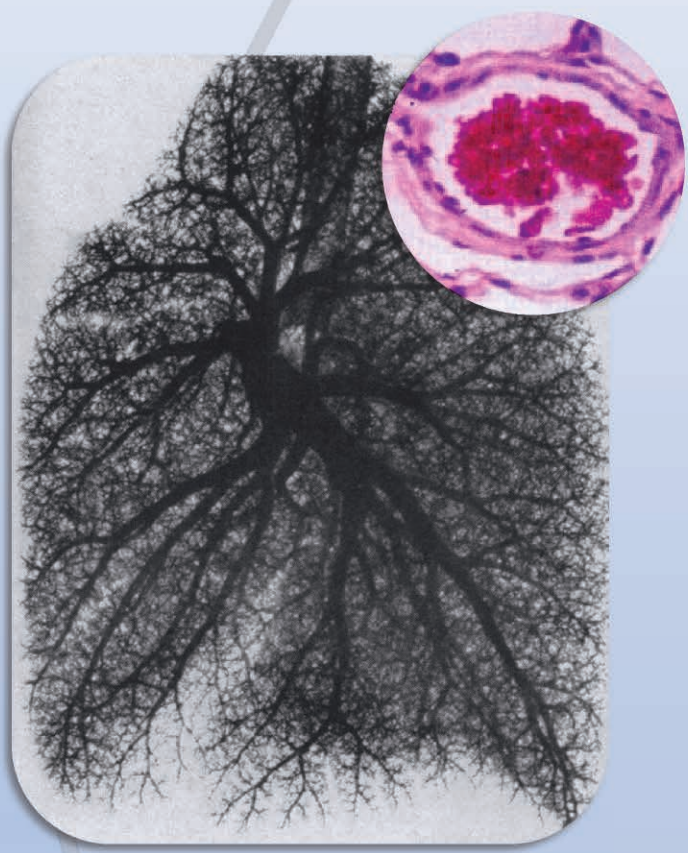
The El Paso Physician
Volume 44 Number 3

Pulmonary Arterial Hypertension

— A SYSTEMIC DISEASE —



NORMAL PULMONARY VASCULATURE

PULMONARY ARTERIAL HYPERTENSION

© BMJ Publishing Group Ltd. Evans, William et al, SOLITARY PULMONARY HYPERTENSION, Heart 1957;19:93-116

Cover design by Malini Riddle, MD Candidate

Official publication of the El Paso County Medical Society and District 1 of the Texas Medical Association

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EPCMS Mission:
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The El Paso Physician

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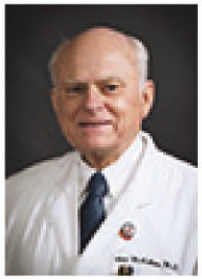
PRESIDENT COMMENT

E.P.C.M.S.

President's Comment

Richard W. McCallum, MD
President, El Paso County Medical Society



The View from Halfway

I am writing this column after being your President for 6 Months. It has been a great and truly energizing experience. The highlight has been seeing "up close and personal" how hard your officers work for the society and particularly our Executive Director, Patsy Slaughter, and her capable assistant Elsa Chaparro, also the managing Editor of our Journal, The El Paso Physician. I am very glad that we are well on the way to achieving the goals I enunciated at my installation in February. I am very proud that our very proactive Education Committee led by Jeff Spier, Alison Days and Joel Hendryx have already introduced CME associated Zoom conferences with great speakers and timely topics. The goal is to have at least monthly CME accredited programs which address the personal and professional needs and challenges of the practicing physician and establish our society as the voice for Medicine in El Paso.

Social interactions, personal contact and an attempt to broaden our horizons and provide real benefits for our members were other priorities of mine. With that in mind over the next 6 weeks we have 2 events on the calendar beginning with an evening with Emma Schwartz, Director of the Medical Center of the Americas hosting us at the Cardwell Collaboration Building in August as she shares her vision of developing Medical Centers of Excellence in El Paso as well as attracting medical technology companies. Then on September 24th a dinner at the Coronado Country Club hosted by Inaam Ziyadeh, President and CEO of Ethos Financial. We hope to attract new members through those examples of fellowship and collegiately that our society can provide. Fund raising to sustain our historic building on Montana and also began growing our endowment for future endeavors is very high on my agenda and the campaign has been started. We still face tough times as we witness the surge of the COVID-Delta Variant. We have great leadership in our society with infectious diseases experts Drs. Ocaranza, Alozie and Meza whose wise counsel reassures our patients and the citizens of El Paso that we are at the forefront.

So as the legislative session is extended we will focus on expanding the Medicaid dollar for the patients in need particularly children and pregnant women and at the approaching fall TMA meeting your delegates will actively represent your needs. Please rest assured that I have a great team guiding me at the helm as I begin the next 6 months of my Presidency.

Please email me: Richard.mccallum@ttuhsc.edu or call my cell phone on 913-706-6746 to let me know what you believe I should be focusing on what issues I should focus on and how I can better address your concerns and questions.

Richard W. McCallum, MD
President, El Paso County Medical Society

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EDITORIAL COMMENT

E.P.C.M.S.

Editorial Comment

Alison L. Days, MD,
Editor
El Paso Physician, EPCMS

No science is immune to the infection of politics and the corruption of power. -- **Jacob Bronowski**

Vaccines are the tugboats of preventive health. **--William Foege**

Here we are again, on the verge of the fall season filled with insecurity and doubt. Politics continues to override science and concern for our children is paramount. Late spring and early summer were a time of great celebration and hope, ushered in by the ready availability of COVID-19 vaccines for all who wanted it, including for adolescents over the age of 12 years. However, the country very rapidly became divided into the vaccinated and unvaccinated, and the appearance of COVID-19 variants has created a new fall fear.

At the time of this writing, the vaccine is still unavailable for children under 12 years of age yet the majority of El Paso schools are now in session. In the first 2 weeks of school opening, we have seen at least 100 cases of COVID-19 revealed on school campuses. Additionally, we have seen an increase in other viruses that were dormant over the past year, almost entirely due to the behavioral changes we put in place to combat COVID-19—masking, social distancing and virtual schooling. As pediatricians, the influx of coughs, colds and sneezes we have seen come into our offices in the last 2 weeks has been astounding. Rapid tests performed on these patients have shown cases of RSV, Rhinovirus, Adenovirus and Parainfluenza, to name a few. These viruses are benign compared to COVID-19, but their appearance among school children is a sign that we are not doing well as a community in protecting individuals from communicable diseases.

The Texas governor has prohibited mask mandates in schools, despite the fact that elementary children are now our most vulnerable section of the population due to lack of vaccination. This means that even those children who choose to wear masks may be at risk if their teachers, administrators and classmates are unvaccinated and unmasked. We know from research on children in 2020 that kids do not seem to get sick as often or as severely with COVID. However, the Delta variant and the possibility of MIS-C in asymptomatic children bring new questions about childhood risk.

As a personal request from those of us at the El Paso Physician Magazine, please continue to encourage your children and grandchildren to wear masks to school and during after school activities and please make sure everyone you know that is able to receive a vaccine against COVID-19 gets his/her shot as soon as possible. These mitigation efforts are currently our only real hopes of beating back the virus and the consequences of COVID-19 infection. We are not yet out of the woods.

In other news, we have a great issue this month including 2 interesting ophthalmologic articles, a case report of an unusual spinal abscess, dapsone use for dermatitis herpetiformis an a few other good reads.

Alison L. Days, MD,
Editor, El Paso Physician Magazine

So that we can keep you updated with the most recent information on COVID-19 and other important information. We need your current e-mail and cell number. It is preferred that you please e-mail us that information to epmedsoc@aol.com or you can also text Patsy Slaughter at (915) 820-3302. It is crucial that you support us with this information as we need to built an updated database to coordinate with City, State and Federal authorities.

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CASE REPORT

E.P.C.M.S.

Endoscopic Functional Lumen Imaging Probe (EndoFLIP) to Guide Endoscopic Treatment of Esophagogastric Junction Outlet Obstruction

J. Daniel Herlihy, MD
Priscila Arellano Zameza, MS2
Richard W. McCallum, MD

Background Information

Achalasia is a rare esophageal motility disorder in which peristalsis in the smooth muscle portion of the esophageal body is absent and relaxation of the lower esophageal sphincter at the esophagogastric junction is impaired. Patients with achalasia often present with progressive dysphagia, esophageal reflux, regurgitation, heartburn, and weight loss.[1] The pathogenesis of achalasia is yet to be fully resolved, but thought to involve nerve cell degeneration in the myenteric plexus.[1]

Using manometric patterns, achalasia can be categorized into three distinct types with varying clinical presentations and responses to treatment.[2] Type I achalasia is characterized by absent peristalsis with no esophageal pressurization, type II achalasia is characterized by intermittent pan-esophageal pressurization occurring in at least 20% of swallows, and type III achalasia is characterized by premature or spastic esophageal contractions occurring in at least 20% of swallows.[3] Pharmacologic, endoscopic, or surgical management of achalasia targets symptom relief. Treatment choice largely depends on symptom severity, underlying or co-existing health conditions, and patient preference. The most effective, long-term treatments reported in the literature include large balloon pneumatic dilation or myotomy via laparoscopy or endoscopy to induce relaxation of the lower esophageal sphincter.[4] 2020 ASGE guidelines on the management of achalasia include laparoscopic Heller myotomy, pneumatic dilation, and peroral endoscopic myotomy as effective therapeutic modalities. Laparoscopic Heller myotomy and pneumatic dilation were recommended as comparable treatment options for management of patients with achalasia types I and II, while peroral endoscopic myotomy was recommended as the preferred treatment for management of patients with type III achalasia.[5]

