was 108 days (range, 7-568 days). 14 of 49 patients (29%) developed thrombus within the filter with 5 patients (10%) having significant thrombus that prevented removal attempt. Development of filter tilt > 15 degrees occurred in 3 patients (2 Bard G2, 1 Tulip). Strut extension occurred in 39; migration in 27. Three G2 and two Tulip filters migrated ≥ 1 vertebral body height. Neither tilt, migration, nor strut penetration predicted failed removal.

CONCLUSION: Retrieval of the Cook Gunther Tulip and the Bard IVC filters can be successfully performed in patients who no longer need IVC filtration with an average implantation time of 108 days. Filter tilt, apparent strut penetration, and slight migration had no apparent effect on the ability to retrieve the filter.

Abstract No. 266 EE
Radiographic Review (MRI/A, CT/A, Angiography) of Vertebral Tumor Intervention.
PURPOSE: 1. To provide a comprehensive review of the anatomical and vascular variants encountered during vertebral interventional procedures. 2. To demonstrate the radiographic findings of vertebral tumor interventions (vertebroplasty, embolization to ablation) with the use of magnetic resonance (MR) imaging, computer tomography (CT) and angiographic imaging.
MATERIALS & METHODS: From the interventional radiology database and meta-analysis of current literature review, we will present the following in a didactic format: 1. Review of MR, CT and angiographic images of vertebral bone tumor. 2. Pictorial presentation of vertebral bone tumor after various interventions including vertebroplasty, kyphoplasty, embolization and ablation.
TEACHING POINTS: To learn:
1. Adjunctive role of vertebral tumor interventions in both treatment and palliation. 2. Safety and feasibility of various interventional procedures on vertebral bone tumors. 3. Imaging characteristics of vertebral bone tumors pre- and post-intervention.

Abstract No. 267
Power-Injectable Port (PIP) Versus Traditional Portacath (TP): A Retrospective Evaluation of the Complications and Effectiveness of Implantable Venous Access Devices (IVAD).
PURPOSE: To evaluate and compare complication rates of traditional portacath (TP) vs. power-injectable portacath (PIP).
MATERIALS & METHODS: Upon IRB approval, the IR database was reviewed retrospectively to retrieve all patients who had received an IR-guided implantable venous access device (IVAD) between January 2006 and January 2008. A total of 146 patients received IVAD. Patient demographics, site of venous access, as well as details of IVAD including type (TP vs. PIP), duration, purpose and any associated complications were investigated.
RESULTS: In total, PIPs were placed in 106 patients and TPs in 40 patients (Mean age = 57, Female = 63%, Right venous access = 79%). PIPs were 8F or 9.6F and TPs were 6.6F or 8F in size. Majority of patients (83%) required IVAD for chemotherapy (n = 121). In terms of complications leading to port removal, PIP was associated with a significantly higher rate of venous thrombosis (partial or complete occlusion, 3.8%, n = 4), compared with 0% in the TP group (p<0.01), with an average duration until port removal (DUPR) of 138 days. Three of the four patients with PIP-associated venous thrombosis had a PIP catheter that was 9.6F in size (75%). No single chemotherapeutic agent appeared to be the main culprit of this complication. Both PIPs and TPs were associated with malpositioning leading to poor aspiration and eventual discontinuation of the port (PIP 2.8% vs. TPs 2.5%, n = 3 vs. 1, average DUPR = 83 vs. 145 days). Lastly, there were three cases of culture-positive port infection/suspected infection in the TP group which was not observed with PIPs (7.5% vs. 0%, n = 3 with DUPR = 152).
CONCLUSION: 1. Power-injectable port (PIP) is a new generation IVAD that allows long term multi-functional venous access with the advantage of allowing higher resolution contrast-enhanced CT with its ‘power injections’ feature. 2. In our study, PIPs had a statistically significant rate of catheter-related venous thrombosis that was not present in the TP group. This appears to correlate well with the larger size of catheter in PIP placement, but not with any specific chemotherapeutic drugs used.

Abstract No. 268
Urea: A Simple, Safe Alternative for Chemical Ablation of Tumors?
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PURPOSE: To compare lesions produced by concentrated urea to those formed with 50% acetic acid in an ex vivo porcine liver model.
MATERIALS & METHODS: A 19G end-hole needle was used to inject 1, 2, 4, and 8M solutions of urea into pig liver using a volume of 0.5 or 1cc. Lesions were sectioned, digital images were obtained and volumetric calculations were performed using ImageJ software. For comparison, equal volumes of 50% acetic acid were injected into pig liver. Digital images of lesions were used to compare the characteristic lesions of urea to those produced by acetic acid.
RESULTS: Injections of urea produced clearly visible blanched lesions in hepatic parenchyma characteristic of coagulative necrosis. Apparent differences were noted when comparing lesions produced by urea to those formed by 50% acetic acid. Urea produced local and contained lesions, whereas the acetic acid lesions were diffusely expanded throughout the liver parenchyma.
CONCLUSION: Proof of concept was successful. Localized, necrotic lesions were evident following injections of urea. Because of an extraordinarily high therapeutic index, urea has potential as a safer chemical ablation agent than acetic acid.

Abstract No. 269
Preclinical Assessment of Thrombogenicity of a New Intracranial Stent Design.
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**PURPOSE:** To evaluate thrombogenicity and biocompatibility of a modification made to a commercially available stent (LEO, 3.5 x 18mm, Group A n=8), with a tighter mesh aimed to redirect blood flow and promote intracranial aneurysms thrombosis in absence of coiling (SILK, 4.5 x 15mm, Group B, n=12).

