

Specialty Surgery Quick Shots

Moderator: Felix Lui, MD, FACS, Yale School of Medicine, Associate Professor of Surgery (Trauma)

Judge: Philip R. Corvo, MD, Nuvance Health Norwalk, Chairman of Surgery

Ryan Pettit, MD	Stamford Hospital	Endovascular Repair of Symptomatic Severe Innominate Artery Stenosis/Partial Thrombosis via Common Carotid Access with Flow Reversal Filter System
Michael Chun, MD	Stamford Hospital	Repair of a Morgagni Hernia with Incarcerated Colon Via Multiple Surgical Approaches
Fiona Hudgens, MD	Stamford Hospital	Rare Xanthogranulomatous Mastitis In A Pregnant Female: A Case Report
Brendan Stewart, MD	University of Connecticut School of Medicine	Case report: Exsanguinating arterial-vesicular injury after GSW to the lower extremity
Michael Chun, MD	Stamford Hospital	Rib Resection and Chest Wall Reconstruction for Primary Chondrosarcoma in a Patient with Parkinson's Disease
Herbert Downton-Ramos, MD	University of Connecticut School of Medicine	The Effect of Immunotherapy on Prognosis: A Case of an Operation on an Inoperable Tumor
Joshua Wetzler, MD	Stamford Hospital	Delayed Aortic Pseudoaneurysm Rupture Following Ascending Aortic Aneurysm Repair
Shaidy Moronta, DO	Danbury Hospital	All That Glitters is Not Gold: Incidental Finding and Diagnosis of Adrenal Cortical Carcinoma in Previous Male Breast Cancer Patient
Shubham Kanake, MD	Stamford Hospital	VA-ECMO as a Temporizing Measure in the Management of Penetrating Left Ventricular Injury
Steven Pong, BS	Frank H Netter MD School of Medicine	Permanent Catheter Placement for Recurrent Pericardial Effusions in Presence of Dense Adhesions and Loculations: A Case Report
Sean Ramras, MD	Waterbury Hospital	Unilateral Common and External Iliac Artery Ectasia in a patient with Critical Limb Ischemia
Michael Chun, MD	Stamford Hospital	Laparoscopic Bowel Resection for Jejunal Perforation in Blunt Abdominal Trauma
Sean Ramras, MD	Waterbury Hospital	Endovascular Treatment for Carotid Stump Syndrome with Stentgrafts: A Community Issue
Jacob Sandor, MD	Stamford Hospital	Pneumomediastinum After Dental Drilling
Juan Cobar, MD, MBA	University of Connecticut School of Medicine	Evaluating Imaging Techniques for Pancreatic IPMNs: A Comparative Study of Surgical Pathology with CT, MRI, and EUS
Kristina Kuklova, MD,MBA	University of Connecticut School of Medicine	Plant Thorn Arthritis

Endovascular Repair of Symptomatic Severe Innominate Artery Stenosis/Partial Thrombosis via Common Carotid Access with Flow Reversal Filter System

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Introduction: Atherosclerotic disease of innominate artery (IA) is a rare cause of cerebrovascular ischemia. There is not a consensus in literature for a preferred endovascular strategy for treatment of symptomatic lesions. We present an endovascular technique for revascularization of IA stenosis using retrograde common carotid artery (CCA) access with the Silk Road™ flow reversal system.

Case Description: An 85-year-old woman with atrial fibrillation on Xarelto and prior strokes presented with slurred speech, right facial droop, and difficulty swallowing. MRI confirmed acute focal right frontal stroke. CTA confirmed severe stenosis of the IA. Carotid ultrasound (US) confirmed low monophasic flow in R internal carotid artery (ICA) with flow reversal in R external carotid artery (ECA). The L ICA showed mild stenosis with antegrade normal flow.

Symptomatic IA stenosis was diagnosed. Our treatment was a R CCA cutdown with retrograde placement of the Silk Road™ reversal filter system as used in trans-carotid artery revascularization (TCAR). We then completed successful retrograde stenting of the IA with R CCA clamped and flow reversal activated. Intravascular ultrasound (IVUS) was used liberally intraoperatively and confirmed mobile thrombus in the IA. The patient recovered uneventfully and was discharged home the next day. Post treatment US confirmed the IA stent to be patent with biphasic antegrade flow into the R ICA and ECA. The patient returned to neurological baseline.

Discussion: Endovascular treatment approach of the innominate artery is without clear consensus in the literature. Transfemoral and extremity artery access is described in several cases. The strategy implemented is influenced by the extent of disease in aortic arch, IA, subclavian artery, and CCA. We planned CCA access given the severe calcifications of aortic arch and focal stenosis at the origin. Intra procedure stroke protection with the Silk Road™ flow reversal system was effective in this case and should be considered as a treatment option for symptomatic innominate artery stenosis.

Conclusions: Endovascular treatment of IA disease is patient-specific; surgical planning must be determined by concomitant vascular disease in adjacent vasculature.

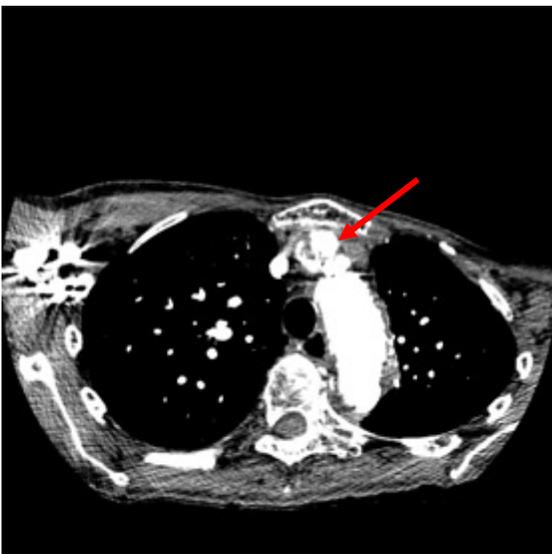


Figure 1: CTA demonstrating stenosis and calcification of Innominate Artery



Figure 2: Angiogram after Innominate Artery stent deployment (absent R CCA as flow is still reversed)

Repair of a Morgagni Hernia with Incarcerated Colon Via Multiple Surgical Approaches

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Introduction: Anteromedial subcostosternal diaphragmatic hernias, eponymously named Morgagni hernias (MHs), are estimated to occur in 1 in 2000 to 5000 live births and comprises 2-3% of all congenital diaphragmatic hernias. MHs allow entry of abdominal contents including omentum, colon, and other visceral organs into the thoracic cavity. The majority of MHs present as respiratory distress or failure to thrive in infancy, however occasionally MHs are identified incidentally on imaging in adulthood. Herniation of abdominal contents via MH poses risks for strangulation and ensuing bowel ischemia or perforation. Various approaches for repair have been described including via laparotomy, laparoscopy, thoracotomy, thoracoscopy, and median sternotomy. However, given the rarity of this entity, a standardized approach has yet to be determined. Here we present a case of a large MH with incarcerated colon requiring surgical repair and colon resection utilizing multiple approaches.

