LOUISIANA CHAPTER
2023 ACS ANNUAL MEETING

MARCH 24-26

RENAISSANCE NEW ORLEANS ARTS HOTEL WAREHOUSE DISTRICT

KIOSK 3

Kiosk #3 | ePoster#32

Basic Science | Orthopaedic Surgery

MEASUREMENT OF MUSCLE TISSUE TRAUMA IN MURINE AND IN-VIVO MODELS

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Introduction: Extremity trauma is prone to complications such as poor tissue healing, wound dehiscence, wound infection, fracture related infection, and fracture nonunion. The aim of this research is to determine the timing of measuring markers of muscle damage in a murine model, in order to optimize certain lab procedures prior to use of the human tissue.

Methods: After 4 mice were euthanized, we dissected out the anterior compartment of the lower extremity. The trauma group was created by clamping the muscle in 3 sections for 5 seconds each. We created a media made of DMEM, 1% “Zonker” antibiotic, and 0.1% Ampicillin. For 7 days we repeated the following procedure: We added 3cc of media to each sample in a 6 well plate, which was placed in a 37C incubator. The following day, 1-1.5cc of media were collected and new 3cc was replaced.

Results: We performed an ELISA measuring beta-FGF from three mice. The results were normalized to tissue weight. There appears to be a trend where the injured muscle expressed greater amounts of beta-FGF in supernatant collected after the first 24 hours. There was a significantly lower beta-FGF expression after day 1. Days 3-7 appear similar, though it is notable that the ex vivo expression of beta-FGF was still present from the muscle tissue maintained in media.

Conclusion: These data are useful in planning the muscle assays that will be performed on human discarded muscle tissue. We are currently enrolling orthopaedic trauma patients and plan to explore muscle injury exosome analysis.

Kiosk #3 | ePoster#33

Clinical Science | Otolaryngology

MANAGEMENT OF EXPOSED HARDWARE ASSOCIATED WITH METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) INFECTION

B Kemp, L Mueller, M Migneron, N Jackson, Tulane School of Medicine

Introduction: Exposed hardware in the setting of methicillin-resistant staphylococcus aureus (MRSA) infection in a surgical wound is serious and potentially life threatening.

Methods: We present a case report of multiple plastic surgery reconstruction techniques utilized to manage an exposed cochlear implant device.

Results: A 72-year-old female underwent uncomplicated bilateral cochlear implantation. Six months later, she developed a resistant infection. She eventually developed breakdown of the skin overlying the implant's internal component. Wound cultures grew MRSA. The wound was debrided and irrigated with vancomycin antibiotic solution and closed with an advancement flap over exposed hardware. The full-thickness postauricular defect measured 2 cm x 2 cm. The inferiorly based, C-shaped advancement flap was raised in the subdermal plane to raise skin and fascia, preserving the temporalis muscle. The site was closed with minimal tension. The patient was briefly observed inpatient and discharged on oral antibiotics. Five weeks post-operatively, the patient returned to clinic with recurrent infection and wound breakdown with a 5 cm x 5 cm defect. The patient was scheduled for device removal and coverage with a pedicled temporalis muscle flap and soft tissue advancement. The patient was discharged on oral antibiotics and continues to follow up in clinic every two weeks to ensure infection resolution.

Conclusion: This case demonstrates surgical management of exposed implant hardware. Usage of pedicled flaps allows for anatomical proximity, increased vascularity, coverage with hair-bearing skin, and potential device salvage; however, if infection is unresolved, device removal may be necessary. Optimal results are dependent on surgical decision-making according to clinical presentation.

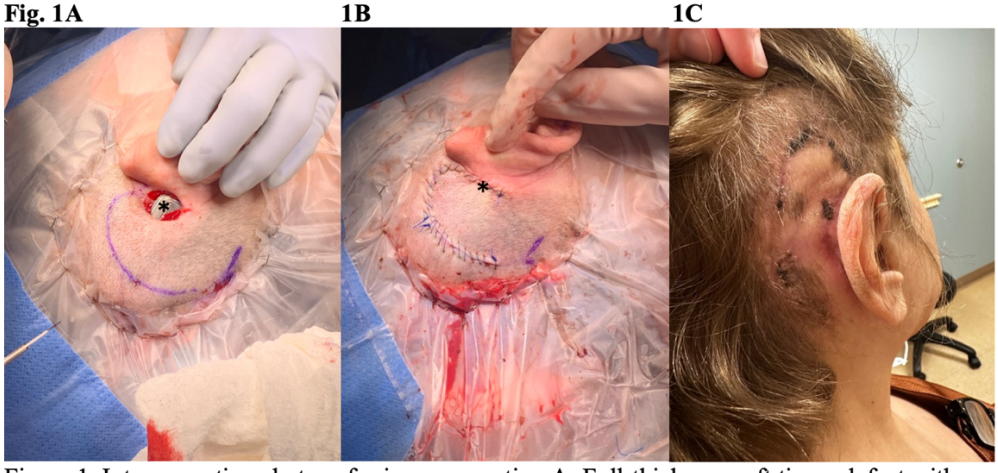

Figure 1. Intra-operative photos of primary operation A: Full-thickness soft tissue defect with exposure of hardware. Preoperative planning of inferior rotational flap using the occipital artery. B: Anterior rotation demonstrating primary closure with complete coverage of hardware with vascularized, hair-bearing tissue. C: Clinic presentation after second operation of right cochlear implant removal, temporalis muscle pedicled flap, and soft tissue advancement.

