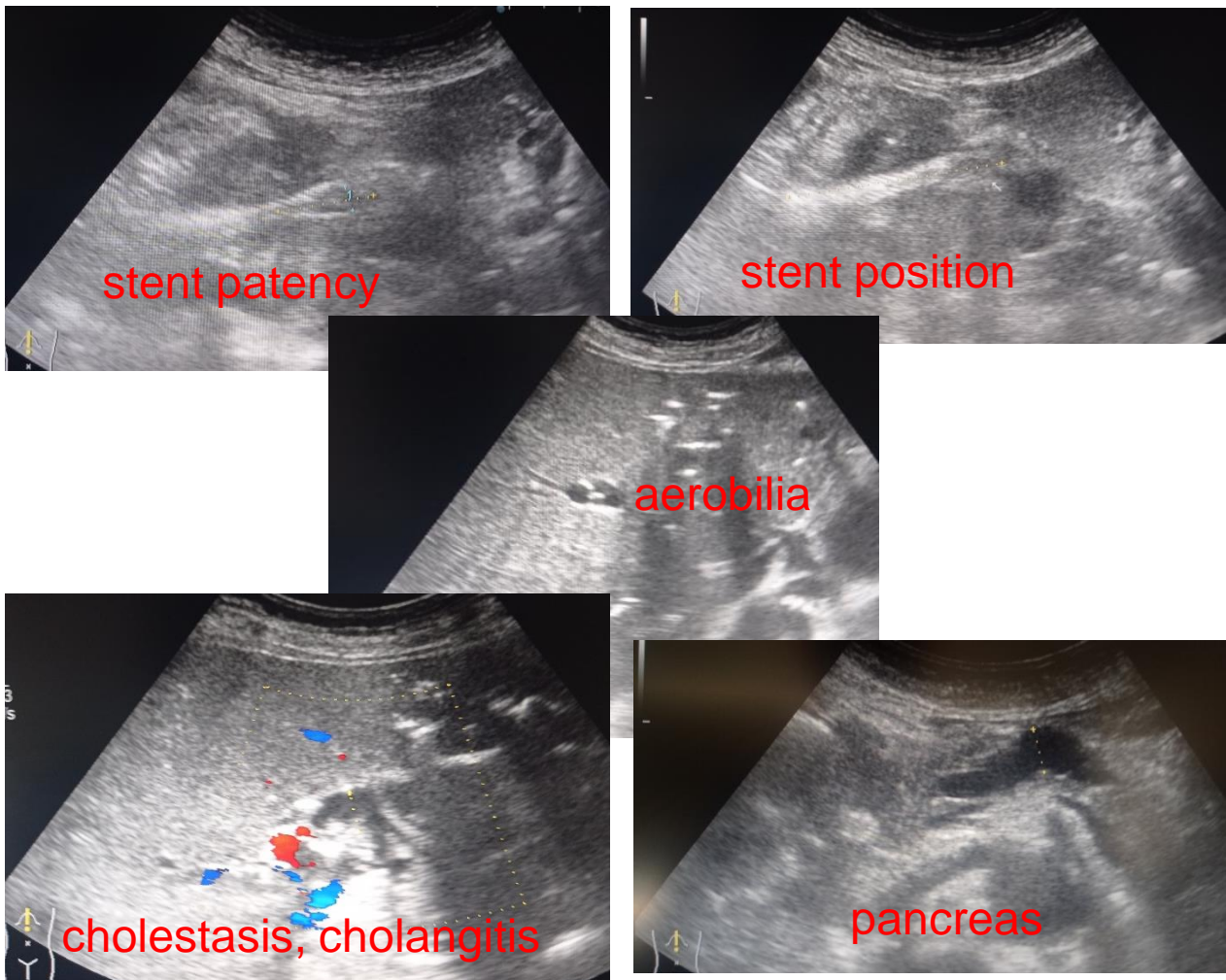
Materials and Methods

In this study, we present a series of cases highlighting the potential of ultrasound in the planning and follow-up monitoring of biliary stents. These cases involve patients with biliary hypertension, Vater's papilla stenosis, and related complications. The ultrasound findings, including the detection of stent patency, inclusion, inflammation, and lesion visualization, are discussed in detail.

