

malignant occlusions (mean follow-up length, 1.5 months; range, 1-4 months). Longer-term follow-up was available in 5 patients with non-malignant occlusions and all (5/5) demonstrated maintained patency of IVC stents (mean follow-up length, 21.8 months; range, 12-45 months). Of the patients treated for malignant IVC occlusion for whom data was available, symptomatic improvement was achieved in 100% (4/4 patients; median follow-up length, 3.5 months; range, 2-17 months) and patency of the IVC stent was maintained in 100% (5/5 patients; median follow-up length, 5 months; range, 2 weeks-19 months).

Conclusions: Through available follow-up, off-label placement of Gianturco tracheobronchial Z-stents in the IVC appears safe for patients with both non-malignant and malignant occlusions. Long-term follow-up will be necessary in evaluating the efficacy and durability of the intervention.

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Abstract No. 89

Single-center experience in hepatic vein stenting for hepatic venous outflow obstruction in transplanted livers: a retrospective analysis

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Purpose: Hepatic venous outflow obstruction is a feared complication of liver transplantation that can lead to failure of the graft and development of posthepatic portal hypertension and associated complications, such as ascites. This complication is seen from 5.3 to 12.9% of patients post liver transplantation. We aim to retrospectively evaluate the efficacy and patency of hepatic vein stenting for hepatic venous outflow obstruction post liver transplantation.

Materials: We retrospectively reviewed the medical records of 16 posthepatic transplant patients who underwent hepatic vein stent (HVS) placement from December 2005 to September 2019 for hepatic venous outflow obstruction (HVOO). Patient demographics, hepatic venous to systemic venous pressure gradients pre and post stent placement, and duration of radiologic stent patency were reviewed.

Results: A total of 16 patients with primary stent placement for HVOO after liver transplantation were identified (mean age, 51.7 ± 12.9, 7 males, 9 females). Stent placement was technically successful in 15/16 patients (93.75%) on first attempt, as one patient required a second procedure for proper stent placement. Hepatic vein stenting was performed on average 150 days ± 113 after liver transplantation. There were no deaths within 30 days post stent placement. The hepatic vein-systemic venous gradient prior to intervention was 12 mm Hg ± 6.33, which decreased to 1.45 mm Hg ± 1.19 following the interventions, a statistically significant decrease ($P < 0.0001$). To date, all stents appear patent on follow-up imaging (range, 61 to 3312 days).

Conclusions: Hepatic venous outflow obstruction is a serious complication post liver transplantation. Hepatic vein stent placement appears to be a safe and effective treatment and can significantly decrease hepatic vein-systemic gradients while maintaining long-term patency.

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Abstract No. 90

Transmediastinal dissection with radiofrequency wire reentry for bypass of long-segment thoracic central venous occlusions refractory to recanalization

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Purpose: In patients with severe chronic central venous occlusions that cannot be recanalized with routine methods, several tools and techniques for sharp recanalization have been reported as well as radiofrequency (RF) wire cautery. While effective, these devices can easily traverse adjacent ascending aorta and enter the pleural space and pericardium, all of which can have lethal consequences. The purpose of this study is to report outcomes of a novel technique to intentionally perforate out of the venous system to allow blunt dissection with a soft-tip guidewire through the mediastinal fat alongside the occluded venous segment(s), then regain entry into the central venous system using the RF powerwire.

Materials: Retrospective review of our procedural database over a 3-year period revealed 6 patients (3 females, mean age 56 years) with a long-segment central venous occlusion who failed attempted conventional blunt, sharp, or RF recanalization techniques and then underwent this bypass technique. A detailed review of preprocedural CT venogram was always first performed. After intentional perforation into the mediastinal fat, a soft-tipped guidewire and catheter were manipulated parallel to the occluded segment towards the patent target vein. Once adjacent to target vein wall, the RF power wire was then used solely to traverse vein wall into patent lumen, thus effectively bypassing the occlusion.

Results: Indications for this bypass technique included establishment of central venous access to allow HeRO insertion ($n = 5$) or port implantation for daily iron infusions ($n = 1$). The mean occlusion length was 5.3 cm (range, 4.0-8.4 cm). All 6 procedures were technically successful, allowing insertion of the desired catheter. No major complications were encountered within 30 days of the procedure.

Conclusions: Transmediastinal dissection with RF wire reentry is a safe and effective technique to allow complete bypass of a long-segment venous occlusion to allow central venous access. The passage of a soft-tipped guidewire along fat planes may be less likely to enter pericardium, pleura, and arterial structures than needle and RF wire recanalization of long-segment occlusions.