Kiosk #3 | ePoster#34

Clinical Science | Otolaryngology

MANAGEMENT OF INTRAOPERATIVE MALIGNANT HYPERTHERMIA: A CASE REPORT

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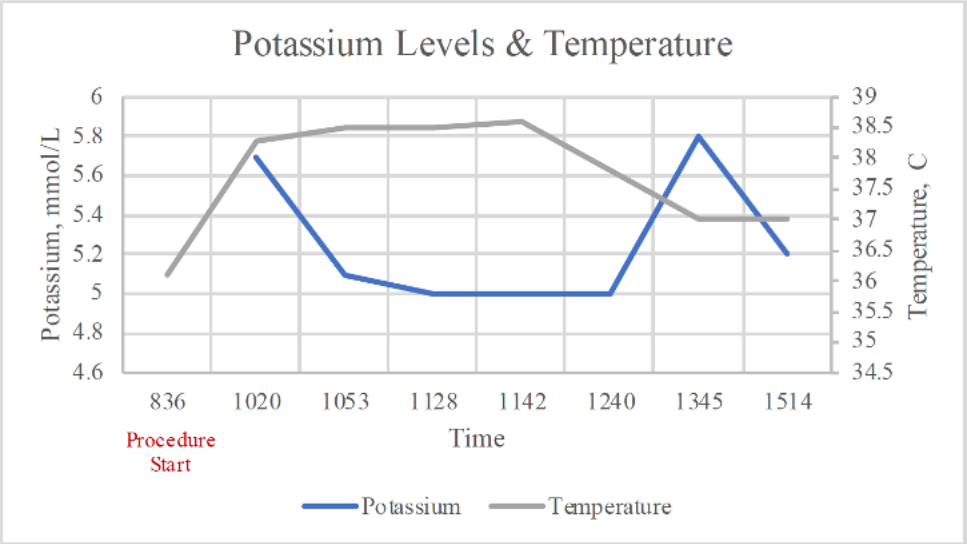
Introduction: Malignant hyperthermia is a rare complication of anesthesia induction. In the general population, 1:100,000 cases are reported per administered anesthetics. If not recognized and treated immediately, malignant hyperthermia can be fatal. We present a case of unexplained intraoperative malignant hyperthermia and subsequent successful management.

Methods: We present a case report of intraoperative malignant hyperthermia during a left rectosigmoid craniotomy for dissection of cerebellopontine angle tumor.

Results: Our patient is a 52-year-old male referred to surgery for symptoms of hearing loss and dizziness. Upon imaging, a large tumor of left cerebellopontine angle was found, and patient elected to proceed with surgical removal. A tumor resection of 99% was achieved with preservation of the facial nerve. During operative closure, the anesthesia team noted an unexplained rise in patient body temperature with maximum 101.5 degrees Fahrenheit, increased end-tidal CO2 (ETCO2) level, and potassium levels of 5.7mmol/L. Closure was expedited to initiate malignant hyperthermia protocol. The patient was hyperventilated at 15 L/min, and his hyperkalemia was treated with insulin and glucose. Ice packs were placed on patient's neck, chest, and groin. Intravenous dantrolene sulfate at 2.5 mg/kg was administered en route to neurological ICU. He remained intubated for hyperventilation and received a second dose of insulin; nicardipine was given for blood pressure control and cooling blankets administered to control body temperature. Within hours, vital signs normalized, and the patient experienced no further adverse events.

Conclusion: Immediate initiation of malignant hyperthermia protocol is a practical and adequate method of management.



Kiosk #3 | ePoster#35

Clinical Science | Pediatric Surgery

ROBOT ASSISTED THYMECTOMY IN JUVENILE MYASTHENIA GRAVIS

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Introduction: Myasthenia Gravis is an autoimmune neurologic disorder which has been traditionally treated medically. However, the treatment paradigm has moved toward early thymectomy in these patients to improve neurologic outcome and decrease medication needs. Thymectomy via the robotic approach has reported advantages of less morbidity than sternotomy. This study is a review of 9 pediatric patients who had a robotic thymectomy for myasthenia gravis from 2014 to present

Methods: Following Institutional Review Board approval, retrospective chart review was performed on 9 pediatric patients (age 4-17) who had a robot assisted thymectomy for myasthenia gravis. Data were assessed for demographics, operative time, preoperative vs postoperative medications and neurologic function (Myasthenia Gravis Foundation of America (MGFA) classification score).

Results: 8 patients had a robotic thymectomy via the left chest and one patient through a right sided approach. There was no conversion to open. One patient had a small persistent pneumothorax for 2 days postoperatively. Another patient developed keloids several months after surgery. No other complications noted. Seven of 9 patients were on steroids preoperatively while only three required steroids postoperatively.

