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Abstract No. 519

The use of artificial ascites in thermal ablation of hepatic lesions: systematic review and meta-analysis
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Purpose: Hydro-dissection, also known as artificial ascites (AA) can be a helpful technique during thermal ablation. By introducing 5% glucose or normal saline into the intraperitoneal cavity, operators implement AA to improve visualization during image-guided percutaneous liver ablation and protect adjacent critical structures from thermal injury. Yet, other disadvantages of AA have been reported, including being more technically demanding, increased complications such as tract seeding, heat-sink effect, etc. In this meta-analysis, we aim to evaluate the safety and efficacy of AA as an ancillary maneuver during thermal ablation of hepatic malignancies.

Materials and Methods: PubMed and Cochrane Library were searched for studies published up to August 2020. The following keywords were used: “artificial ascites”, “hydrodissection”, “liver ablation”, “hepatic ablation”. The following data was retrieved: author, publication year, country, design, sample size, and measured outcomes. All analyses were performed with STATA 16.1 (STATA Corp., College Station, TX). Meta-analysis was conducted with the meta function.

Results: A total of 12 studies of 842 patients were included. Technical success of artificial ascites was achieved in 94.1% [95% CI 88.4%–99.7%] of all reported cases. The major complication rate of AA was 6.2% with tract seeding being the most common; however, it was not statistically different from the control group OR = 1.002, 95%CI [0.270–3.722, P = 0.998]. Complete ablation was achieved in 98.5% [95%CI 96.1%–100%] of tumors after AA infusion, but no statistical difference was observed compared to the control group RR = 0.985 [95% CI 0.789–1.229, P = 0.891]. Cumulative local tumor progression rates between the two groups did not vary significantly OR = 0.998 [95%CI 0.415–2.400, P = 0.997].

Conclusions: Artificial ascites allows for safe and effective thermal ablation of liver lesions too close to critical structures, that otherwise would not be feasible with standard ablation techniques. However, data on potential adverse effects such as tract seeding, hyponatremia and fluid shift is largely lacking.

Abstract No. 520

Clinical characteristics, imaging manifestations, and outcomes of patients undergoing percutaneous cholecystostomy tube placement for acute cholecystitis in the setting of COVID-19 infection
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Purpose: The COVID pandemic resulted in a surge of critically ill patients to New York hospitals. COVID is associated with a systemic inflammatory response that can result in abnormal laboratory parameters and imaging findings of cholestasis, making the diagnosis and treatment of cholecystitis difficult. Given the shift to nonsurgical approaches for patients with COVID, interventional radiology (IR) became even more critical in the management of these patients. We report the percutaneous cholecystostomy experience of the largest hospital system in New York during the height of the COVID pandemic.

Materials and Methods: Identification of patients with confirmed COVID who had undergone percutaneous cholecystostomy was performed through a search of system-wide IR procedures from March 1, 2020, to June 1, 2020. Imaging findings, baseline patient demographics, and clinical information including laboratory markers, vital signs, and mortality were recorded.

Results: Twelve patients who were identified as COVID positive by PCR during the study period received percutaneous cholecystostomy for clinical and imaging findings concerning for acute cholecystitis. Demographic, clinical, and radiographic features of these cases are listed (Table). Percutaneous cholecystostomy and antibiotics benefited a subset of patients, as noted by improvement in leukocytosis (50%), with no 30-day mortality in this subset. Despite treatment with percutaneous cholecystostomy and antibiotics, 5 patients died within 30-days after placement (42%). Of note, bile cultures from 7 patients (58%) were positive, in contrast to findings from a recent series (0/4 patients).
Conclusions: The complicated clinical picture of COVID makes the assessment of cholecystitis difficult. Despite a high mortality rate in our series, we found clinical benefit to percutaneous cholecystostomy in patients with COVID.

Abstract No. 521

Safety and efficacy of coil embolization of the prostate arteries post-particle embolization for lower urinary tract symptoms

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Purpose: Prostate artery embolization (PAE) has been historically performed with particles of varying sizes, with coil embolization reserved for preventing nontarget embolization in collateral vessels. Coil embolization of the prostate arteries (PA) has not routinely been performed due to fear of technical complexity if repeat PAE is required. In this study, we present our interim results on the safety and feasibility of coil embolization of PAs after routine particle embolization in PAE.

