and femoral vein (n = 1). Nine cases were performed under local and 3 under general anesthesia. Single-lumen endoluminal balloon dilatation is done in eight cases and double-lumen dilatation in four cases. Low profile 0.018" or 0.014" balloons ranging from 5–8 mm were used. **Results:** All catheters were removed safely without any minor or major adverse events. In one case, the catheter was shredded completely but removed over the balloon with no complications. **Conclusion:** Minimally invasive endoluminal balloon dilatation of tunneled dialysis catheter is a safe and effective technique for removing embedded catheters.

OC402

Management of Arterial Injuries Related to Central Venous Access: A Single Institution Experience

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Background: Retrospectively identify the types of arterial injuries related to central venous access and management techniques with long-term outcomes. **Methods:** Between January 2007 and November 2017, a total of 20 patients (13 females) were included with a mean age of 63 (28–89 years) and mean body mass index of 25.75 (13.3–36.5). Venous access procedures included central venous catheter (CVC) placement, dialysis line insertion, or endovascular venous procedures. The study excluded patients who had arterial injuries related to arterial access, such as postarterial line placement, postangiography, or percutaneous coronary interventions. **Results:** Iatrogenic arterial injuries occurred after attempted venous access procedures into the common femoral vein (n = 18) and subclavian vein (n = 2). Injuries were related to CVC placement (n = 5), temporary dialysis catheter (n = 14), and inferior vena cava filter insertion (n = 1). Nine patients had transarterial venous catheter insertion complicated by active bleeding from pseudoaneurysm and arteriovenous fistula. Other injuries included isolated fistula (n = 3), isolated pseudoaneurysm (n = 4), isolated branch injury (n = 2), and intra-arterial insertion (n = 2). Endovascular management was done with stent-graft placement (n = 14), embolization of bleeding vessel (n = 2), thrombin injection for pseudoaneurysm (n = 2), or by compression/conservative management (n = 2). Technical success was achieved in 100%. One patient required repeat angiography and embolization of isolated branch following stent-graft placement to control bleeding fistula and pseudoaneurysm. Clinical success was achieved in all patients. Procedure-related complications included puncture site hematoma (n = 1), partially occlusive thrombus/spasm of the deep femoral artery after stent graft placement. Six patients (33%) died in <30 days after the procedure (3–20 days) from other comorbidities. Three additional patients (16%) died during the same admission of the procedure (38–114 days). In 7 out of 14 patients, who survived after stent-graft placement, there were no reported complaints related to possible stent stenosis or occlusion at mean follow-up time of 5 years (50 days–8.64 years). **Conclusion:** Despite technically successful endovascular management of arterial injuries related to venous access in critically ill patients, mortality rate remains high due to other comorbidities. Allowing for the small sample size, stent-graft placement for arterial injuries in this cohort of patients appears to be an effective option with high long-term patency rate.

OC403

Port a Cath Insertion by Interventional Radiologists Tips and Tricks

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Background: Modern chemotherapeutic management depends on repeated and safe access to the venous system for the delivery of drugs, fluids, and blood products and the periodic monitoring of the effects of treatment. Peripheral veins are rapidly destroyed by repeated venipuncture and by long-term chemotherapy. The long-term venous access devices (VADs) have helped to overcome the need for repeated peripheral or central venous puncture. One frequently employed type of venous access system is the Port-A-Cath system. The Port-A-Cath is a totally implantable VAD in which a conventional central venous catheter is attached to a subcutaneous injection port usually on the chest wall. The usage of ports for a wide variety of indications has also brought a wide spectrum of complications that are well documented in the existing literature. **Methods:** Two hundred and ninety patients were reviewed retrospectively in a 5 years' period (2011–2016) for the site of insertion, the type of the port the proper port function and the potential complications. **Results:** The results were in favor of low incidence of complications with some precautions (11.6%) as regard the insertion technique. **Conclusion:** Port a cath is an excellent auxiliary device for patients receiving regular chemotherapy conditioning that proper steps for insertion are followed

OC404

Effectiveness of Inferior Vena Cava Filter Departmental Follow-Up Form to Improve Filter Retrieval Rates: a Single-Center Experience

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Background: Inferior vena cava (IVC) filter is a device inserted in patients who are prone to develop pulmonary embolism (PE) and deep venous thrombosis (DVT). PE and DVT are one of the most common medical conditions present in patients who have venous thromboembolism. Venous thromboembolism begins as DVT in the lower limbs which detaches and travels through IVC. The clot ends up as PE blocking the heart and lung circulation. One in 10,000 people are diagnosed with PE and increases to 5 in 1000 by the age of 80 annually. PE leads to hypopnea, chest pain, tachycardia, and in severe cases heart failure, loss of consciousness, and death. In the United States, 25%–40% of

