TIPS FOR A DIFFERENT TIPS

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Program/Dept(s): The Johns Hopkins Hospital, Baltimore, MD
CHIEF COMPLAINT & HPI

- Chief Complaint and HPI
  - 60 year old female with history of metastatic breast cancer and liver cirrhosis
  - Presents with abdominal discomfort and recurrent ascites
  - S/p 3 episodes of hematemesis (last was less than 1 month ago), that required blood transfusion
  - S/p unsuccessful endoscopic banding of esophageal varices
Past Medical and Surgical History:

- T2, N3a Mx0, s/p chemo- and hormonal therapy and bilateral completion mastectomy (2004)
- Extensive hepatic and extra-hepatic metastases (2011)
- Stricture of the common hepatic duct, stent placement (2011)
- Liver cirrhosis (2013)
DIAGNOSTIC WORKUP

- Non-Invasive Imaging
  - CT

Biliary stent (circle)
What salient findings are present on the CT from 2013? Select one of the following:

A. Splenic mass, ascites, cirrhosis
B. Cirrhosis, ascites, splenomegaly
C. Gastric mass, ascites, cirrhosis
D. Cirrhosis, hemoperitoneum, splenomegaly
What salient findings are present on the CT from 2013? Select one of the following:

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CONTINUE WITH CASE
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CONTINUE WITH CASE
DIAGNOSTIC WORKUP

- Non-Invasive Imaging

Pre-procedural CT (2013)

Pre-procedural MRI (2013)

Biliary stent (circle)
Portal hypertension with bleeding esophageal varices, refractory to endoscopic banding.

MELD Score 8 (MELD = Model for End-Stage Liver Disease)

Narrowing of the main portal vein.
INTERVENTION

- Cone-beam CT guided TIPS (Transjugular Intrahepatic Portosystemic Shunt) using intra-procedural image fusion with MRI
- The right hepatic vein (RHV) and the right portal vein (RPV) were segmented and marked on pre-procedural MRI

- US-guided access into the right internal jugular vein was gained

- A breath-hold non-contrast cone-beam CT was acquired

- After image registration, MRI and CBCT were fused and overlaid onto live fluoroscopy
INTERVENTION

- CBCT-guided access of the RHV was gained
- The marked RPV target point was used to guide a single-stick needle insertion. [VIDEO CAN BE FOUND HERE]
- An 8 cm x 10 mm Viatorr stent was placed
- The TIPS was dilated and completed with a shuntogram
SUMMARY & TEACHING POINTS

- The puncture of a diminutive RPV was achieved with a single-needle pass using Cone-Beam CT guidance.

- Multi-modality image fusion is feasible and has the potential to allow for radiation dose reduction, while increasing patient safety during the TIPS placement procedure.

- The absolute contraindications for TIPS placement are: liver failure (Child Pugh C), polycystic liver disease, right heart failure.

- The relative contraindications for TIPS placement are: portal vein thrombosis, pulmonary hypertension, tumor within the expected path of the shunt.
QUESTION

Which factors determine the MELD score? Select one of the following:

A. Bilirubin, INR, serum creatinine, dialysis
B. Bilirubin, albumin, PT, ascites
C. Bilirubin, INR, serum creatinine, encephalopathy
D. Bilirubin, serum creatinine, albumin, dialysis
Which factors determine the MELD score? Select one of the following:

A.  Bilirubin, INR, serum creatinine, dialysis
B.  Bilirubin, albumin, PT, ascites
C.  Bilirubin, INR, serum creatinine, encephalopathy
D.  Bilirubin, serum creatinine, albumin, dialysis

CONTINUE WITH CASE
SORRY, THAT’S INCORRECT.

Which factors determine the MELD score? Select one of the following:

A. Bilirubin, INR, serum creatinine, dialysis
B. Bilirubin, albumin, PT, ascites
C. Bilirubin, INR, serum creatinine, encephalopathy
D. Bilirubin, serum creatinine, albumin, dialysis

CONTINUE WITH CASE
The authors provided no references for this technique.