Conclusion: Robotic assisted thymectomy for myasthenia gravis offers a low morbidity procedure with a short hospital stay. In our series Myasthenia Gravis Foundation of America scores were significantly improved after robot assisted thymectomy. Current guidelines are moving toward earlier thymectomy in patients diagnosed with myasthenia gravis.

Avg Hospital Stay	Operative Time	Preop MGFA	Postop MGFA
1.67 ± 1.3 days	143 ± 11.5 min	2.25 ± 1.3	1.5 ± 1.1 *

N=9

*p=0.01 Student's t test

Kiosk #3 | ePoster#36

Clinical Science | Pediatric Surgery

QUALITY OF LIFE IMPROVEMENT AFTER SURGICAL MANAGEMENT OF SEVERE HIDRADENITIS SUPPRATIVA IN ADOLESCENTS

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Introduction: Hidradenitis supprativa (HS) can have significant psychological, social, and financial burden in addition to its medical issues. Patients with HS can suffer from shame, embarrassment, and stress. It can significantly impact interpersonal and intimate relationships, leading to poor quality of life. We hypothesized that surgical excision can help improve these issues among adolescent patients with HS.

Methods: We performed a single-center, retrospective review of patients ≤20 years of age seen by surgery for Hurley stage 3 HS at a Children's Hospital. Demographic and medical information was collected for analysis.

Results: 8 patients met inclusion criteria. All were Black females. 5 underwent staged excision and grafting and 3 elected medical management with antibiotic and biologic therapies. Age (15.45±2.36 vs 15.43±1.35 years, p=0.5), body mass index at first surgical evaluation (28.96±5.67 vs 39.53±12.54, p=0.18), number of emergency room visits (7.4±4.5 vs 7±3.27, p=0.45), and previous incision and drainage (8.8±4.53 vs 6.67±4.5, p=0.31) were similar between surgical and non-surgical groups. Medical comorbidities were also similar (depression, diabetes mellitus, obesity). Among patients who underwent surgical management, there was 100% satisfaction in outcome, with improvements in suicidal ideation/hopelessness (2 of 2) and seeking new career/school opportunities (3 of 3). Among medical management cohort, only 1 of the 3 had satisfaction with disease management and 1 remains in homebound schooling.

Conclusion: Severe HS can impact social and emotional health of adolescent patients. Appropriate patient selection for surgical management can significantly improve quality of life among these patients. Our next steps involve a multidisciplinary approach with dermatology and psychology to provide holistic care in this often neglected population.

Kiosk #3 | ePoster#37

Clinical Science | Pediatric Surgery

IMPLICATIONS OF TRACHEOSTOMY CREATION AMONG PEDIATRIC AND ADOLESCENT TRAUMA PATIENTS REQUIRING INPATIENT REHABILITATION

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Introduction: Recent studies suggest that after severe pediatric traumatic injury, tracheostomy creation at 7 days leads to shorter intensive care unit and hospital length of stay (LOS). Outcomes after acute admission, however, are not well known.

Methods: A retrospective review was performed of children and adolescents ≤18 years admitted to an inpatient rehabilitation (IPR) program after traumatic injury between January 2018 and December 2020 at the only accredited pediatric rehabilitation unit in the region. We compared patients who had tracheostomy placed to those who did not require tracheostomy placement among a population who sustained the most severe and debilitating injuries to require IPR.

Results: Of 95 pediatric patients admitted to IPR after traumatic injury, 20 required tracheostomy. Average time to decannulation was 85 days. Patients requiring tracheostomy were older (12.55 vs 9.88 years, $p=0.03$), more likely to be Black (70 vs 57.5%, $p=0.018$), and required more procedures during IPR admission (4 vs 1.72, $p<0.001$) and after discharge (3.05 vs 1.09, $p=0.049$). There were no differences in ethnicity, mechanism of injury (multi-trauma, TBI, SCI), gender, or hospital readmissions. Tracheostomy patients were more likely to have sustained injury by firearm, but this was not statistically significant (50 vs 27.5%, $p=0.05$).

Conclusion: Prior research suggests that earlier tracheostomy creation decreases LOS and ventilator days after traumatic injury in children, but this study showed that these children require more procedures and emergency room visits after discharge. Further pediatric studies are needed to understand implications of tracheostomy placement after traumatic injury to best support these families with ongoing needs.

Kiosk #3 | ePoster#38

Clinical Science | Plastic & Maxillofacial Surgery

EFFECTIVE COVERAGE OF A FULL THICKNESS WOUND INCLUDING EXPOSED TENDON AND PERIOSTEUM USING EXTRACELLULAR MATRIX GRAFT AND SINGLE LAYER SKIN GRAFT

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Background: Wide full thickness wounds with exposed tendon and/or periosteum pose a challenge for coverage, and the reconstructive ladder may traditionally lead to the application of free flaps in these clinical situations. Free flap coverage, however, leads to considerable donor site morbidity, prolonged postoperative limitations, and possible need for revisions, among other risks. The use of extracellular matrix graft in similar clinical situations has not been widely accepted, but may be effective to achieve safe, functional coverage without the associated morbidity of free flap coverage.