High-resolution manometry (HRM) has played an important role in the diagnosis and treatment of esophageal motility disorders, including achalasia. With 36 pressure transducers spanning the esophagus, HRM can provide integrated relaxation pressure (IRP) measurements to quantify outflow obstruction at the esophagogastric junction. IRP measurements are used with timed esophagrams to determine the initial success of pneumatic dilatation or the return of impaired peristalsis.[6] Use of Endoscopic Functional Lumen Imaging Probe (EndoFLIP) to determine treatment efficacy of achalasia has been reported in recent literature. Unlike HRM which is unable to be performed during the procedure, EndoFLIP can be performed while patients undergo sedated upper endoscopy and provides immediate objective data to demonstrate the effectiveness of the intervention.[7] EndoFLIP consists of a catheter with an expandable bag that is tapered at both ends and that extends for 16 cm along the impedance planimetry segment. This segment consists of 17 ring electrodes spaced 1 cm apart. When the bag is distended in the distal esophagus, the pressure transducer can provide pressure values, an esophagogastric junction-distensibility index, and can detect esophageal contractility not observed with traditional manometry methods.[8] Those measurements can be used to compare minimum lower esophageal sphincter diameter pre- and post- pneumatic dilation. We present a case for which EndoFLIP imaging was used to guide endoscopic treatment for a patient with a history of achalasia.

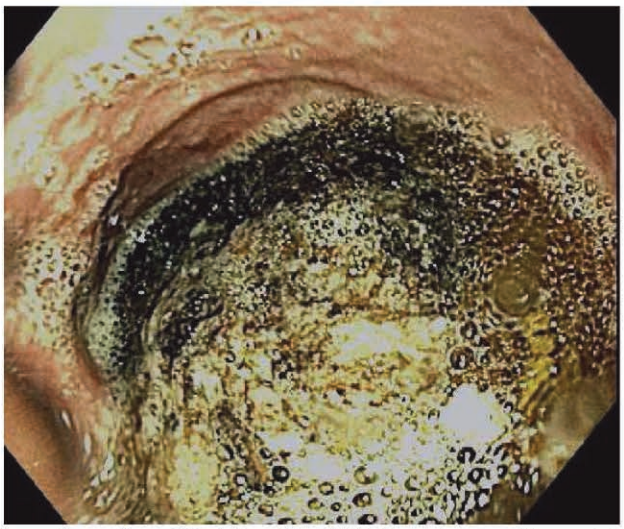

Figure 1 caption: Dilated and food filled esophagus with no visible peristalsis.

Case Presentation

A 54-year-old female with a history of achalasia type I, diagnosed at age 15, was referred to the Texas Tech Gastroenterology Motility Center for persistent dysphagia. The patient had previously

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Endoscopic Functional Lumen Imaging Probe (EndoFLIP) to Guide Endoscopic Treatment of Esophagogastric Junction Outlet Obstruction

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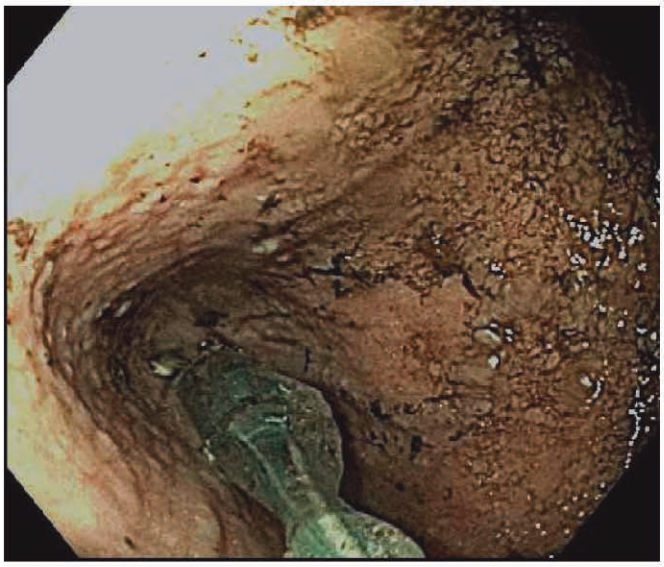

Figure 2 caption: EndoFLIP imaging probe advanced across the lower esophageal sphincter.

undergone a Heller myotomy when she was 15 years old and a second Heller myotomy at age 43. She continued to report dysphagia to solids and severe reflux throughout the day and night. A high resolution motility study confirmed absence of peristalsis, but also lower esophageal sphincter pressure of 4 mmHg (normal 5-35 mmHg) implying that smooth muscle had been decreased by the myotomies.

The patient was scheduled for an esophagogastroduodenoscopy with planned pneumatic dilation of the lower esophageal sphincter, along with EndoFLIP imaging measurement of the distensibility and the minimum diameter of the lower esophageal sphincter pre- and post- dilation. Esophagogastroduodenoscopy visualized a dilated esophagus full of food with absent motility and a tight lower esophageal sphincter, all consistent with the previously made diagnosis of achalasia (Figure 1). The 16 cm EndoFLIP imaging probe was then placed across the lower esophageal sphincter and filled with normal saline. Measurements were obtained following infusion of 30 mL, 40 mL, and 50 mL (Figure 2). EndoFLIP imaging showed absent peristalsis and a tight lower esophageal sphincter that did not relax. When the EndoFLIP balloon was filled with 50 mL of saline, the observed distensibility was 3.37 mm2/mmHg, and the minimum diameter was 13.9 (Figure 3). The EndoFLIP imaging probe was then removed and pneumatic dilation of the lower esophageal sphincte was performed with a 30 mm balloon in three serial dilations each of 60 seconds duration. The EndoFLIP imaging probe was then placed again across the lower esophageal sphincter and showed significant improvement in distensibility and minimum diameter. After 50 mL of saline was infused into the EndoFLIP balloon, the measured distensibility was 10.03 mm2/mmHg, and the minimum diameter was 19.7 mm (Figure 4). The patient was followed in clinic three weeks after the pneumatic dilation was performed. She reported complete resolution of dysphagia, and significant improvement in her reflux.

Discussion

EndoFLIP is a relatively new imaging device for quantifying the effect of endoscopic treatment of motility disorders. It can be used to provide data during the procedure to guide therapy. In the case described above we were able to demonstrate that the persistent gastroesophageal junction obstruction in this patient, who previously underwent two Heller myotomies, was not from abnormal hypertonic lower esophageal sphincter (pressure was 4 mmHg), but from what we conclude must be scarring and fibrosis stemming from the myotomies. The scarring and fibrosis were consequently impeding gastroesophageal junction function, and this was likely the cause of the patient's symptoms. Based on this information, we determined that she would benefit from pneumatic dilation to stretch and break the scarring at the gastroesophageal junction. EndoFLIP was used before dilation to demonstrate the degree that distensibility was impaired, and again following dilation to demonstrate the benefit in distensibility and improved compliance of the gastroesophageal junction. The EndoFLIP changes correlated with the substantial symptomatic improvement observed three weeks after the procedure.

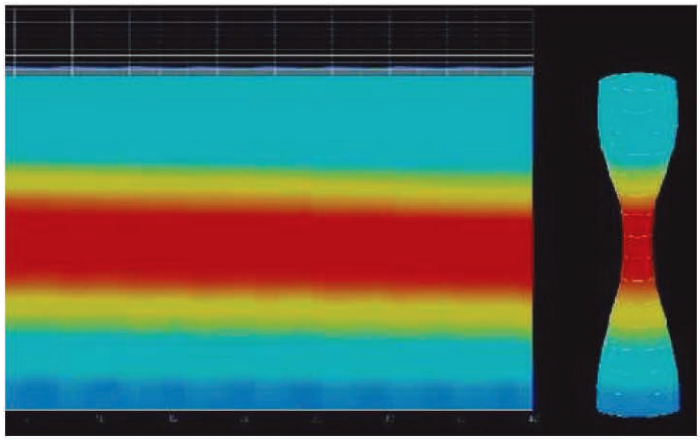

Figure 3 caption: EndoFLIP measurements prior to pneumatic dilation showing absence of esophageal peristalsis and a tight lower esophageal sphincter that does not relax.

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CASE REPORT

Endoscopic Functional Lumen Imaging Probe (EndoFLIP) to Guide Endoscopic Treatment of Esophagogastric Junction Outlet Obstruction

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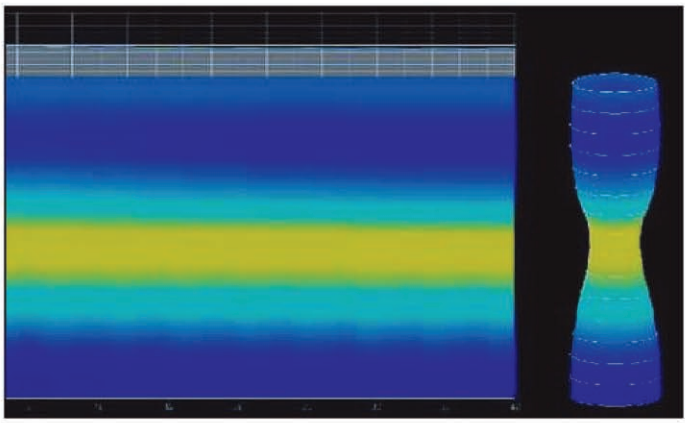

Figure 4 caption: EndoFLIP measurements following pneumatic dilation showing improved distensibility of the lower esophageal sphincter.