Materials and Methods: This feasibility study is a retrospective review, totaling 26 male patients who underwent bilateral PAE from September 2018 to August 2020. Bilateral particle embolization of PAs to stasis was performed with 100 to 300 μm through a microcatheter. This was followed by coil embolization of the PAs through the microcatheter proximal to the bifurcation of anteromedial and posterolateral branches. Procedural details, pre- and post-procedure International Prostate Symptom Score (IPSS), Quality of Life (QOL), maximum urinary flow rate (Qmax) and adverse events (AE) were recorded.

Results: Mean IPSS decreased from 20.7 to 7.7 (63%, n = 26, P < 0.001) and mean QOL improved from 4.2 to 1.5 (64%, n = 25, P < 0.001) over a mean follow-up period of 10.4 weeks (range, 4–31 weeks, SD 7.6 weeks). 25/26 (96%) patients had reduction in IPSS score. For patients with severe lower urinary tract symptoms (IPSS ≥ 35), mean IPSS decreased from 26.5 to 8.0 (70%, n = 15, P < 0.001) and mean QOL improved from 5.0 to 1.7 (67%, n = 14, P < 0.001). Mean Qmax increased from 7.2 to 11.3 (56%, n = 8, P < 0.001). 5/5 patients with hematuria had resolution in short-term follow-up. There was one episode (3.8%) of symptom recurrence for which a repeat PAE was performed. Three AE occurred (11.5%): two glans penis ulceration and one rectal bleeding, which resolved after supportive care, and are most likely attributed to nontarget particle embolization.

Conclusions: The use of adjunctive coil embolization following particle embolization in PAE appears to be technically feasible and safe with significant improvement in clinical outcomes in short-term follow-up. This technique warrants further investigation.

Abstract No. 522

Safety and efficacy of Angio-Seal compared with manual compression in achieving hemostasis following direct puncture of PTFE grafts

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Purpose: To compare the safety and efficacy of Angio-Seal to manual compression in achieving hemostasis following direct percutaneous access of polyethylene terephthalate (PTFE) vascular bypass grafts

Materials and Methods: This was an IRB-approved single institution, retrospective review of all patients undergoing endovascular evaluation and/or intervention performed on a peripheral bypass graft from June 2013 to July 2020. Cases in which the percutaneous access was not gained directly into the bypass graft, the bypass graft was not composed of PTFE, or in which closure was not obtained with either Angio-Seal or manual compression (e.g., planned primary surgical closure in collaborative hybrid cases) were excluded. Demographic data including patient age, sex, and co-morbidities, as well as procedural data including the type of procedure, type of graft accessed (femoral-femoral, axillary-femoral, femoral-popliteal or femoral-distal), method of access closure, peri-procedural anticoagulation and antibiotic use, and data regarding 30-day post-procedural complications were collected. For the purposes of this study, an 'angiogram with intervention' broadly includes all variety of angioplasty and stenting.

Results: A total of 373 cases involving lower extremity bypass interventions were reviewed. Of these, 119 unique cases resulted in 154 direct punctures of a PTFE bypass which met criteria for analysis. This included diagnostic angiograms (n = 18 (12%)), angiography with intervention (n = 66 (43%)) and utilization of catheter-directed thrombolysis (n = 70 (45%)). 116 accesses were closed with Angio-Seal and hemostasis was achieved with manual compression in the remaining 38. Overall, the access complication rate of direct PTFE puncture was 5.2%, with a major complication rate of 2.6%. A total of 4 (3.4%) complications were reported in PTFE accesses closed with Angio-Seal. Of these, 2 (1.7%) were considered major complications, including an abscess requiring surgical drainage and post-deployment stenosis requiring repair. A total of 4 (10.5%) complications were reported following manual compression, of which 2 (5.3%) developed pseudoaneurysms necessitating repair, which were considered major complications. Of the 8 total reported complications, 6 (75%) arose after catheter-directed thrombolysis, and the remaining 2 following an intervention. No complications were reported following diagnostic angiography alone.

Conclusions: Angio-Seal is safe and effective in achieving hemostasis following PTFE puncture and has a lower rate of overall and major complications.

Abstract No. 523

Pre-operative Botox injection for ventral hernia repair: early experience at a single institution

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