Summary: A unique case involving the use of ovine derived extracellular matrix (OFM) products with staged single layer skin graft as an alternative to free flap reconstruction for a full-thickness wound with exposed flexor tendon and periosteum on the plantar foot, with preservation of function and acceptable aesthetic outcome.

Case Description: 60-year-old male with history of recurrent plantar fibromatosis refractory to previous excision underwent wide local excision, resulting in a full thickness defect approximately 15 cm x 8 cm x 1.5 cm, with exposure of approximately 8 cm flexor tendon and exposure of periosteum of the first metatarsophalangeal joint. For coverage of the wound, he initially underwent immediate coverage with OFM. Defect granulation was monitored with wound closure and later application of split-thickness skin graft. The final aesthetic and functional outcome was evaluated in follow-up for eight months, with complete epithelialization and restoration of range of motion involving flexor function.

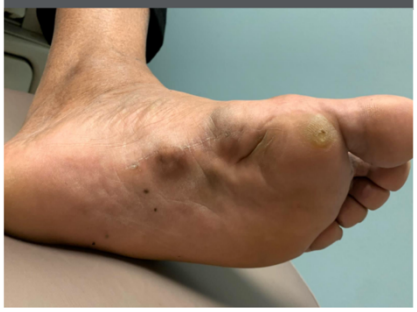
Discussion: The coverage of tendon and periosteum in widely exposed wound beds may traditionally be treated with free flap coverage, involving donor site morbidity, extended postoperative restrictions while healing, and likely revision to obtain acceptable aesthetics and function. This case represents an alternative approach that allowed the patient to undergo only one procedure following excision in order to achieve coverage, and making a timely return to function with satisfactory aesthetics. While this approach cannot replace free flap procedures in many clinical situations, it may be considered in select patients.

Conclusion: Less complex reconstructive techniques such as extracellular matrix graft may offer an alternative to achieve successful outcomes in certain clinical situations where free flaps would traditionally be indicated for coverage.

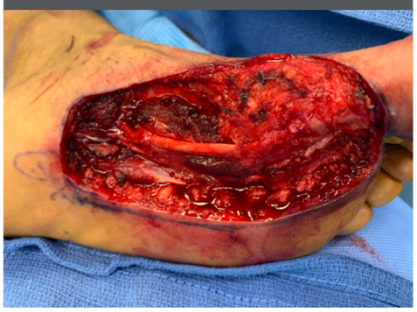
Lessons Learned: Extracellular matrix graft with single layer skin grafting may represent an alternative to free flap coverage of full thickness wounds where free flaps are not appropriate or possible, with decreased morbidity, increased simplicity, and ability to avoid later revision.

Pictures on next page

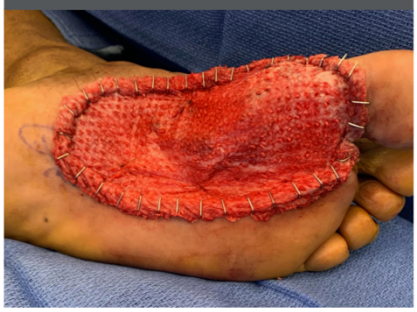
Initial Presentation



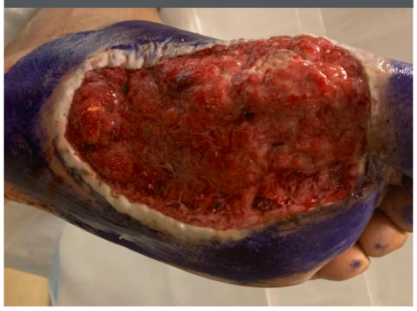
Surgical Resection



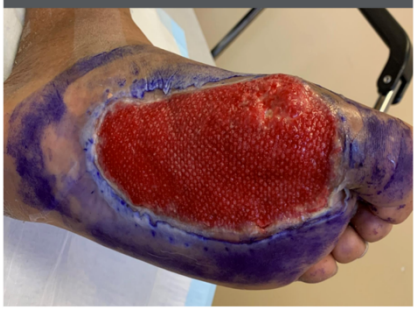
OFM Graft Placement



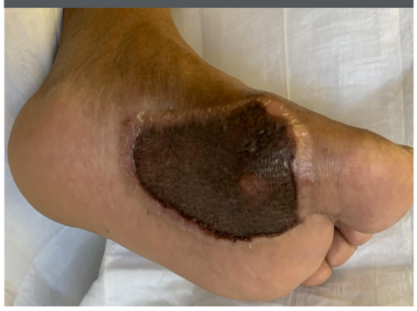
Day 10 – graft fully incorporated



Day 32



Fully Healed Post STSG



Kiosk #3 | ePoster#39

Clinical Science | Surgical Oncology

LEPTOMENINGEAL CARCINOMATOSIS IN GASTRIC ADENOCARCINOMA

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Background: Leptomeningeal carcinomatosis (LC) is a rare presentation of metastatic disease that presents with varied symptoms with no consistent patterns. While it is most commonly associated with metastatic breast cancer, a multitude of cancers can develop leptomeningeal metastasis.