Case Description: This is a 73-year-old female with a history of multiple medical comorbidities including dementia, bipolar disorder, and seizures who presented with abdominal distention and pain with paucity of bowel function for an unknown timeframe. On CT, she was found to have a large right anterior diaphragmatic hernia containing dilated cecum, ileocecal junction, and right colon with small bowel dilation with a transition point consistent with bowel obstruction. She was taken the OR and underwent a complex diaphragmatic hernia repair with reduction of hernia contents and resection of necrotic right colon with primary anastomosis via a combined laparoscopic, right thoracotomy, and laparotomy approach. Her postoperative course was notable for atrial fibrillation with rapid ventricular response and seizure treated medically, as well as wound infection treated with antibiotics and vacuum therapy. She ultimately recovered well and was discharged to a subacute rehabilitation facility.

Discussion: Morgagni hernias are rare diaphragmatic hernias with the potential for intestinal incarceration and strangulation. Multiple surgical approaches have been described for repair, however combined approaches are typically reserved for more severe cases. Here we present a case of large MH with strangulated colon which required laparoscopy, thoracotomy, and laparotomy in order to perform a successful diaphragmatic hernia repair and right hemicolectomy.

Rare Xanthogranulomatous Mastitis In A Pregnant Female: A Case Report

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Introduction: Xanthogranulomatous inflammation is a rare inflammatory process in which lipid-laden macrophages aggregate in tissues, this process has been described across multiple organ systems, most commonly in the kidney and the gallbladder, with a few cases of xanthomas affecting the breasts in the literature. Here we report a rare case of xanthogranulomatous mastitis in a 38 G2P4 female who was 37 weeks pregnant and initially presented as a breast abscess, and on subsequent imaging masqueraded as a potentially malignant lesion. To our knowledge this is the first report of a breast xanthogranuloma in a pregnant and subsequently breastfeeding patient.

Methods: Retrospective single patient case report

Case Presentation: 38 y.o. female 37 weeks pregnant with PMHx of obesity and gestational DM who presented to the emergency department with right breast swelling, pain, and nipple discharge for one week and was found on physical exam to have a ~3cm retroareolar fluctuant mass without surrounding erythema or expressible drainage. An ultrasound of the right breast revealed a 2.2 x 2.0 x 2.8 cm retroareolar abscess which required an incision and drainage with expression of seropurulent fluid and a wound culture was obtained. The wound was packed and she was prescribed ten days of Augmentin with close outpatient follow up. The wound culture grew *Propionibacterium Sp* and Augmentin was continued.

The patient was seen outpatient eight days after procedure with significant improvement in her pain, however she still had persistent inflammation of the nipple-areolar-complex (NAC). Repeat ultrasound revealed a 2.7cm x 1.8cm lesion considered BIRADS 4 necessitating core needle biopsy. After delivery of a healthy infant, the patient underwent a core needle biopsy twenty days after index I&D, pathology revealed xanthomatous inflammation with abundant plasma cells and rare multinucleated giant cells consistent with xanthogranuloma, negative for malignancy. At three week follow up the I&D site healing well and the inflammation of the NAC was improving. The patient was started on two weeks of clindamycin while breastfeeding. On two subsequent outpatient follow ups the inflammation resolved and she was cleared for breastfeeding from bilateral breasts.

However the pt had recurrence of right breast pain 2 months later, 4 month after initial presentation, with a palpable and tender retroareolar mass similar to prior presentation. The patient was instructed to breastfeed from left breast to decrease lactation in the right breast, she completed another round of oral antibiotics, and repeat ultrasound redemonstrated a 2.5cm mass. After failure of repeat antibiotics and NSAID therapy the decision was made to proceed with surgical excision. She underwent excisional biopsy and penrose drain placement with resection of 1.4cm x 1.4cm 1.0cm mass which pathology identified as fragmented abscess cavity with no evidence of granulomatous inflammation. Operative cultures great enterococcus faecalis, streptococcus anginosus, and peptostreptococcus magnus. On postoperative day three the penrose was removed, and at two subsequent follow up visits her incision was healing well with no signs of inflammation or infection with plan for 3 month postoperative ultrasound evaluation.

Conclusion: This is the first reported case, to our knowledge, of a breast xanthogranuloma in a pregnant patient. Conservative treatment prior to surgical excision allowed her to breastfeed from the affected breast for four months and at time of excision no evidence of xanthogranulomatous inflammation was noted on pathology. This case report shows that conservative management allows for continued breastfeeding in a postpartum patient from the affected breast and surgical excision may be performed if symptoms reoccur without significant morbidity.

Case report: Exsanguinating arterial-vesicular injury after GSW to the lower extremity

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Introduction: Arterial-vesicular injuries (AVI) are rare entities, often presenting with distended bladder, bright red hematuria, and clot retention within the bladder. Most cases reported in the literature occur following traumatic injuries to the groin or pelvis, with subsequent pseudoaneurysm formation contributing to hematuria. If not detected early, the patients oftentimes re-present with significant urinary exsanguination. We present a case of an arterial and vesicular injury with decompression through the bladder.