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CASE REPORT

E.P.C.M.S.

Benign Myofibroblastic Proliferation of the Orbit: A Rare Case Report.

Katherine R. Farris, MS4
Patricia S. McAdams, MD

Abstract

Background: Benign myofibroblastic proliferation (BMP), also documented as inflammatory myofibroblastic tumor (IMT) or inflammatory pseudotumor, is a benign lesion that usually occurs in the lungs, soft tissue, abdomen, genital system, and mediastinum. Rarely, the lesion has been reported in the head and neck. Diagnosis is often difficult to achieve due to the variability of manifestations. BMP/IMT displays a wide range of spindle-shaped myofibroblastic proliferations often with varying amounts of inflammation.
Case presentation: We report a rare case of a 39-year-old male presenting with a left supraorbital rim mass and constant headaches. The mass was confirmed histologically to be benign myofibroblastic proliferation. Surgical excision of the mass was performed with an uneventful postoperative period.
Conclusion: Orbital BMP/IMT is extremely rare; therefore we present this case to contribute to the current literature. This report highlights the importance of histopathological findings in diagnosis, management, and treatment of the patient.
Keywords: myofibroblasts, granuloma, plasma cell, orbital neoplasm, inflammatory myofibroblastic tumor

1. Introduction

Benign myofibroblastic proliferation, often referred to in the literature as inflammatory myofibroblastic tumor (IMT), is a rare and benign tumor with potential for local aggressiveness and recurrence. While there is debate over its pathogenesis, IMT typically appears in the abdominal cavity or lungs and is thought to be idiopathic[1]. Other possible etiologies include trauma, surgery, autoimmune reaction, or infection[2]. Here we present a case of IMT originating in the orbit with extension towards the globe in the region of the trochlea. According to our literature review only 48 cases of orbital IMT have been documented since 1945. IMT is difficult to identify and to treat as symptoms vary by location or may be absent[3]. Orbital IMT is extremely uncommon; therefore we present this case to assist in the diagnosis, treatment, and management of similar cases.

2. Case Report

This unique orbital IMT occurred in a 39-year-old male who presented in December 2018 to his primary care physician with new onset headaches and a nodular mass located on the left side of the nose and left upper eyelid. The patient denied any vision changes or pain in the left eye. He wished to have the nodule removed. The plan at this time was referral to plastic surgery for possible excision.

The patient saw the plastic surgeon in January 2019 with complaints that his headache had been present every day since its initial occurrence one month before. He described the headache as unifocal, pounding pain, and localized to the left frontal sinus area just superior to the supraorbital ridge. He denied any changes in the appearance or size of the mass, and denied drainage from the mass. The patient also denied any symptoms of systemic illness (fever, chills, night sweats). Upon further questioning he reported a history of trauma to the left eye stating that as a six year old he was struck with a bat. Performance of a focused examination of the left eye noted a vertical scar over the left supraorbital ridge near the subcutaneous mass (Figure 1). No overlying skin changes were noted and the mass was firm to touch. The next step was to order CT without contrast of the maxillofacial region and brain to determine surgical approach and look for mass effect on any nearby structures.

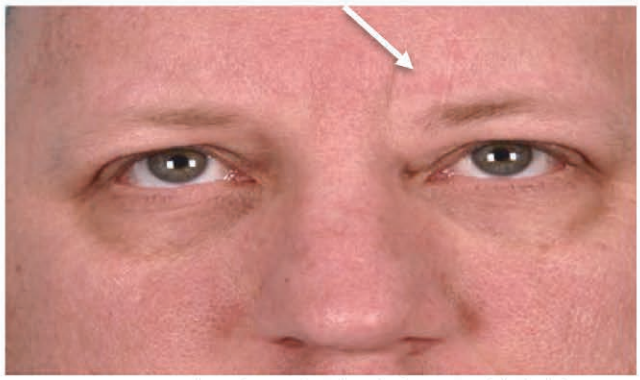

Figure 1: Preoperative photo showing left supraorbital ridge subcutaneous mass.

Radiology reported no intracranial mass or mass effect and a normal nasolacrimal canal along with normal appearance of the globes, extraocular muscles, and optic nerve sheath. No findings that suggested prior maxillofacial fracture or trauma were noted. However, asymmetric soft tissue fullness at the superior margin of

Continued on page 10

the left medial canthus was identified. Additionally, minimal mucosal thickening was noted in the region of the left frontal recess and a small mucus retention cyst in the left maxillary sinus. Radiology suggested MRI as a next step.

The patient received an MRI of the brain, with and without contrast, in March 2019. There were no significant abnormalities in the parenchyma and no signs of pathological mineralization, acute intracranial hemorrhage, or pathological extra-axial fluid. The MRI confirmed the CT findings. Additionally the radiologist reported a hypointense T1, hyperintense T2, enhancing region of soft tissue fullness at the left medial canthus/nasolacrimal sac measuring approximately 1.3 x 1.0 x 1.3 cm (transverse by anteroposterior by craniocaudal) (Figure 2). Differential diagnoses at this point included infection without abscess (such as trochleitis), nasolacrimal squamous cell carcinoma, or other neoplasm. Following this MRI report plastic surgeon decided to consult with an ear, nose, and throat (ENT) physician and an oculoplastic surgeon to move forward.

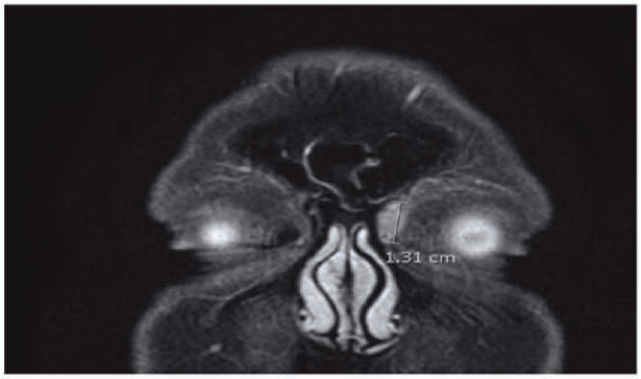

Figure 2: MRI with contrast showing soft tissue fullness at the left medial canthus/nasolacrimal sac measuring approximately 1.3 x 1.0 x 1.3 cm (TV by AP by CC).

The patient saw an ENT in April 2019 for consultation. ENT attempted a fine needle aspiration of the mass, however, the specimen did not contain sufficient diagnostic cells. Nasal endoscopy was also performed but lacked significant findings.

The patient's symptoms had not changed and consultation with oculoplastic surgeon suggested treating the mass as an inflammatory neoplasm due to trochleitis. Incisional biopsy would have required dissection of the orbit and risked damage to the extraocular muscles. Therefore, the oculoplastic surgeon recommended a full lab workup and a trial of NSAIDs. If the NSAIDs failed, the next steps in treatment were dependent on the tissue pathology. Motrin 800 mg TID for two weeks was prescribed.

The lab results for this patient came back normal and at follow up with ENT the patient showed no response to the NSAIDS, excluding the diagnosis of trochleitis. The plan moving forward was for interventional radiology to perform a core needle biopsy of the mass, which was performed at the end of April 2019 with a plan for complete excision of the mass.

The patient underwent outpatient surgery for removal of the mass in May 2019. During the surgery the mass was found to be ill-defined, 1 cm, and located superficially to the orbicularis oculi. The patient was seen for follow up in June 2019 and reported no complaints. The incision site was healing well and no palpable mass was noted (Figure 3).

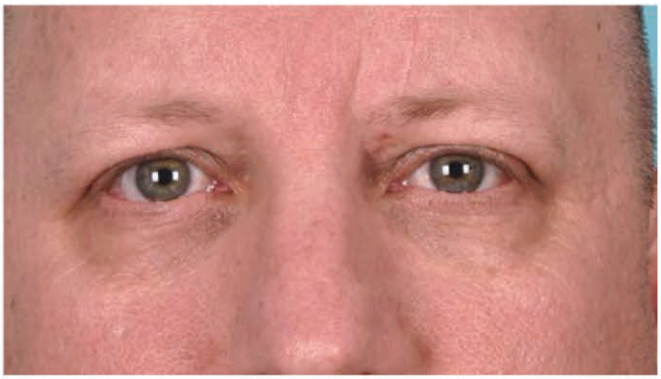

Figure 3: 7 week postoperative photo showing healing incision with no palpable mass present.

The pathologic examination of the tissue sample reported the mass as consistent with benign myofibroblastic proliferation. The sections showed a bland spindle cell proliferation within fibrotic stroma (Figure 4). The spindle cell proliferation had small peripheral nerves and blood vessel investments, and extended into adjacent skeletal muscle tissue. There was no necrosis or significant nuclear atypia. The sample was then sent for additional review by neuropathology and ophthalmic pathology for consultation. The cells stained positive for SMA (smooth muscle actin), CD68, and CD163. To many reviewers, the proliferation had features of nodular fasciitis, but soft tissue experts point out that characteristic multinucleated giant cells are not identified. The consensus on the soft tissue is that the lesion is best described as benign myofibroblastic proliferation.

