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Case of Recovery after Unsuccessful BBQ Bristle Removal

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Introduction: Foreign body ingestion and aspiration causing obstruction in the aerodigestive tract are commonly seen by otolaryngologists. However, cases of reported bristle brush wire ingestion and obstruction are still rare. Most cases of bristle obstruction require surgical removal for symptom relief. Here, we report a unique case of recovery with bristle retainment.

We report a case of a 54-year-old otherwise healthy male who presented to the emergency department with one week of persistent odynophagia and painful globus sensation at the left posterolateral oral tongue. He reports acute onset of pain and left tongue bleeding after eating chicken cooked on a grill. An object that resembled a grill brush bristle was visualized in his tongue but was unable to be retrieved in the ED. The patient continues to complain of worsening odynophagia, pain, and pain exacerbated by swallowing. Exploratory surgery was performed after unsuccessful flexible laryngoscopy and normal fiberoptic scope of the larynx. The foreign body was unable to be localized or visualized. Postprocedural CT image illustrated persistence of the foreign body. At six months, the bristle had migrated slightly from its original position and became fragmented into two distinct pieces.

Continued follow-up occurred for nine-months after the initial ingestion. The patient reported his pain had resolved with rare, intermittent foreign body sensation. The patient had no untoward effects of the foreign body and no sequelae. The patient remained under observation for two years.

Clinical Course and Risk Stratification Tool for Mortality of Asthma Patients With COVID-19: The COVID Asthma Score; A Retrospective Cohort Analysis

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Introduction:
There is clinical uncertainty with respect to triage, diagnosis, and management of COVID-19 patients with underlying asthma. Respiratory illness' such as the flu, allergies or pulmonary diseases often cloud the prognosis. We have created a novel rapid decision-making tool particularly for asthmatics: The COVID-A Score. Current modalities for point-of-care management are limited to non-existent in patients with pre-existing asthma and their risk for morbidity and mortality. This score is suitable and

aimed for all clinicians to appropriately evaluate patients with asthma and suspected covid in order to guide the decision for hospitalization, therapy and management.

Methods: We selected a retrospective cohort of 115 adult Covid-19 patients with an underlying
diagnosis of asthma who presented to the Ascension Genesys Hospital emergency department between January 1, 2020, and December 31, 2020. Variables including admission vital signs, laboratory findings, diagnostic imaging, patient demographics, risk factors, as well as clinical course were obtained to determine patterns indicative of heightened morbidity and mortality.

Results:
Among the 115 patients identified to have asthma and Covid-19, we found that asthma was not a significant risk factor for hospitalization or mortality. 62.5% of patients were in the low-risk category while 35.7% were in the moderate risk category and .9% were in the high-risk category. Variables identified to be approaching a statistically significant correlation were LDH (r=0.20, p=0.07), whilst D-dimer was not statistically correlated with the risk score (r=23, p=0.14). However, since there were only 41 patients in this sample it may be primarily due to the smaller sample size. Amongst these patients, we also found that males tended to have an increased probability of being in the moderate risk category (42%) compared to females who had a 29% risk (RR=1.4; p=0.16). Additional group statistics revealed a higher D-dimer in the moderate risk group though the difference did not reach statistical significance (p=0.17), while LDH was similar between both risk groups analyzed, low and moderate (p=0.32).

Conclusion:
In conclusion, we have identified that asthma is not a significant risk factor for poor prognosis in patients with Covid-19. Furthermore, the COVID- A Score will help clinicians in quickly stratifying asthmatic COVID-19 positive patients based on their illness severity and place them into risk categories ranging from low, moderate, and high. This tool may then be used to determine the need for hospitalization, ICU admission, outpatient management and may also guide treatment for a streamlined decision-making approach.

Closing the Gap: Stapes Surgery Outcomes and Operative Time Analysis by BMI

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Objective: Investigate the impact of body mass index (BMI) and operated ear laterality on post-operative air-bone gap (ABG), operative time and complication rates.

Study Design: Retrospective case review.

Setting: Tertiary otology referral center.

Methods: Patients undergoing stapedectomy or stapedotomy for otosclerosis at a single institution from January 2015 to December 2020 were considered. Exclusion criteria included age <18 and incomplete postoperative follow-up note.

Results: Of the 462 included, 402 had both pre and postoperative audiometric results. ABG improvement was similar when comparing low/high BMI groups (17.0 ± 11.7 dB vs 17.3 ± 11.2, p=0.856). There was a significant positive association between higher BMI and longer operative times for patients with a BMI <25 (r = 0.273, p = 0.032) and overweight patients (r = 0.265, p = 0.019) when the patient’s shoulder was adjacent to the surgeon's dominant hand. Complication rates were similar among BMI groups, with the most common complaint being transient dizziness (60 of 145, 41.3% vs 126 of 317, 39.7%, p=0.740; Chi-squared test) and transient taste disturbance (32 of 145, 22.1% vs 65 of 317, 20.5%, p=0.702).