Case Presentation: Our patient is a 21-year-old male with no medical history who presents to the level I trauma center as a high-level activation trauma following a single gunshot wound (GSW) to the left lateral thigh approximately 10cm below the greater trochanter. Upon arrival, the patient had a systolic blood pressure of 80/50. Pelvic x-ray revealed ballistic fragments in the contralateral pelvis approximately 7 cm past midline and an ipsilateral left femur fracture. On exam, he had 1+ palpable left dorsalis pedis pulse. He underwent a formal trauma laparotomy which did not reveal any acute injuries to the intra-peritoneal structures with no retroperitoneal hematoma visualized. Simultaneously, the foley catheter was noted to be bloody, and the bladder distended. Following continuous bladder irrigation, he had profuse sanguinous urinary output. Angiogram revealed a complete disruption of the profunda femoris artery (PFA). An open exploration of the femoral canal was performed to achieve proximal control of the common femoral artery. At this time, it was realized there was a communication into the retroperitoneal space and defect in extraperitoneal bladder. We proceeded to identify a 3cm longitudinal injury to the PFA and obliterated femoral vein (FV), both were ligated, and four-compartment fasciotomies were performed. Patient received a total of 19 units pRBC, 19 units FFP, 3 units of platelets, 3 units of cryoprecipitate, and 716mL of cell-saver throughout the procedure. On post-injury day (PID) 1, he returned to the OR to evaluate the bladder injury, repaired in two layers by urology. At this time, a large retroperitoneal hematoma was noted, and he was left with a temporary abdominal closure for reevaluation of the hematoma. He later underwent abdominal closure and definitive repair of femur fracture. He was discharged on PID day 8 to inpatient rehab voiding spontaneously.

Discussion and Conclusion: Consistent with the limited published cases of arterial-vesicular fistula, our patient presented after a traumatic groin injury and AVI was discovered following bright red hematuria and hemodynamic instability. The high index of suspicion for communication between the thigh and the extraperitoneal space due to projectiles remains key to success in management of this challenging injuries.



Figure 1: Pelvic injury and angiogram revealing contrast extravasation. A) Pelvic X-ray, B) Left femur X-ray, C) Angiogram revealing transection to left profunda femoris artery and left femoral vein

Rib Resection and Chest Wall Reconstruction for Primary Chondrosarcoma in a Patient with Parkinson's Disease

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Introduction: Chest wall chondrosarcoma is a rare malignant cartilage-forming tumor of the bone estimated to have an annual incidence of 60 cases per year in the United States. Diagnosis is made with CT imaging and excisional or needle biopsy. The treatment of choice is surgical resection as these tumors are notoriously resistant to radiation and chemotherapy. Patients with Parkinson's disease are at increased risk of a number of postoperative complications such as pulmonary embolism, stroke, pneumonia, urinary tract infections, sepsis, acute renal failure, delirium, and death. This higher risk of complications is multifactorial including dysautonomia, muscle dysfunction, and possibly cognitive impairment hindering participation in recovery. Here, we present a case of a primary chest wall chondrosarcoma found in a patient with Parkinson's disease who underwent successful resection and reconstruction.

Case Description: A 64-year-old man with a history of Parkinson's disease with severe dysautonomia, postural hypotension, essential hypertension, coronary artery disease, and atrial fibrillation was found to have an expansile lytic lesion of the right anterior third rib found incidentally on CT during workup after a fall. Core needle biopsy demonstrated grade 1 chondrosarcoma. Further staging workup including tumor markers, CT head/chest/abdomen/pelvis, and bone scan determined this to be a solitary lesion with no evidence of metastatic disease. A multidisciplinary team was assembled consisting of thoracic surgery, plastic surgery, anesthesiology, neurology, cardiology, and rehabilitation medicine. Regional anesthetic blocks were contraindicated due to the level of the resection and his dysautonomia. The patient underwent an en bloc resection of the mass to include the second, third, and fourth ribs with wide margins. Chest wall reconstruction was performed using a 2mm-thick polytetrafluoroethylene patch which was affixed to the surrounding ribs via drilled suture holes. Next, a latissimus dorsi rotational flap was created by elevating the latissimus dorsi muscle from the posterior chest wall with identification and preservation of the thoracodorsal pedicle. A subcutaneous tunnel was created to pass the pedicled flap to overly the patch and secured in place with sutures. The patient recovered well postoperatively despite episodes of fluctuating tachycardia/bradycardia and hypertension/hypotension consistent with his known Parkinson's disease-related dysautonomia. He had episodes of postoperative delirium which resolved during his inpatient stay. However, he notably did not have a pulmonary embolism, stroke, pneumonia, or other significant postoperative complication despite his Parkinson's disease limiting his mobility and respiratory mechanics. He was ultimately discharged to an acute rehabilitation facility on post-operative day 15.

Discussion: Chest wall chondrosarcoma is a rare cartilage-forming tumor which is treated by surgical excision. Patients with Parkinson's disease are at higher risk of postoperative complications, however nevertheless need to undergo surgery when indicated. Here we present a case of a patient with Parkinson's disease who was diagnosed with a rib chondrosarcoma who safely underwent surgical resection with chest wall reconstruction.

The Effect of Immunotherapy on Prognosis: A Case of an Operation on an Inoperable Tumor

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Introduction: Lung cancer remains the leading cause of cancer-related mortality worldwide at 1.8 million deaths globally in 2020, with non-small cell lung cancer (NSCLC) accounting for approximately 85% of all cases. Despite advances in screening and therapies, the prognosis for lung cancer patients remains poor, particularly in advanced stages, with less than 10% 5-year survival for patients having stage IV disease. In recent years, biologic medications, specifically immune checkpoint inhibitors (ICIs), have revolutionized the treatment of lung cancer. These therapies have shown promising results in improving survival rates and quality of life for patients with advanced lung cancer.