cases reported with sudden death. The first line of the treatment is anticoagulants and blood thinning medications. Some neurological and cardiovascular conditions limit the efficacy of anticoagulants. Therefore, IVC filters are used as second-line treatment. In 1973, the first filter was used to replace surgical interventions to prevent thrombosis. The IVC filter has a conical shape ending with hooks to anchor it to the IVC wall. An effective filter has easy placement and can trap all thrombi to prevent new or recurrent PE without migration or perforation of IVC. IVC filter is mainly indicated when anticoagulation therapy is not effective, as in patients with trauma, hemorrhage, and other cardiac problems. However, it cannot be used in severe uncorrectable coagulopathy, prothrombotic state, and active bacteremia. IVC filters are designed with different durability, permanent, and retrievable, according to the patients' conditions. Permanent filters were mainly used in the past until retrievable filters were approved by the Food and Drug Administration (FDA) in 2003. Although retrievable filters are designed to be removed, in some cases, they become permanent due to lack of patient's compliance or poor monitoring. In Wellington Hospital, out of 5000 patients with IVC filters only 12%–45% of filters were retrieved. No local studies, in Saudi Arabia, are available. Leaving the filter longer than necessary may lead to several complications. The longer the filters are left in the body, the greater the chances that migration and malposition will occur. This tilting, or malpositioning, can result, in less common cases, in filter fracture. Failed retrieval can also be caused by a trapped clot. When more than 25% of the filter is filled with a clot, it cannot be removed. Instead, the patient is given anticoagulants for the following 1–2 months, the filter removal attempt is then repeated. Other long-term complications include IVC perforation, IVC occlusion, and developing DVT. To prevent further long-term placement complications that counter-affect the main purpose of inserting filters, the FDA urged health institutions to maximize the retrieval rates. At King Abdulaziz Medical City, the Vascular and Interventional Radiology department established a departmental form in January 1, 2015, to improve retrieval rates of IVC filters. The purpose of the study to compare retrieval rates before and after implementing the form to access its effectiveness. **Methods:** This is a case–control retrospective study of all patients who had retrievable IVC filter insertion 2 years before and after implementation of a departmental follow-up from June 2015. The departmental follow-up form includes the following information: Patient's name, age, sex, and medical record number. It also contains most responsible physician badge number and pager. IVC filter date of insertion and removal, filter type, and implementing physician name are also included. Subjects were retrospectively analyzed based on age, gender, indication, type of filter, date of filter insertion, location of insertion, date of retrieval, dwelling time, and previous attempts of retrieval. **Results:** Between June 2013 and May 2017, a total of 307 filters were inserted in 183 males (59.61%) and 124 females (40.39%) with mean age of 59 (SD 17.24). Of these filters, 296 (96.42%) were placed in an infrarenal location and 11 (3.58%) were placed as suprarenal filters. The types of the filters were as follows: 167 Optease (54.40%), 33 Option Elite (10.75%), 78 Denali (25.41%), 2 Capturex (0.65%), and 27 Celect (8.79%). A total of 148 (48.21%) filters were inserted before establishing the follow-up form, and 159 (51.79%) were inserted after the form. A total of 53 (35.81%) of those filters inserted before the form were retrieved, while 61 filters (38.36%) of those inserted after the form were. The mean dwelling time of retrieved filters before the form was 32 days and 48 days for the 2 years after the form implementation, with a standard deviation of 49.42. This increase was explained by the use of filters with longer dwelling time. Filter retrieval was successful in 110 patients (96.49%) from the first attempt and four patients (3.51%) required more than one attempt **Conclusion:** The departmental follow-up of patients who undergo IVC filters results in improvement of the retrievability rates.

OC405

Pharmacomechanical Thrombolysis with Liberal Use of Stenting Reduced Postthrombotic Syndrome in Iliofemoral Deep Vein Thrombosis: Single-Center Experience

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Background: Postthrombotic syndrome is common after deep vein thrombosis despite anticoagulant therapy. The symptoms range between leg heaviness and itching to venous ulcer and major disability. This syndrome is more likely to develop with more severe degree of deep vein thrombosis. Pharmacomechanical thrombolysis for treatment go deep vein thrombosis is act to rapidly remove thrombus and hence reduce the severity of deep vein thrombosis. Hence, it may reduce the incidence of postthrombotic syndrome. This study describes a single-center experience in the treatment of deep vein thrombosis to see whether pharmacomechanical thrombolysis for proximal iliofemoral deep vein thrombosis would reduce the incidence of postthrombotic syndrome compared to the historical data for patient receiving anticoagulation only. **Methods:** A retrospective data collection for patients underwent pharmacomechanical thrombolysis were performed for iliofemoral Deep vein thrombosis in a single center (Alrayyan Hospital, Riyadh). A demographic-, clinical-, procedural-, and postprocedural-related data were collected including 24-month incidence of postthrombotic syndrome were collected. A comparison of postthrombotic syndrome incidence for iliofemoral deep vein thrombosis using pharmacomechanical thrombolysis with liberal use of stenting compared to anticoagulation alone using historical data. **Results:** Fourteen patients underwent pharmacomechanical thrombolysis to treat iliofemoral deep vein thrombosis between May 2015 and July 2017. The average age is 39 years of age (22–67 years of age), eleven females and three males. Eight out of fourteen cases were identified to be May-Thurner syndrome either by computed tomography or intravascular ultrasound. Two patients were postpartum deep vein thrombosis. Eleven patients had left-sided iliofemoral deep vein thrombosis. All patient underwent 24 h thrombolysis, but two patients required 48 h thrombolysis as per a protocol for none of the patients developed major bleeding. Eleven patients underwent stenting, and ten patients had retrievable inferior vena cava filter, who are all retrieved within 1 month, except one retrieved after 6 months. Twelve patients were adherent to compression stocking with instructions of 8–12 h daily use for 2 years' duration. Among the 14-patient cohort, only one patient (7%) developed postthrombotic syndrome. The historical and contemporary incidence of postthrombotic Syndrome is 50% with the use of anticoagulation for all comers of deep vein thrombosis. **Conclusion:** This is a single-center experience of treatment of Iliofemoral deep thrombosis with liberal use of venous stenting. This study reports the incidence of postthrombotic syndrome is