Summary: Here we present a 77-year-old male with gastric adenocarcinoma who developed acute onset weakness, worsening headaches, and syndrome of inappropriate antidiuretic hormone secretion (SIADH) several days following gastrectomy. All imaging was negative for abnormalities. Lumbar puncture cytology showed malignant cells, consistent with LC.

Case Description: A 77-year-old male underwent robotic-assisted distal gastrectomy with modified D2 lymphadenectomy for gastric adenocarcinoma following completion of neoadjuvant chemotherapy. Immediately following surgery, patient progressed appropriately and was discharged after tolerating appropriate oral intake and working well with physical therapy. He represented 36 hours later with acute onset weakness, inability to tolerate oral intake, and worsening headache. CT scan and MRI showed no abnormalities. He then developed seizure activity and altered mental status. Labs showed new hyponatremia, with a drop of 10 mEq/L in 10 hours. He was transferred to the ICU and improved with sodium correction. Workup was consistent with SIADH with no endocrine abnormalities; further imaging remained negative for abnormalities. A lumbar puncture was performed with the only abnormality noted to be an elevated white blood cell count; however, cytology of this fluid also showed malignant cells consistent with adenocarcinoma. Patient and his family elected to pursue palliative care and stop sodium supplementation. He expired within 24 hours.

Discussion: LC is a rare but devastating complication of metastatic malignancy. While the majority of cases are from breast cancer, lung cancer, or melanoma, anywhere from 4-14% of cases have a GI origin. Symptoms are varied, with the most common being headaches followed by cranial nerve symptoms. Patients frequently have imaging abnormalities or elevated intracranial pressures (as noted on lumbar puncture), but these findings are not always present. The gold standard for diagnosis is cytology of cerebrospinal fluid.

Conclusion: LC is an exceptionally rare but extremely fatal complication of gastric adenocarcinoma that can present with a varied constellation of symptoms.

Lessons Learned: Though LC is rare, it should be considered in the differential for cancer patients with new onset headaches and other CNS disruptions.

Kiosk #3 | ePoster#41

Clinical Science | Vascular Surgery

VASCULAR-ESOPHAGEAL FISTULA AFTER DISTAL ESOPHAGEAL BOTULINUM TOXIN INJECTION FOR ESOPHAGEAL ACHALASIA

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Background: Endoscopic injection of botulinum toxin is a common method to treat esophageal dysmotility and achalasia. Patients undergoing this procedure who subsequently present with hematemesis should be evaluated for possible complications of the procedure, including esophageal perforation and an aorto/ vascular- esophageal fistula. This can present without prior history of aortic aneurysm or repair. The case described herein illustrates the importance of high vigilance and suspicion in a patient with hematemesis after esophageal botulinum toxin injection for a vascular-esophageal fistula. In unstable patients minimally invasive approaches to control bleeding from the esophagus through endoscopy with application of hemostatic clips and total endovascular aortic repair are viable options.

Summary: Endoscopic injection of botulinum toxin is a common method to treat esophageal dysmotility and achalasia. We present a case of a 73 year old white female who developed a vascular-esophageal fistula after Botulinum toxin (BTX) injection for severe achalasia of her esophagus. The patient had a PMSH that was significant for HTN,HLD, ocular myasthenia gravis, bilateral mastectomies for intraductal carcinoma, hysterectomy, partial thyroidectomy for recurrent cyst and Carotid body tumor removal in the past. She was scheduled for a per-oral endo myotomy (POEM) at a tertiary care center in a nearby city, however during the interim she was admitted for severe vomiting, dehydration, inability for PO intake and aspiration pneumonia. She had a CT scan which showed 5cm aneurysm in the distal aorta and diffuse lymphadenopathy. After a 2 week hospital stay she was injected with 4 quadrant BTX injections in distal esophagus and discharged. She presented 8 days later with hematemesis and shock. Mass transfusion protocol was initiated and she had an urgent EGD showing brisk bleeding. 4 Hemostatic clips and a bear claw was applied to control the bleed. CT angiogram showed a 6mm blush from an artery at T6 with connection to the esophagus. The 5 cm distal aortic aneurysm was again noted. Coil embolization of the bleeding artery could not be done due to difficulty in visualization and the patient was taken urgently for a TEVAR. Right femoral access was achieved, however after initial angiogram the iliacs were noted to be stenotic and small for anterograde graft deployment. An emergent subclavian cutdown was done and 2 GORE TAG thoracic stent grafts were inserted through the innominate starting from 1.5 cm distal to the left subclavian to 1.5 cm above the celiac axis. The patient was taken to the ICU and extubated the following day.