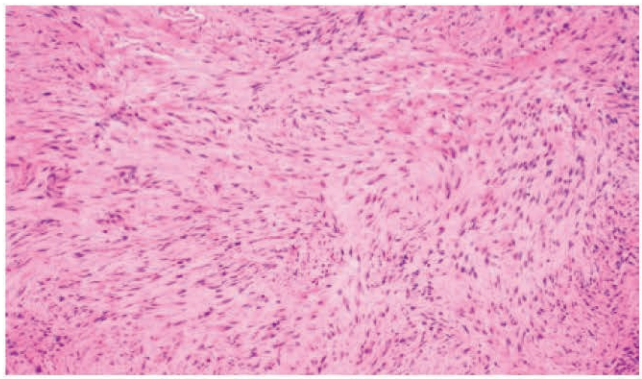

Figure 4: Histopathological examination of the mass 2x (original magnification x 20) reveals spindle cell proliferation within fibrotic stroma

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3. Discussion

The etiology of BMP/IMT is uncertain and while the lesion is benign, it can display aggression that prompts intervention[6]. BMP/IMT has been reported in several soft tissue and visceral locations with sites in the lung being the most common. It is suggested that head and neck BMP/IMT lesions account for less than 5% of the reported cases. BMP/IMT usually manifests incidentally and acutely with signs and symptoms dependent on the location of the mass. This can lead to difficulty in diagnosis and treatment. The patient discussed underwent full radiology and pathology investigations to rule out malignancy and confirm the diagnosis.

CT of BMP/IMT usually shows moderate enhancement with homogenous tissue density. MRI commonly shows isointensity to hypointensity on T1 and hypointensity on T27. The patient displayed asymmetrical soft tissue fullness on CT, hypointensity on T1, and hyperintensity on T2. This demonstrates the variability in the character and development of BMP/IMT. Therefore, histopathological examination is necessary for accurate diagnosis. BMP/IMT samples demonstrate a variable mixture of myofibroblasts, inflammatory cells, and plasma cells[4,5]. The samples commonly follow a myxoid pattern resembling granular tissue, and a spindle cell resembling a fibrous scar. Spindle cells are confirmed by immunohistochemical stain for smooth muscle actin (SMA). The tissue sample from the patient in this case study is consistent with these features.

While diagnosis can prove challenging, management and prognosis are mostly favorable. Total resection is the standard treatment for these lesions due to their potentially destructive nature. Recurrence has been reported at about 25% for extrapulmonary BMP/IMT. Recurrences may be treated with additional surgical resection and a new course of steroid or radiotherapy[6]. Additional factors such as cellular atypia, ganglion-like cells, and p53 expression can be found in tumors with more aggressive outcomes[7].

BMP/IMT has been thought to be idiopathic. Recent literature has started to investigate gene rearrangements in these tumors, but more investigation is needed. Anaplastic lymphoma kinase gene (ALK) rearrangements have been noted in around 50% of patients with BMP/IMT tumors[8]. Understanding the gene variations in these tumors can help with the development of specific therapy. However, such variation is seen in the gene characteristics of these tumors which contributes to the complexity.

4. Conclusion

Ultimately, this case study of BMP/IMT of the orbit is a rare presentation, which we want to report to help with diagnosis and treatment of similar cases. Diagnosis can be difficult and radiological examination often has limited value. Histopathological examination is most diagnostic of BMP/IMT and surgical excision is the gold standard. Despite the rarity of BMP/IMT and its suspicious nature, prognosis is very favorable.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Permission

Informed consent was obtained from the patient for use and publication of the photographs and other related materials in scientific journal.

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CASE REPORT

E.P.C.M.S.

Approach to Angioedema in the Primary Care Setting

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Angioedema involves cutaneous and submucosal swelling caused by transient increases in vascular permeability. There are allergic and hereditary forms and subtypes. Angioedema can present with urticaria. It is typically well-defined, non-pruritic, and edematous. Any area of the body can be affected, but most commonly the face, hands, upper airway, and abdomen **(Figure 1).** The pathophysiological mechanism involves extravasation of fluid into the surrounding submucosa mediated by vasoactive substances.[1]

The objective of this article is to review clinical presentations of various forms of angioedema, and to provide a rational systematic approach to working up and diagnosing cases of suspected angioedema. **(Table 1)** highlights clinical characteristics, potential triggers, and laboratory values that can contribute in diagnosing subtypes of angioedema.

A systematic diagnostic approach is outlined in (**Table 2).** A comprehensive history should include duration and evolution of symptoms over time, recent infections, family history, and recent changes in medications, activities, or diet, aiming to identify a potentially avoidable trigger.[1]

When the type of angioedema remains unclear, initial laboratory work-up should include complement C3, C4, C1q, CH50, functional and quantitative assays for C1 esterase inhibitor, and a mast cell-mediator screening panel. Specific allergy tests can be selected if patients with history of food or skin allergies.[1,2]

If no etiology is evident following work-up, a diagnosis of idiopathic recurrent angioedema may be ascribed and empiric treatment with second-generation antihistamines and/or a short course of low-dose corticosteroid may prove beneficial.[2,3] Re-evaluate every 3 to 4 months. If the patient's condition is refractory to treatment, consider referral to an allergist or dermatologist.[1]

Primary care physicians are often first to recognize angioedema in a patient. Given the potential complexity in diagnosis and treatment for subtypes of angioedema, this proposed diagnostic and treatment algorithm may be helpful.

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Table 1. Causes and clinical and laboratory findings of common types of angioedema.

Type of Angioedema	Trigger	Clinical Characteristics	Laboratory Findings (C3, C4, Antigenic C1-INH, Functional C1-INH, C1q Levels) and Other Tests
Hereditary Angioedema (3 Subtypes)[4,5]	Variable; common triggers include stress, surgery, trauma, infection, and fatigue	Recurrent, episodic angioedema without urticaria beginning in childhood; erythema marginatum seen in ⅓ of Type I cases; familial history in most cases; unresponsive to antihistamines or corticosteroids	C3: Normal C4: Decreased Antigenic C1-INH: Subtype I: Decreased, Subtype II: Normal, Subtype III: Normal Functional C1-INH: Decreased C1q: Normal
ACE-inhibitor induced Angioedema[4,5]	ACE inhibitor use	History of ACE-inhibitor use; angioedema typically affects face, lips, and tongue	Normal laboratory findings
Episodic Angioedema with Eosinophilia[6]	Menstruation and pregnancy may be possible triggers.	Urticaria, pruritus, fever, weight gain, oliguria, and eosinophil degranulation in the epidermis	Peripheral blood eosinophilia, elevated serum IgM
Idiopathic Angioedema[1]	Unknown	Recurrent episodes of angioedema; most commonly present on the face and extremities; 50% of cases are associated with urticaria.	Normal laboratory findings
Acquired Angioedema[4,5]	May be associated with underlying disease process, stress, trauma, or infection	Symptoms similar to hereditary angioedema with later onset; lacks familial history; unresponsive to antihistamines or corticosteroids	C3: Normal or decreased C4: Decreased Antigenic C1-INH: Normal or decreased Functional C1-INH: Decreased C1q: Decreased
Allergic Angioedema[2,5]	Food, environmental allergens, venom, latex	Pruritic angioedema accompanied by urticaria and sometimes anaphylaxis; associated with certain food and environmental allergen exposure	Normal laboratory findings
Angioedema with Urticarial Vasculitis[2,5]	Commonly associated with underlying disease process like vasculitis and autoimmune disorders	Angioedema accompanied by urticaria; petechiae or purpura may be present on skin along with other symptoms consistent with underlying vasculitis	C3: Decreased C4: Decreased Antigenic C1-INH: Normal Functional C1-INH: Normal C1q: Decreased

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Table 2. Proposed diagnostic and treatment algorithm for patients with suspected angioedema.

