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**Objectives:** Endovascular aortic repair has revolutionized the management of blunt aortic trauma. However, debate continues about the extent of injury requiring endovascular repair, particularly with regard to minimal aortic injury. Therefore, we conducted a retrospective observational analysis of our experience with these patients.

**Methods:** We retrospectively reviewed all blunt traumatic aortic injuries at an academic Level I trauma center over a ten-year period (2001-2010). Images were reviewed by a radiologist and graded according to SVS guidelines (Grade I-IV). Demographics, injury severity, and outcomes were recorded.

**Results:** We identified 214 patients with blunt injuries to the thoracic or abdominal aorta. 115 were deemed operative injuries at presentation and were excluded from analysis. The remaining 99 were observed. On presentation, 54 had minimal (Grade I or II) injury. Of these, 43 had follow-up imaging at a mean of 102 days postinjury and constitute our study cohort. Mean age was 39 years and mean length of stay was 16 days. Forty-one patients (95%) had Grade I injury (intimal flap) and two patients had Grade II injury (medial hematoma). Forty (93%) were thoracic aortic injuries and the remaining were abdominal. On follow-up imaging, 23 of 43 (54%) had complete resolution of injury, 18 (42%) had no change in aortic injury, and two (5%) had progression (enlargement) of injury. Of the 2 patients with progression, one progressed from Grade I to Grade II and one progressed from Grade I to Grade III (pseudoaneurysm). Mean time to progression was 16 days. Neither of the patients with injury progression required operative intervention. No patients were operated on or died from a grade I or II aortic injury.

**Conclusions:** Injury progression in Grade I-II blunt aortic injury is rare (~5%) and did not cause death in our study cohort. Since progression to Grade III injury is possible, follow-up with repeat aortic imaging is reasonable.

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## SS19.

### Validating Common Carotid Artery Stenosis by Duplex Ultrasound With Carotid Angiogram or Computed Tomographic Angiography Scan

Jesus M. Matos[1], Sally Mccoy[2], George T. Pisimisis[1], Deborah Felkai[2], Neal R. Barshes[1], Peter H. Lin[1], Panos Kougias[1], Carlos F. Bechara[1]. [1]Baylor College of Medicine, Houston, Tex; [2]Michael E.DeBakey VA Medical Center, Houston, Tex

**Objectives:** No consensus exists for duplex ultrasound criteria in diagnosing significant common carotid artery (CCA) stenosis. In general, peak systolic velocity (PSV) >150 cm/s with poststenotic turbulence indicates a stenosis >50%. The purpose of our study is to correlate CCA duplex velocities with angiographic findings of significant CCA stenosis >60%.

**Methods:** We reviewed the carotid duplex records from 2008-2011 looking for patients with isolated CCA stenosis and no ipsilateral internal or contralateral carotid artery disease who either received a carotid angiogram (CA) or a computed tomographic angiography (CTA). We identified 25 patients who had CCA stenosis >60%. We also randomly selected 74 controls with no known CCA stenosis. We performed receiver operating characteristics (ROC) analysis to correlate PSV and end-diastolic velocity (EDV) with angiographic stenosis >60%. The degree of stenosis was determined by measuring the luminal stenosis in comparison to the proximal normal CCA diameter just below the lesion.

**Results:** Most patients had a carotid angiogram (17/25), four had a CTA only and four had both. Eighteen patients had history of a radiated neck. Eighteen patients were treated with a stent, three with endarterectomy and four with medical management. The CCA PSV > 250 cm/sec had a sensitivity of 100% (81.5%-100%) and a specificity of 98.7% (92.0%-99.9%), The CCA EDV > 60 cm/sec had a sensitivity of 95.5% (75.1%-99.8%) and specificity of 100% (94.1%-100%). The presence of both PSV <250 and EDV <60 cm/sec had a 100% negative predictive value, and the presence of both PSV ≥250 and EDV ≥60 had 100% positive predictive value.

**Conclusions:** Establishing CCA duplex criteria to screen patients with significant stenosis is crucial to identify those that will need further imaging modality or treatment. In our lab, CCA PSV > 250cm/sec and EDV > 60cm/sec are thresholds that can be used to identify significant (>60%) CCA stenosis with a high degree of accuracy.

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## S5: SVS Plenary Session V

## SS20.

### Patency of Forearm and Upper Arm Hemodialysis Arteriovenous Grafts: Does Configuration or Location Matter?

Alik Farber[1], Bo Hu[2], Laura Dember[3], Gerald Beck[2], Brad Dixon[5], John Kusek[4], Harold Feldman[3]. [1]Boston University Medical Center, Boston, Mass; [2]Cleveland Clinic, Cleveland, Ohio; [3]University of Pennsylvania, Philadelphia, Pa; [4]National Institutes of Health, Bethesda, Md; [5]University of Iowa, Iowa City, Iowa

**Objectives:** Arteriovenous grafts (AVG) are used in hemodialysis patients when autogenous fistulas are not feasible. The optimal location (forearm vs upper arm) and configuration (loop vs straight) of AVG is not known. To evaluate relationships between AVG location or configuration and patency we conducted subgroup analyses among participants enrolled in a randomized, placebo-

controlled trial of dipyridimole plus aspirin for newly placed AVG.

