

bilateral selective embolization were excluded. Patients were identified from the liver cancer database and PACS. All patients had a CT scan before and after PVE. The cross-sectional area of the main and left portal veins on pre and post-embolization CT were assessed within 1cm of the bifurcation. Volumetric measurements of the left liver lobe on all pre and post-embolization scans was performed. The left lobe was defined as segments 1, 2, 3, 4a and 4b. Data was analysed by linear regression and is expressed as mean (SD) or as stated.

Results: Fifty-four patients who met our inclusion criteria underwent first time PVE between 2004 and 2011. Fifty-one (94%) patients had colorectal metastases and the mean age of patients was 61 (10) years. The mean time from baseline CT to PVE was 55 (40.5) days and from PVE to post-embolisation CT was 27 (15.5) days. Baseline left portal vein and left liver lobe size were the only significant predictors of post PVE left liver lobe hypertrophy. Every mm^2 increase in baseline left portal vein diameter predicted a 2 cm^3 increase in post PVE left liver lobe size ($B = 2.02$) (SE: 0.82, $p = 0.017$). Conversely every cm^3 increase in baseline left liver lobe size predicted a 0.05% reduction in percent increase of left liver lobe size post PVE ($B = -0.05$) (SE: 0.02, $p = 0.002$).

Conclusion: Baseline left portal vein and left liver lobe size predicts post PVE left lobe size in this small cohort. Our findings require validation in larger cohorts derived from multiple centres.

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Abstract No. 197

Portal vein embolization prior to right hepatectomy using sodium tetradecyl sulfate foam: technique and initial results

D. Mobley, A.M. Fischman, E. Kim, R.S. Patel, S.F. Nowakowski, R.A. Lookstein; Interventional Radiology, Mount Sinai Medical Center, New York, NY

Purpose: Portal vein embolization (PVE) prior to right hepatectomy (RH) has become an integral part of the treatment algorithm for patients with resectable liver tumors. Many techniques and embolic agents have been used for this procedure; however there is no consensus on the ideal agent. We evaluate the safety and efficacy of sodium tetradecyl sulfate (STS) foam as the sole embolic agent for right portal vein (RPV) embolization.

Materials and Methods: Over a 12 month period, PVE with STS foam was performed in 17 consecutive patients (15 male, 2 female; mean age 60) prior to undergoing RH. Tumor pathology included hepatocellular carcinoma ($n = 11$) and metastases ($n = 7$). Preoperative liver volume was performed with CT or MRI using a 3D workstation. Ipsilateral percutaneous RPV access was obtained in all patients and a 7F sheath was placed. A 14mm Python occlusion balloon (Applied Medical, Rancho Santa Margarita, CA) was inflated in the RPV just distal to the portal bifurcation. STS foam was prepared using the Tessari method with 3% STS. Foam was slowly injected through the sheath to fill the entire RPV. Mean volume injected was 43mL (range 30-65). This was left to dwell for 40 minutes. The balloon was then removed. Follow up venogram confirmed complete occlusion of the RPV and patency of the left portal vein (LPV). Future liver remnant (FLR) and total estimated liver volume (TELV)

measurements were obtained with CT or MRI pre and post PVE. 30 day major and minor adverse events were evaluated.

Results: 100% technical success was demonstrated by complete occlusion of the RPV branches and continued patency of the LPV and its branches. Median hospital stay was 1 day. Mean time to followup imaging was $26d \pm 12d$. FLR volume increased $46.1\% \pm 24.2\%$. FLR/TELV ratio increased $13.1\% \pm 9.6\%$. There were no major or minor complications. Fifteen (88.2%) patients went on to RH. Two (11.8%) patients had progression of disease into the left hepatic lobe (LHL) during the follow-up period after PVE precluding RH. Mean time from PVE to RH was $52d \pm 32.6d$.

Conclusion: PVE with STS foam is safe and effective at achieving LHL hypertrophy prior to RH. Larger scale studies are needed to further demonstrate the efficacy of this technique.

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Abstract No. 198

Transradial approach for hepatic arterial embolization: initial results and technique

A.M. Fischman, N.J. Resnick, J.W. Fung, R.S. Patel, N.B. Lamberson, M. Ort, E. Kim, S.F. Nowakowski, R.A. Lookstein; Interventional Radiology, Mount Sinai Medical Center, New York, NY

Purpose: Extensive experience exists in the interventional cardiology community on transradial approach (TRA) for cardiac catheterization. Benefits of this technique over transfemoral approach (TFA) include lower morbidity and mortality including significant bleeding complications [1], increased patient comfort, decreased costs compared to femoral closure devices and immediate ambulation in an outpatient setting. We describe our initial experience with TRA for hepatic arterial embolization (HAE).

Materials and Methods: Over a 7 month period, 30 procedures were performed in 26 patients (21 male, 5 female; mean age 67) using a TRA for HAE. Procedures included: chemoembolization (TACE) ($n = 14$), Y90 ($n = 14$), and bland embolization ($n = 2$). Tumor pathology included: HCC ($n = 21$) and metastatic disease ($n = 5$). A Barbeau test [2] was performed using a pulse oximeter on the left thumb to confirm presence of dual circulation and patency of the palmar arch. A 5F Glidesheath [3] was placed in the left radial artery (RA) using US guidance. A solution of 3000 U heparin, 2 mg verapamil, and 200 mcg nitroglycerin was administered interarterially following sheath placement. A 5F 110 cm Optitorque Sarah Radial catheter [3] was used to catheterize the visceral arteries. At completion, a TR band [3] was placed for radial compression and removed after 2 hours. Technical success, 30-day major and minor adverse events, and patient preference were evaluated.

Results: Technical success was obtained in all procedures (100%). There were no major adverse events at 30 days. Mild pain and weakness in the left hand was observed in 1 case (3.3%) 3 days post Y90 which resolved with NSAIDs. One asymptomatic RA thrombosis was observed post TACE (3.3%) which was successfully cannulated for access during a 2nd TACE 28 days later. A minor hematoma was observed in 1 procedure (3.3%) which resolved spontaneously. 11/26 patients (42.3%) had prior TFA and in this group, 11/11 (100%) preferred TRA.

Conclusion: TRA for HAE is feasible, safe and well tolerated. In patients that previously had TFA, TRA was preferred.