Case description: Patient is a 51-year-old female with past medical history of hyperlipidemia who presented to the Emergency Department (ED) for intractable headaches and left-sided weakness. During her workup in the ED, a head computed tomography (CT) scan was obtained which revealed a heterogeneous 3.3 cm right frontal lobe mass with associated vasogenic edema and midline shift. Due to concerns for this finding being a metastasis from an unknown primary malignancy, CT scans of the chest, abdomen, and pelvis were performed. Chest CT scan showed a large spiculated pulmonary nodule in the right lung apex measuring 1.9 x 2 x 2 cm. A biopsy was obtained which was consistent with pulmonary adenocarcinoma. She began appropriate workup for a primary pulmonary malignancy with a PET/CT which demonstrated a small, metabolically active right paratracheal lymph node. Since the patient continued to be symptomatic from the brain mass, resection was undertaken for therapeutic purposes. The mass was positive for high-grade metastatic pulmonary adenocarcinoma, confirming the previous findings. The patient developed a pneumothorax, possibly secondary to bleb disease, which was appropriately treated with a surgical chest tube. She then underwent a right upper lobectomy and mediastinal lymph node dissection via a video-assisted thoracoscopic surgery. A large bleb was noted in the right upper lobe, which was resected. No level 9R lymph nodes were identified. Pathology reported no level 8R nodes positive for malignancy. However, 2R and 4R nodes were positive for carcinoma with extranodal extension. Final pathologic diagnosis was an invasive pulmonary adenocarcinoma solid predominant, stage IVA per the American Joint Committee on Cancer, with negative margins. On molecular analysis, the tumor had low PDL-1 expression, tP53 mutation, and various gene deletions. Finally, she underwent radiation therapy to the right frontal lobe of the brain, four cycles of chemotherapy with pembrolizumab (PDL-1 inhibitor), pemetrexed, and carboplatin. She was continued on maintenance pembrolizumab and has no evidence of active malignant disease to date.

Discussion: This patient presented with headaches due to symptomatic brain metastasis from a high-grade primary lung malignancy. The subsequent evaluation of the pulmonary disease showed mediastinal lymph node involvement and low PDL-1 expression, underscoring the aggressive nature of her disease. Even in the case of metastatic disease, the combination of a thorough oncologic surgical procedure consisting of mass resection with mediastinal lymph node dissection in conjunction with aggressive chemotherapy and immunotherapy resulted in resolution of this patient's active disease. This aggressive management strategy highlights the advantages of immunologic therapy and raises the question of whether surgical intervention, in combination with medical therapy, could now be a viable option for conditions previously deemed 'inoperable.'

Conclusion: In conclusion, this case supports the utility of a comprehensive, aggressive treatment approach involving surgery, chemotherapy, radiation, and immunotherapy in managing advanced NSCLC. Further research should be aimed at the feasibility of more aggressive treatment strategies in this new era of highly effective immunologic agents.

Delayed Aortic Pseudoaneurysm Rupture Following Ascending Aortic Aneurysm Repair

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Introduction: Aortic pseudoaneurysm (APA) is a rare complication after aortic surgery, typically occurring at the cannulation site or along aortic suture lines. Complications of APA include arteriovenous fistula, compression or erosion of surrounding structures, and fatal rupture. Management of ascending APA is not well-described, especially in the perioperative period. While studies have considered surgical and medical management of APA in the acute (within a few days of surgery) and chronic (many weeks to months after surgery) periods, treatment of APA in the interval time frame is less understood. We present a patient who developed APA three weeks after initial aortic aneurysm repair.

Method(s): Data from a single case report of a rare cardiac complication is presented in this study. Medical and surgical history, operative findings, and postoperative progress until date of discharge are included. Findings from a thorough literature review of APA diagnosis and management are included to discuss merits and limitations of current surgical techniques.

Results: A 73-year-old male with an ascending aortic aneurysm of 6.4 cm underwent an uncomplicated ascending aortic replacement and was discharged home on post-operative day (POD) 7. Three weeks after discharge, the patient presented to the emergency department with chest pain and right upper extremity paresthesia. He was found to have a 1.6 cm ascending APA and was admitted to the intensive care unit (ICU) for pain management and anti-impulse therapy. Sustained hypotension prompted emergent repeat computed tomography (CT) 4 hours later which demonstrated further APA dilation to 2.5 cm. The patient was transferred to the operating room but prior to induction, he became asystolic from APA rupture. After chest compressions, emergent intubation, and femoral cannulation for cardiopulmonary bypass, the patient underwent an aortic graft replacement. His post-operative course was complicated by seizure-like activity and ischemic stroke, and he was discharged on POD 13.

Conclusions: Management of APA is complex and warrants consideration of timing of insult (acute vs chronic), size, symptoms, stability of the patient, and level of surveillance. In this case, time from recent surgery significantly influenced decision making. We outline key perioperative strategies to manage APA rupture in the subacute period.

All That Glitters is Not Gold: Incidental Finding and Diagnosis of Adrenal Cortical Carcinoma in Previous Male Breast Cancer Patient

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Introduction: Adrenal cortical carcinomas (ACC) are tumors comprising 0.3% of all adrenal masses while metastatic lesions to the adrenal glands represent a much higher proportion at 7.5% of all adrenal tumors and 86% of all malignant adrenal tumors. Approximately 15% of ACCs are discovered as incidentalomas, yet their occurrence is found to be even higher as a second malignancy in those who have survived a previous cancer rather than presenting as a first primary adrenal malignancy.

Method: We present a case of a 72-year-old male previously diagnosed with invasive breast cancer, whom on staging imaging was found to have an indeterminate adrenal mass measuring 2.3 cm x 1.8 cm.

Results: Subsequent imaging with CT adrenal protocol characterized this lesion as benign. He underwent percutaneous biopsy to evaluate for breast metastasis which did not reveal cytologic features concordant with malignancy. Hence, the lesion was believed to be low risk for malignant transformation and active surveillance was no longer pursued. Biopsy is useful in those with prior extra-adrenal cancers; however, it does not reliably differentiate between benign or malignant adrenal lesions. Two years later, the patient came to attention once more while undergoing workup for pulmonary symptoms and the adrenal lesion enlarged to 7.2 cm x 6.3 cm x 10.5 cm. He underwent exploratory laparotomy with abdominal exploration and right total adrenalectomy with histopathologic diagnosis of low grade oncocytic type adrenal cortical carcinoma (T2,N0, M0).