Case Description: We present a case of a 73 year old white female who developed a vascular-esophageal fistula after Botulinum toxin (BTX) injection for severe achalasia of her esophagus. The patient's past medical history was significant for hypertension, hyperlipidemia, ocular myasthenia gravis, anxiety and esophageal achalasia diagnosed in 2020. Significant surgical history included bilateral mastectomies for intraductal carcinoma, hysterectomy, partial thyroidectomy for recurrent cyst and Carotid body tumor removal in the past. The patient had multiple BTX injections to relieve her esophageal achalasia, however she continued to have intractable vomiting with regurgitation of liquids resulting in episodes of aspiration pneumonia with recurrent hospital admissions. She was scheduled for a per-oral endoscopic myotomy (POEM) procedure at a tertiary care center

in a nearby city however due to COVID-19 pandemic her procedure was rescheduled for a later date. During the interim on March 3-202, she developed aspiration pneumonia, and acute kidney injury due to dehydration from intractable vomiting which resulted in a week-long hospital stay. Her workup included a (Computed Tomography) CT scan which showed bilateral pleural effusions with bibasilar atelectasis, aneurysmal dilatation of the descending thoracic aorta at the level of the hiatus measuring 5.4 cm with associated mural thrombus and a possibility of localized dissection in that area. Partially necrotic retroperitoneal, mesenteric and portacaval adenopathy was also noted with findings suggestive of a lymphoproliferative disorder. CT surgery assessed the patient and due to acute AKI, aspiration pneumonia and inability for PO intake recommendations for fixation of achalasia as a priority and investigation of adenopathy and repair of aneurysm at a later date endovascularly was recommended. The patient initially refused GI intervention however after 2 weeks in the hospital she agreed to esophageal botox injection. 3/15/21 patient had an EGD with 4 quadrant botox injections of 20 Units each by GI specialists and 3/18/21 she was discharged home with home health after being able to tolerate PO intake. The patient presented 9 days later on 3/27/21 with massive hematemesis and hemorrhagic shock. On presentation her Blood pressure was 60/36, HR was 89, 97% on 6 Liter NC. She had significant hematemesis at the emergency department with blood coming out from her mouth and nose . Significant labs included a Hb 8, HCT 24.8, platelet 91000 and INR of 1.6. Patient was resuscitated with fluids, and was started on antibiotics, PPI,octreotide , transfusion of PRBCs, FFPS and platelets after activation of massive transfusion protocol.She had 8 units of PRBCs, 2 Units of Platelets and 1 unit of FFP. Due to her declining GCS with further episodes of hematemesis she was intubated for airway protection and started on Levophed for hypotension unresponsive to resuscitation. An emergent upper endoscopy was performed by the gastrointestinal specialists which showed blood spurting out at the 3 o'clock position at 15 cm from the incisors in the esophagus suspicious for aorto-esophageal fistula (Fig 1). 3 endo clips and a bear claw was used to close the esophageal defect with bleeding close to near minimum after the clips and bear claw placement. There was no evidence of bleeding or ulcer anywhere else in the stomach or the duodenum . An Emergent CT surgery consultation was placed and the patient was transferred to the ICU. Ct angiogram was done which showed a 9 mm blush of contrast in the lumen of the esophagus at the 1:00 position near an esophageal clip that was concerning for active extravasation (Fig-2). A small irregular appearing vessel appeared to arise from the anterior descending thoracic aorta at the 12:00 position, just inferior to the carina, at the approximate vertebral body level of T6, potentially representing a feeding vessel. Proximal descending abdominal aortic dissection with thrombosed false lumen and unchanged 5.4 cm aneurysmal dilation was again noted (Fig-3).

Case was discussed with Interventional radiology for potential isolated coil embolization of the bleeding vessel however due to difficulty in visualization and access endovascular intervention was recommended. Due to the presence of an aortic aneurysm distal to the fistula, it was decided to put a long graft from the left subclavian artery to a few centimeters above the celiac axis. After gaining access to the left femoral artery using micropuncture technique and an initial angiogram, a tight stenosis was noticed at the ilio-aortic junction. There was extensive calcification and the external iliac was very small, close to 3mm.Using a J-wire, a pigtail was parked in the ascending aorta, however the external iliac was too narrow for landing a graft in the aorta. Due to the emergent nature of the surgery, a right subclavian cutdown was done and the right subclavian artery was exposed at the axillary-subclavian junction. There was some tortuosity at the innominate artery which made access to the arch of aorta challenging. After distal access was achieved and confirmation of

the appropriate size of the artery with an initial angiogram was done, a 22 French dry-seal sheath was serialy inserted. After measurements, 2 GORE TAG thoracic stent grafts (W.L. Gore and Associates, Flagstaff, Arizona, USA)(31x31x10) and (34x34x15) were inserted from 1.5 cm distal to the left subclavian to 1.5 cm above the celiac axis. Repeat angiogram showed a good flow through the grafts and distally in the aorta without extravasation. Ballooning was done proximally and where the two grafts overlapped. Sheaths were pulled out and incisions were closed The patient tolerated the procedure well and was taken back to the ICU. Her hematocrit stayed stable and there was no evidence of further bleeding. The patient was extubated POD1. There were no signs of mediastinitis however she developed respiratory distress requiring non invasive-ventilation. She developed thrombocytopenia and renal failure POD-6. The family at this point decided to not pursue aggressive measures and made her DNR.