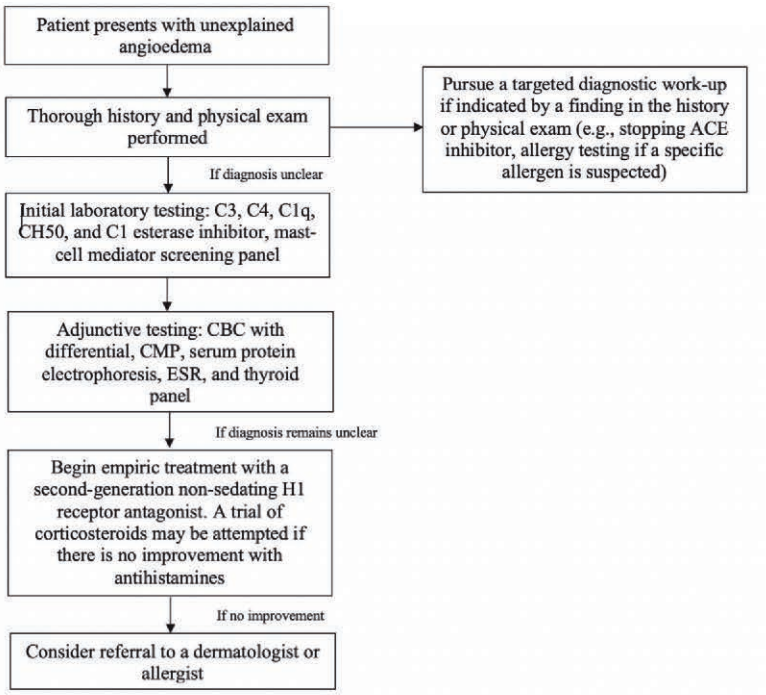
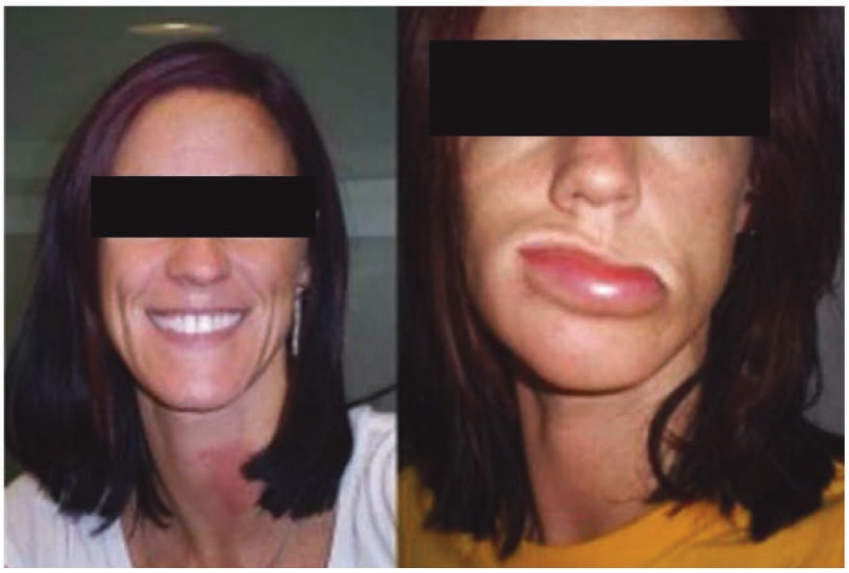


Figure 1. Clinical photographs of normal (left) versus angioedema of the lips (right).



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CASE REPORT

E.P.C.M.S.

Unilateral ulcerative keratitis and corneal scarring linked to prone sleeping position in two female patients

Daniel Berry, MS4
Javier De la Torre, MD
Ahmed Soliman, MD
Marc Ellman, MD

Intro:
A corneal ulcer arises from disruption and inflammation in the corneal epithelium. It occurs from infectious and non-infectious insults to the cornea when protective components such as the eyelids and tear film, fail.[1] Subsequent scarring can compromise vision. Corneal ulcers may arise from infections (bacterial, HSV, pseudomonas, parasitic), trauma (abrasions, contact lenses), non-traumatic causes (exposure keratitis), eyelid abnormalities (facial nerve palsy, lagophthalmos), or even nutritional deficiencies.[2] In the United States, the incidence of corneal ulcers (microbial) ranges from 30,000 to 75,000 cases per year.[3,4,5,6] Patients may present with complaints of eye pain, conjunctival injection, foreign body sensation, photophobia, and blurred vision.[1,2] Diagnosis is made on slit-lamp examination that shows epithelial defects with fluorescein dye.[7] The ulcer is then cultured to guide therapeutic choices. Regardless of cause, treatment with antibiotic drops such as moxifloxacin 0.5% or gatifloxacin 0.3-0.5% are usually given for small ulcers, and fortified antibiotic drops (such as fortified tobramycin, vancomycin, and/or cefazolin) are usually given for more severe ulcers.[7] Select patients may be given a steroid such as prednisolone acetate 1% QID often tapered over 2-3 weeks.[7] Treatment for noninfectious etiologies should be directed at the causal systemic or local insult.

Here we present two cases in which corneal ulcer with subsequent corneal scarring due to local trauma to the eye was attributed to face-down sleeping position. Details of the two cases along with recommendations are discussed.

Case 1

A 12 year old female accompanied by her mother presented to clinic with a two day history of discomfort and blurry vision in her right eye. Associated symptoms included conjunctival redness, irritation, and photophobia. History: this previously healthy patient did not recall when the symptoms began or inciting trauma, and there was no relevant history of illness in the family. Physical findings: visual acuity 20/80 in the right eye and 20/20 in the left eye, extraocular movements were intact, visual fields were full to confrontation, and fundus exam was normal. Examination of the right cornea showed neovascularization, diffuse superficial keratitis with fluorescein uptake, and early inferior scarring. Patient was prescribed ofloxacin gtt BID and prednisolone acetate 1% gtt once-daily. Over the course of 2 months, the patient was closely observed during treatment with antibiotics, steroids, artificial tears, and eye ointment. Her symptoms and vision improved to 20/30 OD. Corneal examination showed a stable central scar at six o'clock.

The patient returned at age 15 years of age reporting cloudy vision in her right eye. Visual acuity was 20/30 -2 OD and 20/20 -1 OS. Examination revealed a stye on the right upper lid, with associated meibomian gland dysfunction on bilateral upper and lower lids. The right cornea had new areas of scarring and neovascularization inferior and nasally. The patient was treated with warm compresses, massages, neomycin-polymyxin-dexamethasone fixed-dose combination [Maxitrol®] ophthalmic ointment BID. Upon follow-up, the stye and blepharitis had improved, but keratitis and scarring had progressed. We ascertained that the patient tended to sleep face down with her right eye against the pillow. A bandage contact lens was placed, ofloxacin gtt QID was started. The patient was advised to wear a sleeping mask and avoid sleeping face down. Over the next two months, the patient took proper care to improve sleeping habits and avoid ocular trauma such as rubbing eyes, and used antibiotics as prescribed. Vision is 20/30 OD, with a stable corneal scar.

Case 2

A 23 year old female was seen in the emergency room for redness, discharge, and foreign body sensation affecting the left eye, persisting 3 days after a friend had accidentally flicked her left eye. The patient was previously in good health, with no history of trauma or illness in the family. She has medical history of asthma and a learning disability. She reported using Visine® in her eyes over the past few years. Visual acuity: 20/25 OD and 20/100 +2 OS. The conjunctiva showed 3+ injection and corneal examination showed diffuse infiltrates, diffuse pannus and scarring with a central epithelial defect. Corneal cultures were obtained. A diagnosis of corneal ulcer was made. The patient was started on fortified tobramycin gtt QID, fortified vancomycin gtt QID, and moxifloxacin QID. Upon follow up in clinic a few days later the cornea appeared much improved, and the epithelial defect was resolved. Corneal cultures were negative. She continued antibiotic drops, and was started on prednisolone acetate 1% BID to mitigate residual scarring. The condition continued to improve over the next two months.

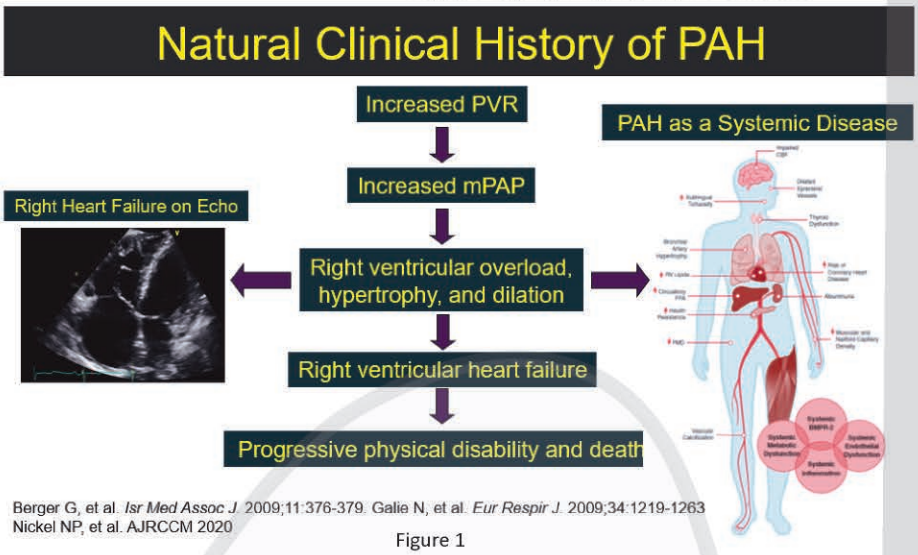
Continued on page 18

Clinic for Pulmonary Hypertension at Texas Tech

— NILS NICKEL, MD —

Pulmonary hypertension (PH) is a progressive disease of the pulmonary arteries that, if untreated, can lead to right-heart failure and death. Following an outbreak of pulmonary arterial hypertension in the 1960s in Europe, due to the appetite suppressant Aminorex, the World Health Organization (WHO) arranged the first World Symposium on Pulmonary Hypertension (WSPH) in 1973.[1] Since then, 5 more WSPH have been held, bringing together experts from all over the world to discuss the clinical and scientific progress in the field. Over the last 50 years, our understanding of the pathobiology, genetics and genomics, hemodynamics of the lungs and the right heart, PH subtypes, risk stratification, and therapeutic options have advanced significantly.[2]

Graphic Design by Malini Riddle, MD Candidate



Berger G, et al. *Isr Med Assoc J.* 2009;11:376-379. Galie N, et al. *Eur Respir J.* 2009;34:1219-1263
Nickel NP, et al. AJRCCM 2020

Figure 1

The precise and correct diagnostic workup for PH is paramount. Based on convincing epidemiological data, international patient registries, an improved understanding of PH-subtypes, and randomized clinical trials, significant changes in the diagnostic workup, hemodynamic definition, and treatment algorithms have occurred.[3] The hemodynamic definition of PH was updated in 2018 from a mean pulmonary artery pressure of 25 mmHg to 20 mmHg, based on studies that suggest patients with a mean pulmonary artery pressure of 21 mmHg or above are at increased risk for poor outcomes and high risk for progression to severe PH.[4] This seems to be particularly important in patients with connective tissue disease and chronic thromboembolic disease since these populations have the highest risk for progressive pulmonary vascular disease. Texas Tech is collaborating closely with the University Medical Center of El Paso to provide optimal care for patients with PH. With both institutions joining forces, our patients have access to a team of dedicated chest radiologists, respiratory therapists, cardiologists, and pulmonologists that are specialized in the diagnosis and treatment of pulmonary hypertension. We routinely perform vaso-reactivity and exercise testing during right heart catheterization to obtain additional information about the right heart and pulmonary circulation that can have important treatment applications.