Conclusion: Suspicion for malignancy, subsequent treatment, and surveillance algorithms for nonfunctioning adrenal nodules are based on tumoral size and benign imaging characteristics. Routine follow up is not recommended for nodules measuring <4 cm with unenhanced CT tumor attenuation of HU <10, or those with stability on repeat imaging if HU is >10 given low likelihood of developing malignancy. However, the risk does increase in those with extra-adrenal malignancies – particularly for metastasis rather than a primary adrenal malignancy. In most cases, adrenal tumoral growth can be followed whilst the patient undergoes surveillance imaging for their extra-adrenal primary cancer. Unfortunately, not all cancers, especially breast, require imaging that secondarily captures the adrenals – as was the case in our patient. It begs the question, should surveillance algorithms for previous cancer survivors with adrenal incidentalomas be increasingly monitored? Does the time to adrenal carcinogenesis differ for those with previous malignancies? Further studies are required to assess and put forth guidelines with respect to these extra-adrenal primaries and subsequent development of ACC.



Image 1. Axial CT chest, abdomen, and pelvis with IV contrast 2/2021: In the right adrenal gland there is an oval 2.3 cm x 1.8 cm indeterminate solid nodule.

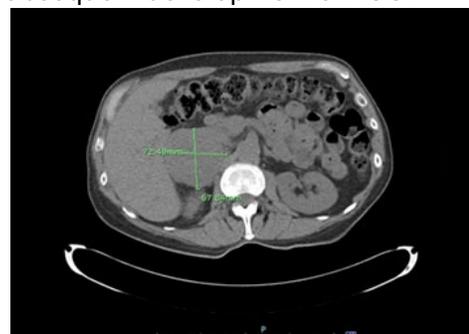


Image 2. Axial CT chest without contrast 11/2023: Interval significant enlargement of a right adrenal lesion now measuring 7.3 cm x 6.8 cm, suspicious for malignancy.

VA-ECMO as a temporizing measure in the management of penetrating left ventricular injury

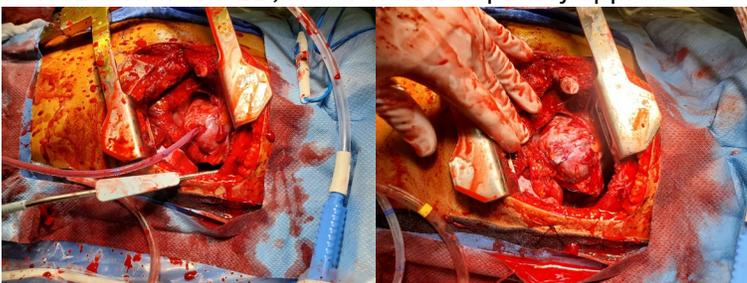
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Introduction: Penetrating cardiac injuries remain a challenging clinical scenario in the modern era. Mortality rates in penetrating cardiac injuries range from 20-65%, with stab wounds carrying a better prognosis. Rapid recognition and management are critical in patients with penetrating cardiac injury. We present a case of a patient with a penetrating left ventricle injury who survived after resuscitative thoracotomy and initiation of extracorporeal membranous oxygenation in the trauma bay prior to definitive repair.

Method(s): Data from a single case report of a patient with penetrating cardiac injury is presented in this study. Medical and surgical history, operative findings, and postoperative progress until date of discharge are included. Findings from a literature review of diagnosis and management of penetrating cardiac injury will be included to discuss current management strategies.

Results: A 25-year-old male with a history of alcohol use disorder was brought in unresponsive to the trauma bay with multiple penetrating chest wounds to the left anterior chest wall. The patient was intubated due to altered mental status, and there was a large gush of blood from one of the chest wounds. Massive transfusion protocol was initiated, and a left thoracostomy tube was placed with immediate evacuation of 100mL of blood. FAST examination revealed collapsed bilateral atria with large pericardial effusion. An emergent left anterolateral thoracotomy was performed, and blood was evacuated from the pericardium. Cardiac massage was initiated, and the heart was shocked back into sinus rhythm. A 2cm laceration was identified at the apex of the left ventricle. Direct pressure over the laceration was held and the patient was placed on VA-ECMO via the femoral vessels to minimize blood loss through the laceration. In the operating room the ECMO cannulae were converted to full cardiopulmonary bypass and a suction catheter was placed through the defect allowing full visualization of the injury in a dry operative field. The defect was lateral to the left anterior descending artery and was repaired with two pledgeted horizontal mattress sutures. The patient was taken off bypass and decannulated, and the chest was closed with two pleural chest tubes for drainage. The patient ultimately received 21 units of packed red blood cells, 12 units of fresh frozen plasma, two units of platelets, and 2 units of cryoprecipitate. The patient was transferred to intensive care unit on low dose norepinephrine. He was ultimately extubated hospital day 3, with chest tubes removed on hospital day 3 and 5, and discharged from hospital on day 11 with referrals for substance use treatment programs.

Conclusions: We present a case of successful management of penetrating cardiac injury with resuscitative thoracotomy and VA ECMO initiation in the trauma bay in a community-based level two trauma center. In this case VA ECMO served as a temporizing measure to minimize blood loss until the patient reached the operating room for definitive management. A multidisciplinary approach was beneficial in this case with involvement from Trauma Surgery, Cardiac Surgery, Thoracic Surgery, and Surgical Critical Care. Our case highlights the importance of rapid recognition of cardiac tamponade in the setting of penetrating injury via surgeon performed sonography, initiation of VA ECMO in the ED, and a multidisciplinary approach.



Permanent Catheter Placement for Recurrent Pericardial Effusions in Presence of Dense Adhesions and Loculations: A Case Report

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Introduction: Pericardial effusion (PcE) is the accumulation of fluid in the pericardial space. Acute effusions can rapidly exceed the pericardium's capacity, leading to cardiac tamponade, a life-threatening condition characterized by decreased cardiac output due to compression of the heart leading to decreased preload. Chronic effusions allow for pericardial stretching but still carry the risk of progressing to tamponade. Echocardiography is the primary diagnostic tool and can guide immediate intervention in unstable patients. A systematic approach to management includes pericardiocentesis, work-up to identify etiology, and medical management. Invasive procedures such as a pericardial window with biopsy or pericardiectomy may be necessary. This report is about the surgical management of recurrent PcE with failed pericardial window, emphasizing the challenges of severe adhesions and loculations, and use of a permanent catheter.