**MATERIALS & METHODS:** After the Ethical Committee for Animal Research approved the protocol, 20 self-expandable stents were deployed under fluoroscopic guidance in appropriately sized arteries of 8 healthy anesthetized sheep. Angiograms were obtained immediately before and after placement, as well as at 3 and 6 months. All animals were heparinized during the procedure and received clopidogrel (75 mg/day) and aspirin (500 mg/day) for the first 90 days. Only half of each study group had received this same preoperative medication (3 days). Occlusion rates associated with each stent and antithrombotic regimen combination at each time point were studied using the Fisher exact test (p<0.05). After the 6 months follow-up, animals were euthanized, target arteries harvested and pathological examination performed from representative samples in order to determine local tolerance and devices performance. The stented vessels were embedded in polymethylmethacrylate and stained with modified Paragon Stain.

**RESULTS:** Stent deployment was successful in all cases. Radiopacity of the SILK prostheses, was poor. Two stents were found to be occluded on day 90, one from each group (p>0.05). No further occlusions were seen on the 6 months follow-up. No in-stent restenosis was seen in any case. Pathology revealed both stents to be well deployed and integrated into the vascular wall, with very slight neointimal thickening and minimal neointimal cellularity. No signs of thrombus formation were noted in any case.

**CONCLUSION:** The 6-months follow-up showed the same results as at 3 months, even in absence of antithrombotic medication, suggesting that these stents may offer optimal long-term patency rate. Biocompatibility of these prostheses appears to be good, as suggested by the high patency rate and good histological tolerance. The poor radiopacity of the SILK stents hindered follow-up. Visualization must be improved before undertaking clinical trials.

**Abstract No. 270**

Nine Year Single Center Experience with Transcatheter Arterial Embolization for Hemoptysis: Medium Term Outcomes.

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**PURPOSE:** Transcatheter arterial embolization is a well-established treatment for massive hemoptysis. The target vessels for embolization are the bronchial arteries, but embolization of extra-bronchial systemic collaterals is sometimes also necessary. This study evaluates the medium-term efficacy of transcatheter embolization in managing moderate to massive hemoptysis in our center.

**MATERIALS & METHODS:** We reviewed the medical records and arteriograms of all patients in our institution who underwent arterial embolization for hemoptysis between 4/99 and 4/08. 58 patients (28 males, 30 females; mean age 49) underwent embolization using poly-vinyl alcohol, gelfoam or coils. 16/58 (28 %) patients required embolization of extra-bronchial systemic collaterals in addition to bronchial artery embolization, for control of hemoptysis. 19/58 patients (33%) had hemoptysis associated with malignant disease. Follow-up was obtained in 57/58 (98%) patients and ranged from 1 day to 9 years (median 1.28 years). The primary effectiveness of embolization was calculated using Kaplan Meier estimates.

**RESULTS:** All procedures were technically successful, with control of bleeding achieved. 6/58 (10%) patients had recurrent hemoptysis within 30 days of treatment due to recanalization of the embolized vessel. 24/58 (41%) patients had 2 or more procedures for recurrent hemoptysis. 20/58 (35%) patients died (7 from hemoptysis and 13 from unrelated conditions) during follow up, of which 11/20 (55%) deaths occurred in patients with malignancy. Kaplan Meier estimates of the effectiveness of embolization for hemoptysis in patients at 2, 4, 6 and 8 years were 0.82, 0.46, 0.17 and 0.09 (benign disease) and 0.30, 0, 0 and 0 (malignant disease). Recurrent hemoptysis occurred more often with malignant disease (P=0.003) at a median of 20 days (range 1-1105 days, mean 344 days) than in benign disease (range 1-2952 days, median 337 days, mean 1492 days).

**CONCLUSION:** Transcatheter arterial embolization is an effective treatment for moderate to massive hemoptysis in the medium-term. Patients with malignant disease are more likely to have recurrent hemoptysis and this is the predominant cause of death in this subset of patients.

**Abstract No. 271**

Percutaneous Outpatient Treatment of Lumbar Pain in Patients with Degenerative Disc Disease (DDD).

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**PURPOSE:** Surgical fusion is standard treatment for lumbar pain in degenerative disc disease (DDD) patients failing non-operative treatment. Patients with mild to moderate disease may decline major surgery that irreversibly alters the spine and prolongs recovery. A new non-fusion device relieves pain by supporting the facets, without altering spinal anatomy. The percutaneous design minimizes tissue trauma, procedure and recovery times. To report the benefits of treating lumbar DDD pain by percutaneously implanting a novel bilateral facet augmentation device in outpatients.

**MATERIALS & METHODS:** 34 patients with mild to moderate DDD were enrolled in a single site study and treated percutaneously for lumbar pain. Patients were sedated or anesthetized at each treated level and received intravenous antibiotics. Using fluoroscopy and percutaneous over-the-wire techniques, a 15mm working tract was established to the base of the inferior facet using a proprietary access port. The device was then inserted percutaneously on each side. Treatment effectiveness, pain and functional disability were assessed at 2, 6, 12, 26, 52 and 104 weeks by PE, x-ray, VAS and ODI.

**RESULTS:** 34 patients (21 M, 13 F), ages 21-67 yrs (mean 37), BMI 20-35 (mean 26), received outpatient treatment at 1 to 3 levels from L2 to S1. 96 devices were implanted at 48 levels. Most implants were at L4/5 and L5/S1. Mean procedure time was 15 mins per level. Patients average recovery was 4 - 6 hrs. Marked improvement in ODI and VAS scores at 2 wks continued in later visits. There was no anatomic or functional impact on the spine. 5 minor and unrelated to the device adverse events were reported. These events resolved with minimal or no treatment. In addition,