Discussion: Endoscopic injection of botulinum (BTX) is widely accepted for treatment of achalasia and distal esophageal spasm, with a reported low risk of major complications (16). Van Hoeij et al recorded 7.9% Clavien Dindo 2 complications mostly chest pain, heartburn, epigastric pain and only one Clavien Dindo 5 complication reported to be mediastinitis and death(17). Complications related to thoracic aorta are rare with only 2 cases reported of pseudo aneurysm development after BTX injection in the distal esophagus(17,18). Both cases developed mediastinitis and pseudoaneurysm. Both cases had a somewhat indolent presentation with an average gap of 1 week between injection and presentation. Similarly another case report of mycotic aneurysm development after BTX injection (20) with similar presentation without mediastinitis has also been documented. This patient was treated with open surgical repair of the aorta with a homograft and 6 weeks of IV antibiotics to cover the esophageal flora .The presumed mechanism of mycotic aneurysm development was by inoculation of upper gastrointestinal flora into the aortic wall by penetration of the injection needle through the attenuated, dilated esophageal wall. Similarly our case represents the first documented case of an arterial -esophageal fistula development after BTX injection of achalasia. This could be similarly due to penetration of the injection needle through the attenuated esophageal wall and into the neighboring artery creating a connection and fistula.
Aorto-Esophageal fistula (AEF) is a rare life threatening cause of upper Gastro-Intestinal (GI) Bleed. Review of literature shows incidence of somewhere around 10% among aorto-enteric fistulas(1,2).The most common causes of aorto-esophageal fistulas are thoracic aortic aneurysms, foreign body ingestions(4,5,6) esophageal malignancy, and postoperative complications(3). Rare causes in literature have been documented including ,esophageal biopsies (7), gastroesophageal reflux disease (8) ,NG tube placement (9), and tuberculous mediastinitis(10). Our case is unique as it is the first reported case of a vascular offshoot of descending aorta -esophageal fistula after botulinum toxin injection for esophageal achalasia. Primary AF is described due to any etiology except after endovascular aneurysmal aortic repair which is defined as secondary AF.Although our patient had an aneurysm of the descending aorta the fistula was created between an offshoot vessel of the descending aorta and esophagus and not the aneurysm.Patients usually present with the chiari's triad of chest pain, sentinel bleed with resolution and massive hematemesis with exsanguination. The symptom free interval between the herald bleed and exsanguination is unpredictable(13,14) Classically, dysphagia or chest pain occurs because of compression of the esophagus or the vagus nerve, and these precede episodes of hematemesis(11), however our patient already had chronic symptoms of dysphagia and chest pain due to her long history of esophageal achalasia and hence difficulty in assessing the patient on history. Prompt diagnosis and control of bleeding is

crucial. A chest X-ray with a widened mediastinum is an initial warning sign with a subsequent urgent endoscopy showing bright red brisk vascular bleeding concerning a fistula. In stable patients with bleeding greater than 0.5ml /min a CT angiogram or a digital subtraction angiogram can be used to help visualize bleeding.Despite several strategies for surgical treatment, there is little consensus about the optimal management of this disease(11). At present two treatment options are available including open surgical vs endovascular repair of aorta to control brisk bleeding . The esophageal defect can be dealt with subtotal esophagectomy vs endoscopic hemostatic endoclips vs cyanoacrylate glue depending on the size of the defect and fistulous connection and a definitive repair at a later date if required. Total endovascular aortic repair (TEVAR) was introduced in 1994 and the usefulness of TEVAR in closing a fistula between the aorta and an adjacent organ was reported in 1996 [15]. Since then the indications of TEVAR have expanded to AEF. L Gobolos et al , 2013 recommended subtotal esophageal resection urgently to control bleeding and sepsis and endovascular repair of aorta with surgery at a later date to maintain continuity of GI tract as an acceptable approach to TEVAR in AF(12).In our case the initial brisk bleed was controlled with administration of hemostatic endoclips and a bear claw by the GI specialist as a temporizing measure. CT angiogram still showed an active blush of contrast without clear delineation of the artery with fistulous connection to the aorta. Antibiotics were administered before the procedure to decrease the risk of mediastinitis and 2-endografts were placed one to cover the distal aneurysm and the other to cover the bleeding vessel. Post operatively there was no evidence of mediastinitis or further bleeding and the patient was successfully extubated hence further esophageal surgery was not planned.

Conclusion: The case described herein illustrates the importance of high vigilance and suspicion in a patient with hematemesis after botulinum toxin injection for a vascular-esophageal fistula. In unstable patients minimally invasive approaches to control bleeding from the esophagus through endoscopy with application of hemostatic clips and TEVAR are viable options.

Lessons Learned: Acute large volume hematemesis after Botulinum toxin injection for achalasia is rare, however high clinical suspicion for a vascular esophageal fistula should warrant urgent endovascular intervention if coil embolization of the artery is not possible through interventional radiology.