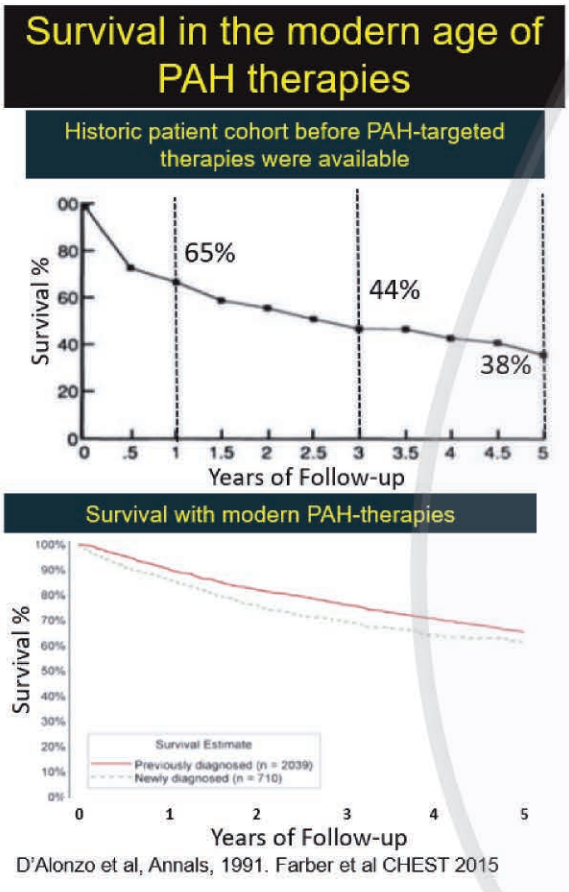


Figure 2

Unlike PH, pulmonary arterial hypertension (PAH), a subtype of PH, is not related to other chronic pulmonary or cardiac conditions, but rather a primary disease of the pulmonary vasculature itself. The triggers for PAH can be related to connective tissue diseases, drug and toxins, infections, gene mutations, or idiopathic in ~40% of the cases. PAH is an invariably progressive and deadly disease with an estimated median survival of less than three years if untreated. Although PAH remains incurable (except by lung transplantation), based on scientific progress over the last 20+ years, PAH has become a manageable chronic condition with long periods of clinical stability if treated correctly (Figure 2).[5]

Currently, 10 different pharmacological therapies are available to treat PAH. These therapies have been shown to improve survival, exercise capacity, and quality of life. Most of these therapies target the dilation of the pulmonary vasculature to reduce pulmonary vascular resistance and to improve cardiac output. Exciting new drug developments are underway that target the progression of pulmonary vascular remodeling, instead of vasodilation. The first member of this family of new PAH-targeted therapies was recently shown in a randomized placebo-controlled trial to improve pulmonary hemodynamics, despite not acting as a vasodilator.[6] Our center has access to all FDA-approved PAH-targeted therapies and is actively following new developments on the market. Our team consists of a PAH pharmacist and a dedicated PAH nursing team that will help with access to oral, inhaled, and parenteral therapies, teaching for safe administration, and monitoring of side-effects in the inpatient and outpatient settings.

Besides the use of targeted PAH therapies, modern PAH management views PAH as a systemic disease. PAH and the resulting right heart failure can lead to functional and structural changes in multiple organ systems which contribute significantly to morbidity and mortality. Some of the changes we see in the cardiovascular system of patients with PAH are not solely explained by right heart failure. Metabolic and immunologic abnormalities, genetic injury, and systemic vascular dysfunction contribute to systemic manifestations in organ systems outside the lungs and heart (Figure 1). Therefore, our center has a holistic approach to patients with PH and PAH and we routinely monitor for disease manifestations outside the cardio-pulmonary system.

Modern age medicine aims to take a "personalized" or "precision medicine" approach to the diagnosis and treatment of chronic diseases, such as heart failure and systemic hypertension.[7] Some current treatment guidelines for heart disease specify different therapeutic strategies based on ethnicity. Unfortunately, Hispanic patients are underrepresented in most PAH patient registries, accounting for <10% in most studies. However, there is increasing evidence that Hispanic PAH patients differ in their clinical characteristics, such as a higher incidence of congenital heart disease, higher female predominance, and more advanced disease at the time of presentation.[8]

Underlying mechanisms for these differences are likely multifactorial. Genetic polymorphisms leading to alterations in metabolism, neurohormonal signaling, and endothelial cell – smooth muscle cell cross-talk, structural cardiovascular disparities, pharmacogenetic differences, and socioeconomic factors all might play a role. In fact, there is now evidence for genetic variability in patients with PAH that account for clinical differences and response to endothelin-receptor antagonist therapy.[9]

At our center, we aim to obtain insights into the epidemiological, clinical, and hemodynamic characteristics of patients with PH and PAH with a special focus on the Hispanic community. Furthermore, we are trying to gain a better understanding of their distinct response to PAH-targeted therapies to provide optimal care for this vulnerable patient population.

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Texas Tech HSC and University Medical Center El Paso
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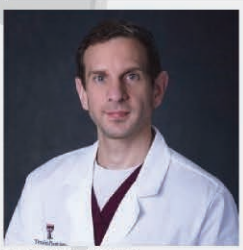

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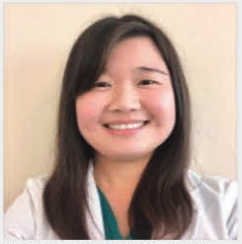

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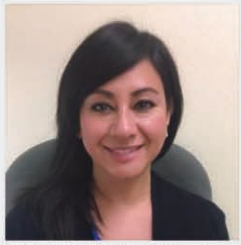

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CASE REPORT

Unilateral ulcerative keratitis and corneal scarring linked to prone sleeping position in two female patients

(Continued)

Keratitis recurred in the following year. Corneal examination showed diffuse pannus, scarring and new punctate infiltrates within the visual axis. Visual acuity: 20/20 OD and 20/50 OS. She was started on besifloxacin QID, and prednisone 1% ophthalmic solution with a long taper. Over the next 5 months the keratitis resolved, but scarring remained.

She returned six years later with irritation, blurry vision, photophobia, redness, and discharge. Visual acuity showed 20/25 +2 OD and hand motion OS. The cornea showed diffuse scarring in visual axis, and neovascularization over cornea. She was given tobramycin / dexamethasone combination drops QID. She was advised to avoid sleeping in prone position on that side of her face. Her vision improved over the next 6 months to 20/80 OS, but a visible scar remains.

Discussion/Conclusion

Non-infectious corneal ulcers are difficult to manage.[8] The systemic or local causal factor must be determined and quickly addressed.[8] It is thus imperative to consider contributing and exacerbating behavioral factors. In both of these cases, the patients sustained repetitive injury to the eye in face-down sleeping position, resulting in recurrent ulcerative keratitis with consequential corneal scarring. Once properly identified, behavioral modification was recommended. Autistic spectrum behavioral factors might have contributed to the second patient's multiple recurrences, with progression to permanent unilateral vision loss.

Previous literature confirms that sleep hygiene impacts corneal health.[9,10] A case-control study found that vigorous eye rubbing, and incorrect sleeping position (stomach/side) are associated with unilateral or highly asymmetric keratoconus.[10] One case report described a patient who developed keratitis, corneal ulceration and subsequent conjunctival granuloma from synthetic fibers of a teddy bear she slept with at night.[11] These cases illustrate the need to investigate and counsel patients on preventing eye injury during sleep. Inquire early about sleeping position, and recommend early-intervention to prevent complications. We recommend heightened precautions for pediatric patients, especially patients with potentially relevant developmental disorders to provide and monitor behavioral and sleep modification.

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CASE REPORT

E.P.C.M.S.