Case Report: A 36-year-old woman with cerebral palsy, Pierre Robin syndrome, non-verbal status, and G-tube dependency, residing in a skilled nursing facility with a history of recurrent pericardial and pleural effusions after failed pericardiocentesis and pericardial window through anterolateral thoracotomy. She presented with a loculated moderate/large PcE along the right ventricular free wall and right atrium but no cardiac tamponade. Bilateral pleural effusions and normal biventricular EF were noted on echo. Due to this challenging case and failed previous medical and surgical treatments, a multidisciplinary discussion was carried out between thoracic surgery, cardiology, and cardiac surgery. The decision was made to attempt a video-assisted thoracic surgery (VATS) pericardial window and placement of a permanent indwelling catheter (PleurX™) in the pericardium.

She underwent a right VATS with a transesophageal echocardiograph performed during the entire case. This revealed dense lung adhesions to the lateral chest wall and a small right-sided pleural effusion. A portion of the pericardium was excised, and 150cc of thick pericardial fluid was aspirated and sent for cytology. PcE was loculated and very dense making it extremely challenging to remove. Due to adhesions and poor visualization, further attempts to drain the pericardium were aborted. In efforts to avoid repeated pericardial drainage, a PleurX catheter was placed and looped in, limited by adhesions and loculations. Final pathology revealed reactive changes without malignancy. While initially promising, minimal drainage was observed leading to the removal of the catheter a month later. The patient was evaluated for pericardiectomy but was not considered a candidate due to the absence of cardiac tamponade symptoms and high risk of complications. She has continued to have a tortuous clinical course requiring frequent admissions to the hospital due to aspiration pneumonia and recurrent pleural effusions requiring chest tube placements. The palliative care team is involved in order to focus on the patient's quality of life.

Conclusion: While pleural catheters can be effective for recurrent pleural effusions, this case highlights their limitations within the pericardium in the presence of dense adhesions and loculations. A systematic and multidisciplinary approach is recommended with more research needed to develop innovative therapies for challenging, recurrent cases.

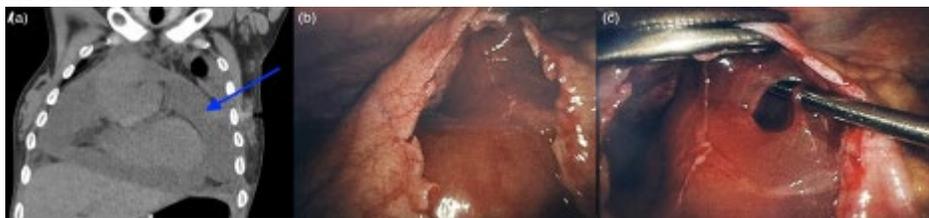


Figure: A) CT Chest coronal view, blue arrow shows large PcE. B & C) Intraoperative view of pericardial window showing thick, loculated pericardial fluid with adhesions from the pericardium to the heart.

Unilateral Common and External Iliac Artery Ectasia in a patient with Critical Limb Ischemia

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Introduction: Common iliac artery aneurysms usually occur along with abdominal aortic aneurysms. External iliac artery ectasia and aneurysms are rare in isolation. They account for <1% of all intra-abdominal aneurysms. Disease etiology has a wide range of pathologies, ranging from connective soft tissue disorders to mycotic infections. Historically, these are slow growing, however, they are prone to developing complications such as rupture and sometimes thrombosis.

Case Report: A 41-year-old male, with a significant history of right lower extremity arterial injury requiring a right superficial femoral artery to posterior tibial artery bypass with fasciotomies 10 years ago, presented with worsening rest pain for 6 months. Examination demonstrated non-audible signals in the right lower extremity, but sensation and motor examination was intact. CTA abdomen/pelvis with runoff demonstrated ectasia of the right common iliac artery. The internal iliac artery was patent. There was aneurysmal degeneration and occlusion of the right external iliac artery and right common femoral artery. The profunda femoral artery was patent. The posterior tibial artery at the level of the ankle had some contrast opacification. The rest of the vasculature within the right lower extremity was occluded. He was placed on therapeutic heparin drip with plans for operative management. He underwent a right common iliac to common femoral artery interposition graft with a 10 mm Dacron graft and a jump graft to the hypogastric artery using an 8 mm Dacron graft. Intraoperative findings were significant for external iliac artery and common femoral artery aneurysmal degeneration with chronic adherent thrombus. After spending a night in ICU, he was transferred to the surgical floor and discharged on post-operative day 6 without complications. On postoperative day 3, the patient underwent a duplex arterial ultrasound that demonstrated a patent bypass with triphasic flow. He was discharged on Eliquis for graft patency, with plans for a distal bypass, if needed. On postoperative follow up in the office, his rest pain has resolved. He has some claudication to his right lower extremity which is not lifestyle limiting.

Conclusion: In conclusion, external iliac artery ectasia is an exceedingly rare condition characterized by dilation of the external iliac artery. Despite its rarity it can have significant morbidity including thrombosis, thromboembolism, and distal ischemia. The pathology is more commonly associated with connective tissue disease or rupture, but pathology on resected arterial tissue, in our patient, yielded just inflamed tissue with thrombus. Common iliac artery ectasia or aneurysm has specific guidelines and classification for repair but given the rarity of external iliac artery involvement, further research can better define an approach to manage this condition.

Laparoscopic Bowel Resection for Jejunal Perforation in Blunt Abdominal Trauma

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Introduction: Laparoscopy has diagnostic and therapeutic uses in trauma and has been demonstrated to be safe in select patient populations with less blood loss, shorter hospital stays, and less postoperative pain. However, this benefit has been primarily shown in penetrating trauma, while therapeutic laparoscopy in blunt abdominal trauma remains controversial due to concerns of missed injuries and lack of standardization and systematization for the procedure. More recent studies have shown an increase in the adoption of laparoscopy in blunt abdominal trauma with lower rates of missed injuries and conversion to laparotomy. Here we describe a case of a traumatic bowel perforation successfully treated with a laparoscopic bowel resection.