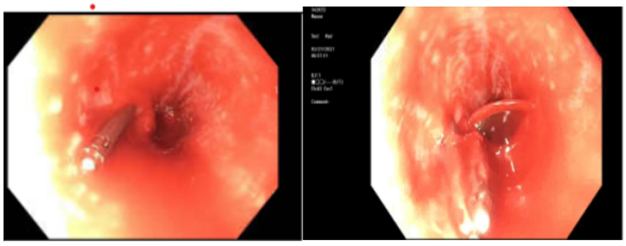

Figure-1 active bleed seen on Esophago Gastro Duodenoscopy(EGD)

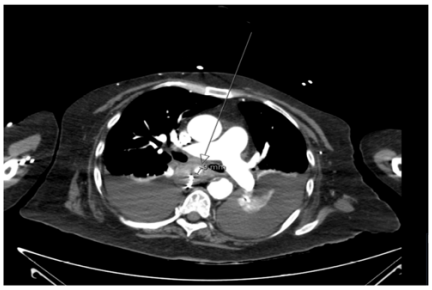

Figure-2 9mm blush of contrast extravasation

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RUPTURED INTERNAL CAROTID ANEURYSM SECONDARY TO NEUROFIBROMATOSIS TYPE 1 TREATED WITH REVERSE SAPHENOUS VEIN BYPASS

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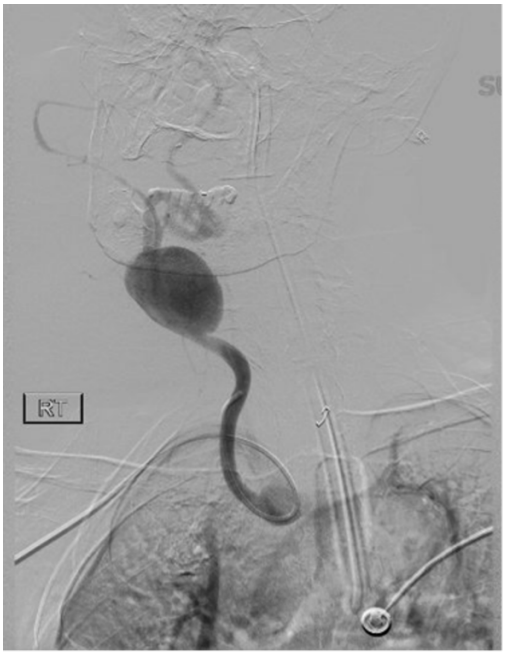
Introduction: Neurofibromatosis type-1 (NF-1) is a rare neurocutaneous disorder commonly known for causing café-au-lait macules, benign neurofibromas, and iris hamartomas. Although extraordinarily rare, vascular lesions are a complication with three reports of internal carotid artery (ICA) aneurysms in the literature. This is the first reported case of a ruptured ICA aneurysm secondary to NF-1 non-amenable to endovascular repair.

Methods: A 73-year-old female presented complaining of right-sided neck pain and swelling for 24 hours. Imaging and angiography confirmed right ICA aneurysm with possible rupture. Plans for endovascular stenting were made, but following intubation, extensive swelling of the right neck and chest wall was noted. Angiography demonstrated a large pseudoaneurysm with rupture at the bulb of the ICA. Multiple endovascular attempts were made to navigate the ICA but were unsuccessful, so an open exploration with ENT was performed. Despite balloon control of the common carotid artery (CCA), extensive hemorrhage continued requiring a CCA to ICA bypass with a reverse saphenous vein graft.

Results: Angiography confirmed control of the hemorrhage. The post-operative course was complicated by a second neck exploration, Enterococcus bacteremia, and a right-sided ischemic infarct. Following discharge, the patient was lost to follow-up.

Conclusion: Neurofibromatosis is a rare cause of aneurysmal degeneration of medium and large blood vessels. Repair of ruptured internal carotid aneurysms is difficult with first-line options being endovascular stent grafts. For cases not amenable to endovascular options, open repair with ICA bypass shows to be a successful method of treatment for life-threatening hemorrhage.



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PENETRATING EXTRACRANIAL CAROTID ARTERY TRAUMA

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Introduction: Penetrating carotid artery injury occurs in 4.9 to 6% of penetrating neck trauma. Injury to cervical blood vessels poses a 7-27% risk of stroke and a 7-50% risk of mortality. Management consists of ligation in unstable patients and arterial repair in stable patients. Management is controversial in patients with neurologic deficits secondary to fear of converting ischemic stroke to hemorrhagic stroke.

Methods: An 18-year-old female suffered a gunshot wound to the left mandible inflicted by a significant other. Initially, she was stabilized at a rural hospital.CT angiography (CTA) showed thrombosis at the left carotid bifurcation extending into the carotid bulb, and proximal internal and external carotid arteries, with the decreased flow in the distal branches of the left hemisphere. She arrived at our hospital twelve hours after her injury. She was not able to move her right upper extremity or lower extremity. Given carotid injury with embolic stroke arterial repair was planned. Angiogram demonstrated a filling defect at the bifurcation extending into the ICA. Neck exploration revealed pseudoaneurysm at the carotid bulb, and hematoma involving ICA and ECA. Proximal control of CCA was obtained, distal control of ICA was obtained, the external carotid artery was ligated and common carotid to ICA interposition bypass was performed with reverse saphenous vein graft utilizing shunt for neuroprotection.

Results: Postoperatively she had complete neurological recovery. CTA demonstrated excellent results with patent CCA to ICA bypass.

Conclusion: Carotid artery repair should be considered in patients with neurologic deficit regardless of time from injury if the patient is clinically stable, associated with recovery from stroke