A case of spinal epidural abscess due to *Streptococcus gallolyticus* associated with benign colonic hyperplastic polyps

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ABSTRACT

A spinal epidural abscess (SEA) is an inflammatory process that involves a collection of pus within the epidural space between the duramater and the vertebral periosteum. It is a rare but serious medical condition with high morbidity and mortality. It is commonly caused by Staphylococcus aureus (S. aureus), followed by Streptococci and Gram-negative bacilli. Here we report an unusual case of SEA associated with S. gallolyticus who presented with low back pain, fever, and chills. Magnetic resonance imaging of the spine demonstrated early signs of epidural abscess. Blood culture grew S. gallolyticus. Colonoscopy revealed a benign colonic polyp subsequently confirmed to be hyperplastic by pathology report. The patient underwent a computer tomography-guided L3-S1 decompression, and treated with intravenous ceftriaxone for six weeks with no clinical relapse during outpatient follow up. This case illustrates that SEA can originate from benign colonic lesions, with impetus for surveillance of the gastrointestinal tract in patients with *S.gallolyticus* bacteremia and associated epidural abscess.

Keywords: spinal epidural abscess, *streptococcus gallolyticus*, colonic benign hyperplastic polyps

INTRODUCTION

Spinal epidural abscess (SEA) is an uncommon but important suppurative infection of the central nervous system with 5-16% mortality rate worldwide[1]. It requires immediate diagnosis and treatment to prevent progressive and catastrophic neurological complications[2]. The most common pathogen is *S. aureus*, followed by less common pathogens, including Gram-negative bacilli, *Streptococci*, coagulase-negative *Staphylococci*, and anaerobes[3]. On rare occasions, no particular etiology can be identified[4]. *S. gallolyticus* is an uncommon pathogen, but has a well-known association with colorectal cancer and adenomas [5]. *S. gallolyticus* bacteremia, endocarditis or epidural abscess association with colonic malignant or premalignant lesions has been previously reported in the literature [5-7]. Here we present a case of *S. gallolyticus* SEA associated with non-malignant hyperplastic polyps. This patient underwent extensive work-up for the source of infection. A single colonic polyp was discovered with colonoscopy. The polyp was confirmed to be a benign hyperplastic polyp by pathology report. To our knowledge, no single case of *S. gallolyticus*-associated SEA in the setting of a benign gastrointestinal lesion has been previously reported.

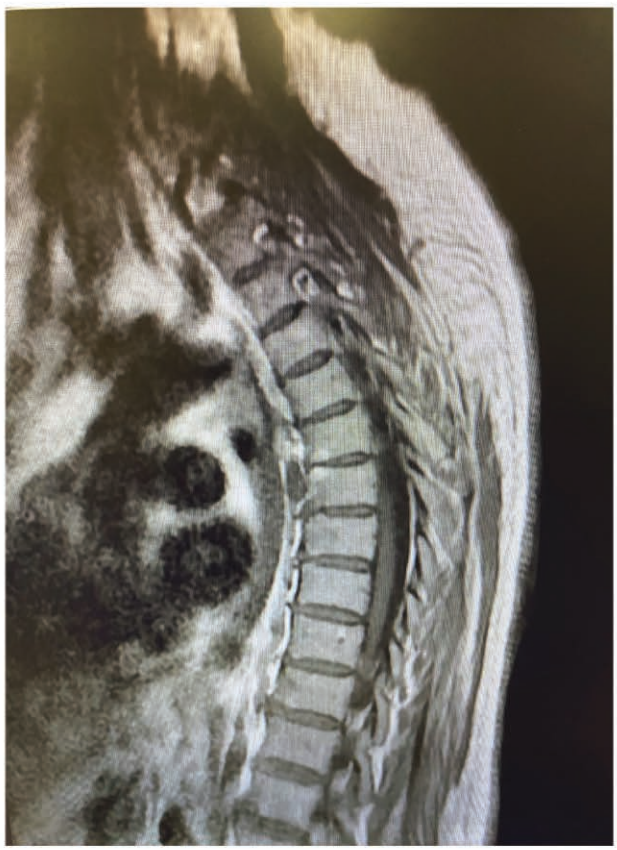

Figure 1 caption: MRI of the spine showed arachnoiditis with ligament enhancement from L3-S1 with early signs of epidural abscess

Continued on page 20

CR
CASE REPORT

A case of spinal epidural abscess due to Streptococcus gallolyticus associated with benign colonic hyperplastic polyps

(Continued)

CASE REPORT

A 79-year-old woman was transferred to our institution with moderate back pain, fever and chills that began three weeks prior to her admission. Her past medical history was significant for type 2 diabetes and essential hypertension. No recent or remote history of spinal epidural injection, invasive spinal procedures, or IV drug use was reported. Physical findings on admission: slightly febrile (37.7C), heart rate 110 beats per minutes, normotensive, normal heart sounds without any additional sounds or murmurs, midline lumbosacral and left-sided para-spinal region tenderness. Neurological examination including motor, sensation, and reflexes were intact. Initial laboratory work-up: leukocytosis (WBC 14.18 X 103/µL) with neutrophil predominance, C-reactive protein 8 mg/dL, and erythrocyte sedimentation rate 99mm/hr. Renal and liver function tests were within normal range. She was treated empirically with IV vancomycin and piperacillin-tazobactam. IV ceftriaxone was started when *S. gallolyticus* was isolated from blood culture. MRI of the spine showed arachnoiditis with ligament enhancement from L3-S1 and early signs of epidural abscess (Figure 1). She subsequently underwent a CT-guided sacral epidural abscess decompression procedure with sample collection for cultures. No valvular vegetation or cardiac structural abnormalities were visualized by transthoracic and trans-esophageal echocardiogram. Colonoscopy revealed a 2 mm polyp in the ascending colon. A biopsy was obtained (Figure 2). Histopathological examination revealed hyperplastic mucosa without any malignancy or dysplasia. The patient was discharged on a six-week course of IV ceftriaxone. During outpatient follow up, the symptoms had almost entirely resolved.

DISCUSSION

SEA incidence is about 5.1 cases per 10,000 admissions in the US [8]. Invasive spinal procedures, the aging demographic, increases in prevalence of IV drug use and immune compromise are contributing to rising incidence [9]. Pathogens mostly spread hematogenously from skin and soft tissues to the epidural space along direct extension of vertebral osteomyelitis, abdominal abscesses, infection of the mediastinum, or rarely infective endocarditis. SEA can also result from direct inoculation of bacteria into the spinal canal during invasive spinal procedures or surgical interventions [6,9]. *Staph. aureus* has accounted for almost 70% of all cases, followed by *Strep. sp*, and less commonly *Mycobacterium tuberculosis*, fungal species, and parasites [10,11]. This case of SEA was caused by an unusual bacterium, *S. gallolyticus*, a Gram-positive, non-enterococcal Lancefield group D Streptococcus that comprises part of normal intestinal flora in 2.5 to 15% of the general population [10,12]. *S. gallolyticus* can cause bacteremia/septicemia, endocarditis, endophthalmitis, soft tissue infections, and septic arthritis [3]. *S. gallolyticus* associated SEA has been reported in the literature [7]. Multiple studies have implicated bacteremia due to *S. gallolyticus* with underlying colorectal malignancies [5,13,14]. The relationship of *S. gallolyticus* with benign colonic lesions has been far less common, and conceivably incidental [5,13,15].

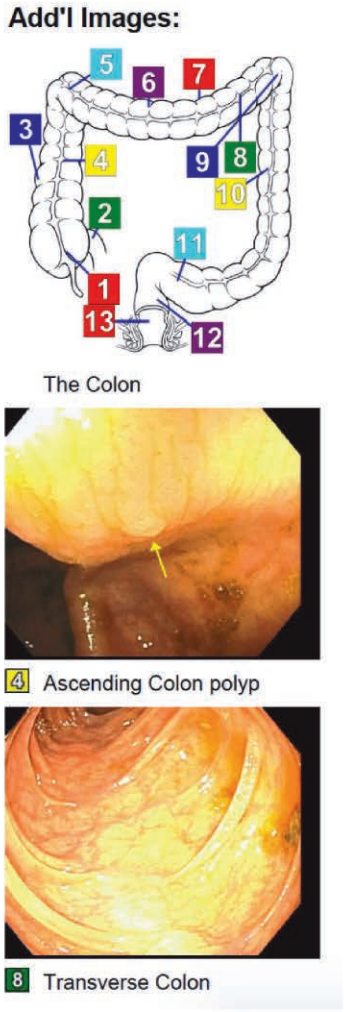

Figure 2 caption: A colonoscopy showed a 2 mm polyp in the ascending colon.

The hypothesis that ulceration of neoplastic lesions is the only pathway for bacteria to enter the bloodstream does not explain the association between *S. gallolyticus* and non-ulcerated benign lesions, and suggests that *S. gallolyticus* might play a role in polyp etiology or progression [14,16].

The treatment of a spinal epidural abscess combines aspiration, drainage, and antibiotic [17]. Emergent surgical consultation is the mainstay of therapy for patients with abnormal neurological findings due to mass effect of an epidural abscess [18]. Medical therapy alone is reserved for patients with panspinal involvement, complete paresis beyond 72 hours, or when surgery is considered too risky [19,20].

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In this case, we believe that *S. gallolyticus* had most likely spread hematogenously from the hyperplastic polyp found during the colonoscopy.