Case Description: We present a case of a 22-year-old man with a history of hypertension who presented after a motor vehicle collision into a tree. Initial workup demonstrated intact ABCDs, hemodynamic stability, diffuse abdominal tenderness, and a large skin avulsion over the left knee. FAST exam was positive for free fluid in the pelvis, and CT chest/abdomen/pelvis showed complex free fluid in the pelvis but no evidence of solid organ injury. CT of the left knee demonstrated intra-articular space air. He was taken to the operating room and underwent a diagnostic laparoscopy which identified a contained perforation of the proximal jejunum in addition to a moderate amount of blood in the pelvis and a nonexpanding noncompressive hematoma along the sigmoid colon. The bowel was run laparoscopically with clear visualization of its entirety, and the proximal jejunal injury was deemed the only injury requiring intervention. There was surrounding inflammation and ecchymosis of the mesentery and adjacent small bowel, thus a mini-laparotomy incision was made and this portion of jejunum was resected using staplers with primary anastomosis. On repeat examination of the abdomen no other significant injuries were identified. Concurrent to this operation a left knee irrigation and debridement with complex wound closure was performed by Orthopedic Surgery and Plastic Surgery. Postoperatively the patient progressed well with gradual diet advancement and physical therapy for his left knee. He was ultimately discharged home on post-operative day 7.

Discussion: The use of therapeutic laparoscopy in the setting of blunt abdominal trauma has been controversial, however more recent literature suggests that it can be performed safely in select patient populations. The benefits of laparoscopy over laparotomy have been well documented including less blood loss, shorter hospital stays, and less postoperative pain. In this young, hemodynamically stable patient with imaging demonstrating free fluid without solid organ injury, a laparoscopic approach was able to identify the small bowel injury and a smaller incision was used to perform the bowel resection compared to a traditional exploratory laparotomy incision. No other intra-abdominal injury was identified during his inpatient stay. A laparoscopy-first approach may thus be implemented in select patient populations even in the setting of blunt abdominal trauma.

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Endovascular Treatment for Carotid Stump Syndrome with Stentgrafts: A community issue

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Introduction: Carotid stump syndrome stems from turbulent flow forming micro-emboli into the internal system causing occlusion of intracranial vessels with hypoperfusion. It is necessary to rule out any other embolic sources including cardiac or aortic lesions. Different management strategies have been proposed for the treatment of carotid stump syndrome. Medical management is considered in high-risk patients including either anticoagulation, dual-antiplatelet therapy or combination of both modalities. Surgical management is commonly performed with internal carotid artery ligation and common/external carotid artery endarterectomy with patch angioplasty.

Case Report: A 79-year-old Caucasian male with a history of uncontrolled hypertension, hyperlipidemia and smoking who presented to the Emergency Department with left upper extremity numbness and weakness. He underwent stroke workup demonstrated a right internal artery occlusion with right middle cerebral artery (MCA) embolic lesions, with MRI evidence of right MCA distribution scattered infarcts. He also had a 80% stenosis of the left proximal internal carotid artery and carotid bulb with mixed plaque. The circle of Willis was intact. The left carotid lesion was thought to be asymptomatic, however, given the degree of stenosis and contralateral occlusion, left carotid revascularization was planned electively. During the same hospital stay, he developed another episode of left upper extremity weakness. Repeat imaging of the neck demonstrated the same findings within the carotid circulation. MRI imaging of the head demonstrated new embolic strokes in the right MCA distribution. Given repeat symptoms, despite being on dual antiplatelet therapy, the left internal carotid artery was thought to be the source of his stroke given the intact circle of Willis. He underwent left transcarotid artery revascularization with a 10 x 40 mm stent. He had resolution of symptoms initially. His stay in the hospital was prolonged due to case management issues. On post operative day 7, he had new onset of right eye vision changes. MRI demonstrated new evolving strokes in the right MCA distribution with a small stump of the right internal carotid artery. The left internal carotid artery stent was patent without any filling defects. A right carotid stump syndrome diagnosis was made. A discussion regarding open and endovascular techniques was had with the patient and the multidisciplinary stroke team. He underwent a right common to external carotid artery stentgraft placement using distal protection and a trans femoral approach. Initial angiogram demonstrated flow from the external carotid artery filling the right intracranial circulation through collaterals. A 7 mm x 25 mm and an 8 mm x 25 mm Viabahn stents, with a 5.0 mm Spider FX filter, were used to exclude flow to the internal carotid artery stump. On his most recent follow up, bilateral carotid artery stents are patent

Discussion: Recently, stenting of the stump with balloon angioplasty stent exclusion has been utilized for treatment of this rare condition, especially for those patients with unfavorable neck anatomy and severe comorbidities, as in our patient.. Ideally this option is considered with complete occlusion of ipsilateral internal carotid artery or any stenosis of the external carotid artery by stenting across the stump and excluding it.

Pneumomediastinum After Dental Drilling

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Introduction: Pneumomediastinum, is a rare diagnosis that is associated with many life-threatening conditions and not commonly reported after simple dental procedures. Pneumomediastinum is more frequently seen in primary mediastinitis from gas forming bacteria, Boerhaave's syndrome or other esophageal injury, tracheal rupture, and trauma. However, with the increasing use of high-speed pneumatic turbine driven dental drills, pneumomediastinum has occasionally been seen after extensive dental and orthognathic procedures, but rarely after simple dental drilling procedures. Although usually an incidental finding, management includes rapid diagnosis and treatment of the underlying etiology, mediastinal drainage, antibiotic administration for mediastinal infection, and in severe cases intervention for cardiopulmonary failure. In this report, we detail two cases of pneumomediastinum after simple dental drilling procedures.

Method(s): Patient A is a 77 year old female with multiple medical co-morbidities who presented with head and neck discomfort, aural fullness, and facial and neck crepitus after a dental drilling procedure for crown replacement after recurrent caries. Imaging demonstrated subcutaneous emphysema in the right buccal and paraesophageal spaces as well as mild pneumomediastinum. Patient B is a 22 year old healthy male who presented with chest tightness and crepitus along the face, neck, and upper chest after dental drilling and tooth extraction. Imaging revealed diffuse cervicofacial subcutaneous emphysema and pneumomediastinum.

Results: Both patients were admitted for observation and placed on prophylactic broad-spectrum antibiotics with gram positive, negative, and anaerobic coverage for oral flora translocation. They were monitored with serial chest radiographs which demonstrated stability or mild improvement. The pair remained afebrile and hemodynamically stable, with good oxygenation and no leukocytosis. Symptoms resolved and both were discharged home within 48 hours.