Conclusion: Our retrospective study found that stapes surgery can be successfully performed with good hearing outcomes regardless of patient BMI with minimal complication rates. Additionally, we found that higher BMI was associated with statistically longer operating times. This suggests that increased BMI may create spatiotemporal limitations during stapes surgery that may complicate the procedure causing longer operative times. Despite the success of stapes surgery in higher BMI patients, surgeons should consider the impact of BMI on their hand maneuverability and prepare for a potentially more difficult surgery with longer operative times.

Combined Growth Hormone Deficiency and Hypothyroidism in a Pre-pubertal Child with Short Stature.

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There are multiple entities that play a role in achieving optimal linear growth potential. The two most important endocrine hormones impacting pre-pubertal growth are Growth Hormone (GH) and Thyroid Hormone (T4), as they stimulate chondrogenesis [1-6]. Simultaneous deficiencies of both hormones in children are scarcely reported, and there are no clear management guidelines on how to approach the linear growth delay in such patients. [5]

We present the case of an 11-year-old female with known congenital hypothyroidism, who was lost to follow-up for 7 years and presented to the office with growth delay, hair loss, and dry skin. She also had cold intolerance, pallor, and worsening school

performance. She was found to have profound hypothyroidism, as well as coexisting anemia, vitamin D deficiency and hyperlipidemia. Within those 7 years, her height dropped from the 10th percentile [Z score: -1.25], to below the 1st percentile [Z score:-5.71]. Initial TSH was found to be 476 uIU/mL, and Free T4 was < 0.1 ng/dL. Wrist radiograph revealed a bone age of 5-5.5 years, when the chronological age was 11, indicating severe skeletal growth delay. Initial management consisted of 62.5 mcg of levothyroxine (2.5 mcg/kg). This dose was eventually increased to 88 mcg daily. Euthyroidism was achieved within 2 months. Height began to gradually increase afterward, and she grew 3.4 cm within the two months following achieving an euthyroid state [Z score: -5.33 to -4.66]. A growth hormone stimulation test was performed and revealed a subnormal response. Treatment with Somatropin injections was initiated. This led to a further 5.5 cm increase in height within the subsequent 6 months [Z score: -4.15].

This case demonstrates how prolonged, profound hypothyroidism in children can result in linear growth arrest and significant delay in skeletal maturity. It also demonstrates how this can be exacerbated by coexisting growth hormone deficiency, and the favorable short-term outcomes of treating both hormone deficiencies.

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Epidemiology and Outcomes of Out-of-Hospital Cardiac Arrest Patients in Flint, MI

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Introduction
The American Heart Association indicated that roughly 350,000 adults in the United States suffered an out-of-hospital cardiac arrest (OHCA) in 2015. Michigan health data showed that rates of cardiovascular disease and other medical comorbidities in the state are higher compared to the US population, and higher still in Genesee County compared to Michigan's population. Information from an OHCA registry identified a hospital within Genesee County as below average for survival when compared nationally and within the State. Identifying risk factors and common trends predicting poor outcomes among Genesee County OHCA patients can inform interventions to improve survival with good neurologic outcomes.

Methods
We conducted a retrospective chart review study at a single, urban, level 1 trauma center. IRB approval was obtained to collect and analyze adult non-traumatic OHCA patients identified from January 2015 through December 2019. Patient demographics and EMS system factors were collected, in addition to survival and neurological outcomes. Our data were analyzed using descriptive statistics, and bivariate and multivariable analysis were used to examine relationships between demographic and clinical variables and patient outcomes.

Results
661 OHCA patients were identified by the medical records department. 68 records were excluded as most were found to be related to a traumatic event or the arrest occurred during an interfacility transfer, yielding a final sample size of 593. Results showed that 61.4% of cases were male, the mean (standard deviation) age was 60.7 (15.8), 55.1% were white, and 37.6% were black. There was an abundance of comorbidities in our patients as well: 53.3% with hypertension, 28.2% with diabetes, 17.0% with hyperlipidemia, 15.9% with kidney disease, 34.4% used tobacco products, 11.3% had history of alcohol use disorder, and 14.5% with substance use disorder (excluding alcohol). We also found that 8.4% of cases were related to drug overdose. In addition, 41.1% of cases had no documentation from prehospital providers, 24.6% had a short form prehospital record, and 33.9% had a full prehospital record in the patient's medical record. From this data we found that 20.9% of our patients received bystander CPR and 39.6% of arrests were witnessed. An initial shockable type cardiac rhythm was reported in 18.7% of patients. An AED was applied in the prehospital setting to 29.8% of patients. In terms of patient outcomes, 12.8% survived, 46.5% died in the ED, and 40.6% died