Results

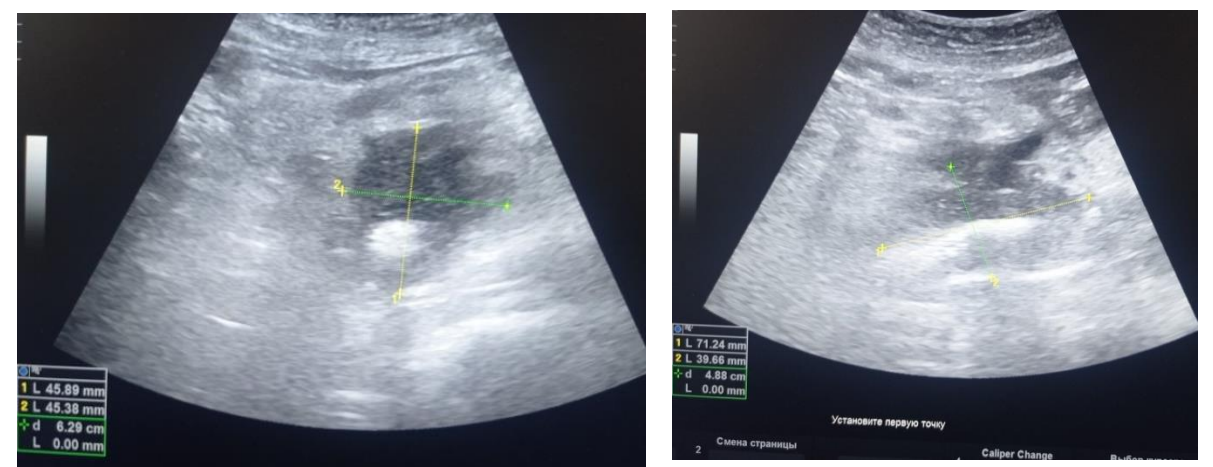
Our analysis reveals that ultrasound, when performed by skilled operators, can provide valuable insights into the status of biliary stents. It enables the identification of specific parameters such as stent patency, inclusion, and signs of inflammation with high accuracy. Additionally, ultrasound demonstrates the ability to visualize lesions that may not be clearly visible on CT scans. These findings contribute to early diagnosis of stent-related complications and facilitate prompt corrective measures.

Precise monitoring of biliary stents using expert ultrasound can play a crucial role in improving patient outcomes. While the primary goal of stent placement is to alleviate symptoms and restore proper bile flow, complications can arise that have the potential to significantly impact patient health. Early detection of complications, such as stent malfunction, migration, or the development of strictures and adhesions, is essential for timely intervention and prevention of adverse outcomes. Expert ultrasound allows for detailed visualization of the stent and surrounding structures, enabling the identification of any abnormalities or changes in stent position, patency, or integrity.



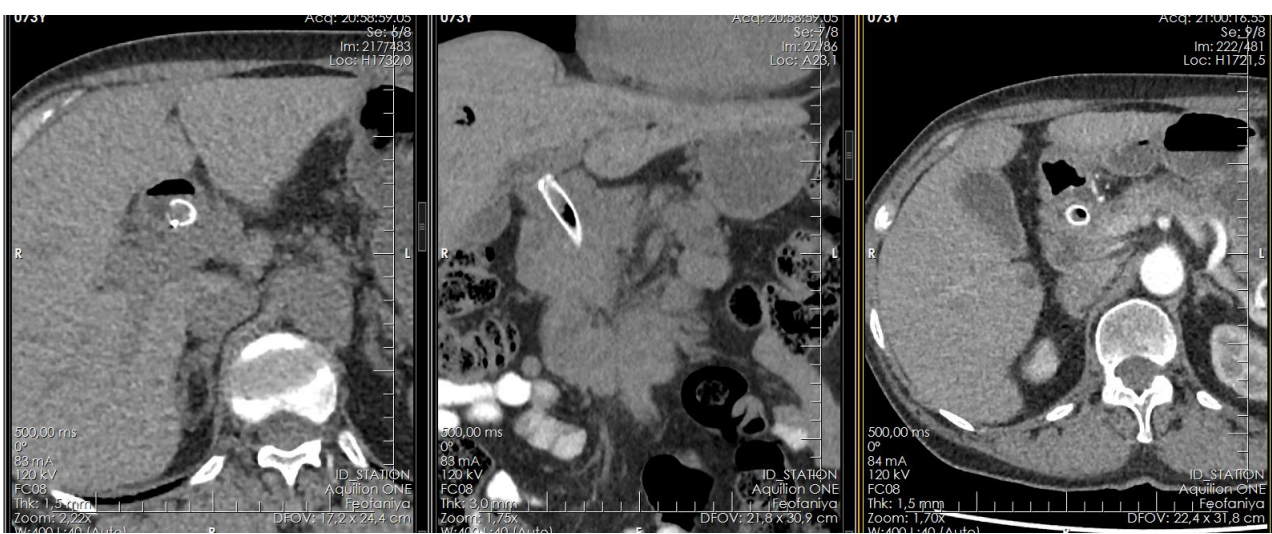
Role of Ultrasound in Planning Biliary Stents

- 1 Indications for Biliary Stenting
- 2 Pre-procedural Assessment with Ultrasound
- 3 Evaluation of Strictures and Obstructions
- 4 Determination of Stent Size and Type
- 5 Identification of Contraindications and Anatomical Variations



Case 2:

This case involves a 58-year-old female patient diagnosed with biliary hypertension and Vater's papilla stenosis. The ultrasound findings reveal a hypoechoic formation measuring 40 x 27 x 23 mm in the region of the head of the pancreas, surrounding the stent. Additionally, all intrahepatic bile ducts are dilated, with segmental bile ducts measuring up to 2-3 mm and the common bile duct measuring 10 mm.



The status post biliary stenting is visible on both CT and ultrasound. The presence of thickened and densified bile duct walls raises suspicion of stent-related complications, such as stent inclusion or inflammation.

Conclusions

The incorporation of high-quality expert transabdominal ultrasound in the existing standard protocol for planning and follow-up monitoring of biliary stents offers significant advantages. It provides real-time imaging, avoids radiation exposure, and enables the assessment of stent-related parameters that may be missed by other imaging modalities. We propose the inclusion of ultrasound as an essential component in the management of patients undergoing biliary stenting, leading to improved patient outcomes and streamlined treatment algorithms.