Conclusion(s): Pneumomediastinum is a rare finding which is often caused by critical etiologies. Prompt identification and exclusion of underlying life-threatening conditions is paramount. Seldom reported, pneumomediastinum has been seen after dental drilling procedures as high pressure air dissects through cervicofacial planes and can dissect down into the mediastinum. Our patients demonstrate this likely underdiagnosed and underreported phenomenon associated with dental procedures, and the success of conservative management.

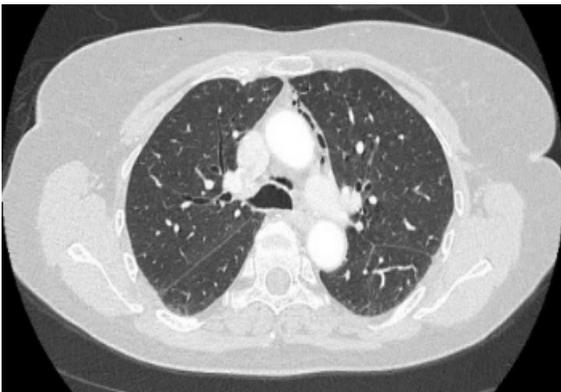


Figure 1. CT Chest Axial Patient A:
Pneumomediastinum



Figure 2. CT Chest Coronal Patient B:
Cervical subcutaneous emphysema and pneumomediastinum

Evaluating Imaging Techniques for Pancreatic IPMNs: A Comparative Study of Surgical Pathology with CT, MRI, and EUS

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Introduction Pancreatic intraductal papillary mucinous neoplasms (IPMN) are considered pre-malignant cystic tumors with great variation in malignant potential. Consensus guidelines on operative intervention are heavily influenced by tumor size and imaging features; however, the optimal imaging modality is still undefined.

Methods Patients who had surgical resection of an IPMN between 2014 and 2023 were identified. Pre-operative IPMN measurements on CT, MRI, and endoscopic ultrasound (EUS) were analyzed and compared to surgical measurements.

Results We identified 57 patients who had an IPMN resection of whom 25 (44%) had an MRI, 28 (49.1%) had a CT and 49 (86%) had a EUS. The average IPMN size in our cohort was 2.24 ± 1.41 cm for MRI, 2.42 ± 2.06 cm for CT, and 2.35 ± 1.73 cm for EUS. Conversely, the average IPMN size on gross examination was 3.49 ± 2.49 cm. While all modalities underestimated the size of the IPMN, only CT (-1.26 ± 3.12 cm, $p=0.041$) and EUS (-1.02 ± 2.66 cm, $p=0.010$) showed significant differences between imaging and gross pathology measurements. When comparing over- and underestimate variances within each modality as a function of pathologic size, all were statistically significant ($p \leq 0.040$), with the variance for EUS having the greatest impact of significance ($p \leq 0.002$).

Conclusion In the surgical evaluation of IPMN patients, CT, MRI, and EUS has poor concordance with actual tumor size. Given that size is one of the primary characteristics for surgical decision-making, our study suggests caution when using these modalities solely as a determinant of resection.

Plant Thorn Arthritis

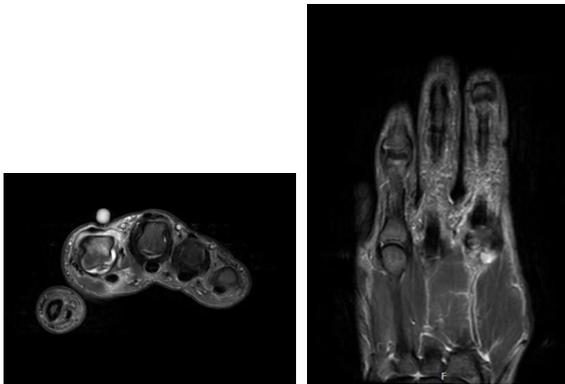
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Introduction: Plant thorn arthritis is a rare but increasingly recognized condition characterized by inflammation of the joints following the implantation of plant thorns. We present a case of a 45 y/o F with 3 weeks of ongoing pain in right hand after performing yardwork. In urgent care, was given Bactrim and steroids for concomitant poison ivy, all without improvement. Patient presented to the hospital with pain at the 2nd and 3rd MCP joints, second A1 pulley, and along the flexor tendon sheath. WBC count 8.2, CRP 0.3, ESR 7, RF <10, UA 3.3. Right hand X-ray: normal without radiopaque foreign body. MRI of the right hand: moderate 2nd MCP joint effusion with adjacent marrow edema within the 2nd metacarpal head, circumferential soft tissue swelling. Patient started on Unasyn and NSAIDs. On HD 3, she went to the OR for I&D of the right index finger metacarpal phalangeal joint. Intra-op, right index MCP was fluctuant with non-purulent synovial fluid in joint capsule. Surrounding tenosynovium was inflamed with adhesions between fascial layers. Tiny black fleck of non-lustrous material was identified proximal to the joint within the proximal most capsular tenosynovium. There was also small irregularity in the dorsal cortex of the metacarpal head, a small specimen of bone was taken. All sent for cultures.

Method(s): A single descriptive retrospective case study review design was used.

Results: Fluid positive for intra and extracellular monosodium urate crystals. Given that patient had normal inflammatory markers, low uric acid, and no known risk factors for gout, it is possible that the removal of piece of bone freed cholesterol and led to false positive appearance of monosodium urate crystals. Patient still started on colchicine 0.6 mg daily. Lab work was notable for positive ANA. Pathology resulted: “Fibrous tissue with foreign body suggestive of splinter, with associated acute and chronic inflammation, florid vascular proliferation and fibrosis”.

Conclusion(s): Accurate diagnosis involves a thorough clinical history, physical examination, and appropriate imaging. Effective treatment focuses on removing the foreign body and managing inflammation. There is no direct evidence suggesting that plant thorn arthritis causes gout. Individuals with preexisting gout might experience exacerbation of their symptoms due to additional inflammatory stress from plant thorn arthritis. Cholesterol crystals may resemble MSU crystals under polarized light microscopy.



Right hand MRI, axial and coronal STIR.