after the ED. 7.3% were discharged with a good neurological outcome. We found 14.3% of our cases met the definition of an Utstein arrest patient (witnessed, shockable arrest). Of those, 23.1% were discharged with a good neurological outcome compared to 5.0% of the non-Utstein patients, p<.001. Witnessed arrests, bystander CPR use, and AED application were statistically significantly associated with improved neurological outcomes.

Conclusion
Results support that, in Flint MI, witnessed cardiac arrests with early bystander CPR coupled with having a treated shockable cardiac rhythm improves survival with good neurological outcomes. Therefore, layperson CPR/AED training becomes paramount in achieving this outcome. There was also an abundance of comorbid conditions in our study. Controlling chronic health conditions and curbing unhealthy habits such as tobacco abuse can decrease the overall cardiac arrest rate as well. Encouraging widespread OHCA registry use with the EMS and Hospital stakeholders can improve health outcomes by targeting interventions that have the biggest impact.

Extending the Teaching Lifespan of Anatomic Donors

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BACKGROUND AND PURPOSE. The unpredictable, sensitive, and personal nature of whole-body donations makes it challenging to secure donors for student dissections. To increase donor utility, institutions (including Michigan State University) have shifted to prosected specimens. Even though the 2019 pandemic witnessed adaptations to online curriculums on a global scale, the multisensory modality of learning remains invaluable to anatomic education. This occurs at a cost of repetitive palpation and manual manipulation of prosected anatomic structures that damage and render structures unidentifiable to students with limited gross anatomy exposure.

Although various methods of whole-body cadaveric preservation have been developed and studied, current literature lacks description of methods to maintain preserved donors to prolong educational viability. Students at Michigan State University (MSU) set forth to conduct the first recorded project in the repair and maintenance of cadaveric donors to preserve their structural integrity and lengthen their teaching lifespan. The MSU Cadaveric Repair Program initially focused on repairs of major vessels. When these repairs withstood the test of time and allowed donors to continue serving their role as “teachers”, the project was escalated to include all damaged structures. This report outlines the process of cadaveric repairs with emphasis on muscles, nerves, and organs.

MATERIALS AND METHODS. Cadaveric donors are obtained through the MSU Willed Body Program via elective donation to the medical education anatomy laboratories. The repair procedures reported are confined to prosected donors in the MSU human gross anatomy laboratory. The repair team consisted of MSU medical students belonging to the College of Osteopathic Medicine (COM) and the College of Human Medicine (CHM) in East Lansing. The project was supervised by MSU faculty and staff. Surveillance of damages occurred weekly via updates to the “Damage Report Sheet” available in each lab that details donor identification number, location, and the structure in question. The damages were repaired using simple interrupted and continuous suture techniques with 3-0, 4-0, and/or 6-0 Prolene® or Vicryl® surgical sutures. Suture sites were covered by gluing tissue grafts obtained from fascia or other membranous structures from the same donor for aesthetic purposes.

The muscle reattachment was initially attempted via the augmented Becker suture technique. However, due to limited tissue at the muscle origin, simple interrupted sutures placed perpendicular to the muscle bundles at the origin. The detached end of the muscle was then placed over the proximal end and finally secured with a second layer of simple interrupted sutures parallel to the fibers of the top portion. The ulnar nerve was repaired by anastomosing each end of the severed nerve with a pericardial graft. A partial closure of a completely torn bladder was done to allow visualization inside the cavity.

RESULTS. Since initiation of the cadaveric repair project in 2018, a total of 39 structural repairs have been conducted and consists of 36 major vessels. The other three structures are singular in count and include: right ulnar nerve, right teres major, and bladder. The project was paused due to laboratory closure during the pandemic.

CONCLUSION. The timely and consistent repair of prosected cadaveric donors prolonged their teaching lifespan when donor availability is limited and unpredictable. We hoped to increase the quality of teaching with the improved aesthetics of repaired structures. Throughout the implementation stages of this project, the repair team was able to practice a variety of suture techniques and participate in interdisciplinary teamwork critical to our development as future physicians.

Flecainide Toxicity Leading to Cardiogenic Shock

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Abstract:
Purpose: To date there have been very few studies done on the adverse effects of flecainide toxicity. This case will shed light on flecainide-induced cardiogenic shock in an elderly female with atrial fibrillation and no history of congestive heart failure. It will

demonstrate the importance of monitoring flecainide levels in both an inpatient and outpatient setting.