**Methods:** Participants in the Dialysis Access Consortium trial with upper extremity prosthetic grafts of the brachial artery were studied. Multivariable analyses adjusting for treatment group, center, gender, race, BMI, diabetes, current dialysis, and prior access or catheter were performed to compare outcomes of forearm (fAVG) and upper arm (uAVG) grafts including loss of primary unassisted patency (LPUP) and cumulative primary graft failure (CGF). Subgroup analyses of graft configuration and outflow vein used were conducted.

**Results:** Of the 522 participants with an upper extremity brachial artery graft, 269 had fAVG and 253 had uAVG. Participants with fAVG were less often male (33% vs 43%; $P = .03$), black (62% vs 77%; $P < .001$), dialysis-dependent at time of surgery (20% vs 36%; $P < .001$), and had a higher mean BMI (32 vs 29; $P < .001$) compared to those with uAVG. There was no difference in LPUP (69% vs 78%; $P = .22$) or CGF (32% vs 36%; $P = .53$) between fAVG and uAVG at 1 year follow-up. Multivariable adjustment did not change the statistical significance of the association between AVG location and either LPUP (HR, 1.26; 95% CI, 0.98, 1.62; $P = .07$) or CGF (HR, 1.09; 95% CI, 0.80, 1.49; $P = .58$). LPUP did not differ significantly between fAVG and uAVG among subgroups based on AVG configuration ($P = .23$) or outflow vein used ($P = .53$).

**Conclusions:** Patency of fAVG and uAVG was similar despite the larger caliber veins often encountered in the upper arm. Therefore, to preserve a maximal number of access sites, the forearm location should be considered first before resorting to an upper arm graft.

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## VS5.

### Video Presentation

### Reconstruction of the Greater Saphenous Vein to Create a Viable Arterio-Venous Fistula Conduit

Faris Alomran, Benoit Boura, Alexandros Mallios, Romain De Blic, Alessandro Costanzo, Myriam Combes. IMM, Paris, France

**Background:** Vascular surgeons are sometimes faced with central vein occlusions and other situations where upper limb fistulas are not viable. In the lower limb prosthetic grafts have been the mainstay conduit for dialysis access with high rates of occlusion and infection. Some authors have published data on the use of the femoral superficial vein however this is a long complex procedure with significant disruption of the lower limb venous return. The greater saphenous vein (GSV) has proved previously to be a poor conduit due to its resistance to dilatation and only few reports have mentioned its effective use in dialysis.

The technique exhibited in this video results in a doubled diameter of the GSV allowing easy puncture and effective dialysis. It has all the advantages of an autologous conduit without the morbidity associated with the superficial femoral vein graft.

We also believe that this technique can be used in other locations such as the upper limb in selected patients not candidates for prosthetic grafts.

**Technical Description:** After harvesting the required length of the GSV, it is opened longitudinally upto approximately 5 cm from the sapheno-femoral junction (but not sectioned vertically to avoid the requirement for a veno-venous anastomosis). The GSV is freed from all valves and then folded in two creating one anterior and one posterior vein panel.

The lateral edges of the panels are sutured together, and the medial edges together effectively creating a cylinder, whilst doubling the initial GSV diameter. After venous testing the vein is tunnelled subcutaneously and down to the superficial femoral artery (SFA). The size of the anastomosis is tailored to avoid lower limb steal syndrome. The vein is anastomosed to the SFA.

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## SS22.

### Complications of Indwelling Retrievable Versus Permanent IVC Filters

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**Objectives:** Retrievable IVC filters are appealing because they are designed for either retrieval or long term use. However, their long-term safety compared to permanent filters is largely unknown. This study was undertaken to compare complication rates and types associated with retrievable and permanent filters.

**Methods:** A retrospective review identified 1231 IVC filters (447 retrievable, 784 permanent) placed in 1227 patients from 2005-2010. Patients with retrievable filters removed electively were excluded, yielding 382 patients (group A) in whom retrievable filters were left in place. These patients were compared to those with permanent filters (group B) with respect to demographics, comorbidities, survival, and complication rate and type. Differences in patient characteristics were tested with $\chi^2$, Fisher exact, and Wilcox rank-sum tests. Logistic regression was used to identify predictors of complications.

**Results:** Group A patients were younger than those in group B (mean age, 64 vs 75; $P < .0001$). Group A had significantly more complications than group B (9.7% vs 1.9%; $P < .0001$) after mean follow up of 20 months (range 0-86 mo). Furthermore, retrievable filter type was a significant predictor of complications in a multivariate model (odds ratio, 5.4; $P < .0001$). Filter complications were categorized as thrombotic, device related, or systemic. While the most common complication type with retrievable filters was device related (52%) and with permanent filters was thrombotic (63%), both thrombotic and device related complications occurred more frequently in group