Case presentation: A 70-year-old female with a past medical history of atrial fibrillation presented with altered mental status. As symptoms of altered mental status resolved, the patient developed acute renal failure and transaminitis culminating in new-onset congestive heart failure. Serum flecainide level was found to be supratherapeutic. Patient developed cardiogenic shock and was successfully managed medically and ultimately discharged home in a stable condition.

Conclusion: Close monitoring of flecainide levels should be considered in a patient with atrial fibrillation who develops new-onset congestive heart failure. Further research is necessary to elucidate the supratherapeutic ranges at which certain comorbidities develop.

The Role of Cholesterol Biosynthesis in Metastatic and Recurrent Endometrial Cancer

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Endometrioid endometrial cancer (EEC) is the most common histological type of endometrial cancer (EC). Early-stage and low-grade EC commonly presents with a favorable prognosis. However, standard therapies do not address the incurable nature of the recurrent cancer likelihood. As a result, it is imperative to explore the mechanisms of tumor metastasis and recurrence to further elucidate the progression of EC. This paper aims to illuminate the tumorigenic effects of Mitogen-inducible gene 6 (MIG-6) loss and recurrence in EEC with Pten mutations and the plausible ability of statins to prevent recurrence in EEC. Genetically engineered mice were developed with metastatic and recurrent EEC to further explore the coexistence between Pten and Mig-6 mutations in EEC. It was observed that only mice with concurrent ablation of Mig-6 and Pten developed distant metastasis, and recurrence of EEC and metastasis in the abdomen and lung were observed after hysterectomy. Furthermore, the expression of genes related to cholesterol biosynthesis were significantly increased in the mutant mice. Our results suggest that MIG-6 suppresses metastasis and recurrence in EEC along with PTEN mutations by inhibiting cholesterol biosynthesis.

Spontaneous Intracranial Hypotension: A Case Report

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Spontaneous Intracranial Hypotension (SIH) is an under-recognized cause of headache due to CSF leak. Cerebrospinal fluid (CSF) fills the dural covering of the brain and

cushions the brain and spinal cord. Spontaneous intracranial hypotension often presents with an orthostatic headache due to low CSF volume and diffuse meningeal enhancement on MRI. Other common findings include low-lying cerebellar tonsils and distention of the dural venous sinuses. A common etiology of spontaneous intracranial hypotension includes CSF leak due to longitudinal dural tears secondary to calcified micro-spurs or a diverticulum laterally along the spinal nerve roots. Other sites of CSF leak include the cribriform plate and the skull base which may cause CSF rhinorrhea or otorrhea. These sites of CSF leaks are rarely spontaneous and usually follow a traumatic injury. The incidence of spontaneous intracranial hypotension is 5 per 100,000 individuals. This diagnosis is confirmed via MRI or evidence of a CSF leak on a CT myelogram or radioisotope cisternography. This case report investigates a patient who has an uncommon presentation of spontaneous intracranial hypotension due to a CSF leak collecting anterior to the cervical spine.

The work-up included head and spinal MRI which demonstrated diffuse pachymeningeal enhancement and circumferential diffuse enhancement surrounding the foramen. The patient also had low lying cerebellar tonsils because of CSF loss, this might give an appearance of pseudo-chiari malformation but when combined with other imaging findings of meningeal enhancement and lack of syringomyelia associated symptoms, this directs to the diagnosis of SIH. To assess for a CSF leak, a CT myelogram with contrast was utilized. The first myelogram performed did not demonstrate an obvious leak. The patient still had symptoms. Due to the clinical presentation, neurology still suspected a CSF leak. To establish the site of CSF leak, a repeat CT myelogram was performed which showed a hyperdense collection ventral to spinal canal in the cervicothoracic spine. Some dye collection was also seen leaked out anterior to the thoracic spine. Given its density, it was determined that the dye was from the leak and not a prior myelogram. The dye collection presented as a spinal longitudinal extradural collection (SLEC) from the level C5-T1. A CSF leak from the ventral aspect of the thoracic spinal dura was visualized on imaging. This was demonstrated as a hyperdense collection of fluid anterior to the cervicothoracic junction. Spontaneous intracranial hypotension is often misdiagnosed because it typically presents with a headache, but the patient has no focal deficits. Despite imaging such as MRI, misdiagnosis is still common. This patient had an uncommon etiology of SIH with a spinal longitudinal extradural collection on the ventral aspect of the thoracic spinal dura. In the future, extensive research can be done on other identifying features and markers to avoid missing diagnoses.