CONCLUSION

SEA is an uncommon CNS infection [1,2]. This was a particularly uncommon case having originated from benign colonic lesions, with impetus for surveillance of the gastrointestinal tract in patients with *S.gallolyticus* bacteremia and associated epidural abscess.

CONFLICT OF INTEREST

None of the authors declare any financial or personal conflicts of interest.

AUTHOR'S CONTRIBUTIONS

SR Ghafouri completed the background research, drafted and edited the manuscript. I Wahdayar, K Fadah, SS Ghafoori, Guvvala and D Peralta edited and completed the manuscript.

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Dermatology

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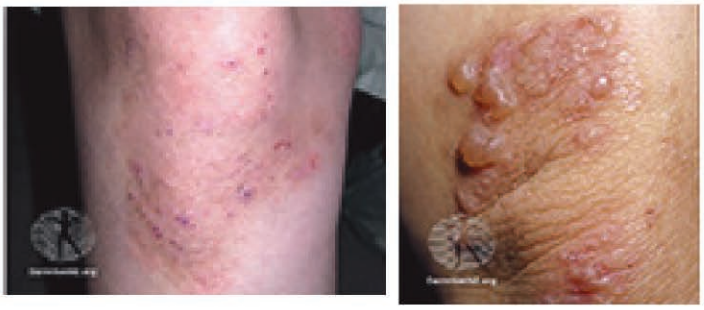
Medical Student section "Dapsone for dermatitis herpetiformis" dermatology integration series.

Dapsone is a sulfone drug with antimicrobial activity that is used for the treatment of leprosy and other infections. It works by binding to the active site of dihydropteroate synthase and selectively inhibits microbial dihydrofolate synthesis. That mechanism of action does not explain its use in inflammatory bullous autoimmune disorders. Dapsone has been used to treat bullous diseases for over 70 years, and remains a first-line pharmacological option for dermatitis herpetiformis.[1] The US FDA has approved systemic use of dapsone for treatment of dermatitis herpetiformis, although no randomized controlled trials of dapsone for dermatitis herpetiformis have been published.

Dermatitis herpetiformis is a gluten-associated immune dermopathy, and celiac disease is a gluten-associated immune enteropathy. Both result from cytotoxic type II hypersensitivity mediated by IgA and IgG autoantibodies against transglutaminase and antigenic motifs of gliadin, a component of wheat gluten that is rich in glutamine and proline. Transglutaminases deamidates glutamine component of gliadin to glutamate. Caucasians of northern European ancestry are predisposed to gluten-sensitive autoimmune disorders derive from antigen presenting cells expressing allotopes of HLADQ2.5 and HLADQ8 MHC Class II receptor polymorphisms. They have increased affinity to bind and process gliadin, then present antigenic epitopes of transglutaminase-deamidated gliadin peptides. Activation CD4+ T-cells go on to activate CD8 T-cells that induce B-cell differentiation into plasma cells producing anti-gliadin and anti-transglutaminase IgA and IgG antibodies.[2]

The diagnosis dermatitis herpetiformis includes clinical presentation, histology of perilesional skin biopsy, and serology. The clinical presentation typically consists of often symmetrical pruritic papulovesicles favoring extensor surfaces, sacral area and buttocks. Linear IgA disease and bullous pemphigoid should be considered in the differential diagnosis. Direct immunofluorescence of perilesional skin biopsy should demonstrate pathognomonic granular IgA along dermoepidermal junction at dermal papillary tips, and subepidermal clefts rich in neutrophils and eosinophil. Serology to detect IgA antibodies directed against transglutaminase, family history of celiac disease, small bowel biopsy, and HLA typing can provide additional diagnostic



evidence in atypical cases in which the work-up yields equivocal results.

Tissue transglutaminase and epidermal transglutaminase share some sequence conservation and homology.[3] In celiac disease, tissue transglutaminase is a major autoantigen. In contrast in dermatitis herpetiformis, epidermal transglutaminase is a major autoantigen.[4] In virtually all dermatitis herpetiformis cases there are histological manifestations of sub-clinical celiac-type enteropathy, but most patients with celiac disease will not develop pathognomonic immunohistological features of dermatitis herpetiformis. [5-7] Autoimmunity against epithelial transglutaminase might thus develop from gut exposure to antigenic tissue transglutaminase-deamidated gliadin epitopes by the phenomenon of epitope spreading, whereby adaptive immune reactivity to an initial dominant epitope expands over time to a secondary epitope from an antigenically similar molecule.[4] Patients with initial dermatitis herpetiformis are likely to already have anti-tissue transglutaminase antibodies.[8] Cross reactivity with epidermal transglutaminase with low avidity might develop in patients with initial celiac disease who later develop dermatitis herpetiformis.[9] Dermal deposition of anti-epidermal transglutaminase IgA autoantibodies can attract neutrophils and eosinophils.[9,10] Coupled with circulating complement-activating complexes, a neutrophil-predominant cytotoxic attack on the dermal epidermal junction ensues.[11] Physical insults can trigger neutrophil activation and ensuing immune-inflammatory injury (Koebner phenomenon), hence the propensity for skin lesions to develop along pressure and injury prone extensor surfaces and buttocks.

Dapsone has been shown to impair neutrophilic attack in a variety of interesting and effective ways. Dapsone reversibly inhibits myeloperoxidase, thus limiting capacity for oxidative cellular

Continued on page 23

damage by neutrophils and eosinophils already within the dermal epidermal junction.[12-14] The systemic anti-inflammatory activity of dapsone has also been attributed to inhibition of eicosanoid oxygenating enzyme pathways for prostanoid and leukotriene synthesis.[15] It interferes with guanine nucleotide-binding protein-coupled signal transduction necessary for neutrophils to respond to chemoattractants, specifically the activation of β2 integrin molecules, and inhibits neutrophil chemotaxis to F-met-leu-phe, an antagonist for leukotriene B4 and neutrophil binding and neutrophil integrin CD11/CD18- mediated adherence.[12,16-18] Dapsone can inhibit oxygenation of arachidonic acid by cyclooxygenase and lipoxygenase, preventing the synergistic effect of neutrophil and mast cell prostaglandin D2 and leukotriene E4 on T-helper cell cytokine release, including interleukin-22, interleukin-8 and granulocyte-macrophage colony-stimulating factor, with downstream inhibitory effects on neutrophil activation, migration and survival.[15,19,20]

Dapsone imposes multi-level suppression of autoreactive cytotoxic type II hypersensitivity mediated damage at the dermal epidermal junction. Gliadin avoidance by adhering to a gluten-free diet directly attenuates progression of gluten-associated dermopathy and enteropathy, but takes weeks-months-years to achieve dermatological disease regression.[21] Dapsone can bring rapid resolution of pruritic papulovesicles and bullae in dermatitis herpetiformis, but some cases do not respond to dapsone. [22] Recalcitrant cases have responded to rituximab. [23]

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Source:https://dermnetnz.org/topics/dermetitis-herpetiformis

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RESEARCH

E.P.C.M.S.

The Research Division Growth: Addressing Cancer Throughout West Texas Using Multicomponent Programs.

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Cancer remains the second leading cause of death in the U.S. Although survival from cancer has improved over time, it is very much stage-dependent, with the best hope of cure being prevention and earlier diagnosis. Between 30% and 50% of cancer mortality could be prevented by altering or simply avoiding crucial risk factors; incidence rates can also be reduced through early detection and management of patients diagnosed with cancer[1]. El Paso suffers from a disproportionately high burden of some cancers, particularly breast and cervical cancer, and has lower screening rates than other populations. Populations living in underserved rural and border communities in West and South Texas have critical barriers to cancer screening, specifically among populations of the uninsured, underinsured, those residing in geographically isolated, rural, and frontier counties, and ethnocultural and racial minorities.

The Research Division of Family and Community Medicine at Paul L. Foster School of Medicine, Texas Tech University Health Sciences Center -- El Paso, has a mission to advance the science of family medicine through the generation of knowledge to improve the health of the predominantly Hispanic U.S.-Mexico border population that we serve. The division has taken great strides to gain national recognition among family medicine departments for engaging in high-quality primary care research to improve the health of communities, and eliminate disparities in health care, locally and throughout West and South Texas.

As a result of the diverse population on the border and surrounding rural counties, the division has developed new research programs, and sustains existing ones allowing for rapid growth and expansion to occur. Established in 2010, the division has been awarded over 16.5 million dollars through 20 different grants from agencies including the National Cancer Institute, the American Cancer Society, Susan G. Komen Foundation, and the Cancer Prevention and Research Institute of Texas. A central research focus for the division is cancer prevention and control, which is very much in line with the institutional goals of the Center of Emphasis in Cancer, with which the department has forged strong collaborative ties.

The first major program established within the division was Against Colorectal Cancer In Our Neighborhoods (ACCION) to reduce colorectal cancer (CRC) burden throughout El Paso County. Data reveals that CRC screening rates in El Paso County were at 47.1%, significantly lower than the Texas average of 63.5% and the national average of 69%[2]. A 2016 study compared rates across 210 counties and 187 metropolitan statistical areas. Among those, El Paso County and El Paso ranked at the bottom of each category, with respective screening rates at 47.0% and 47.1%[3]. This comprehensive, evidence-based program set out to increase community awareness and knowledge about CRC and screening. ACCION's goals also included increasing screening rates among underinsured/uninsured 50-75-year-olds, reducing the number of advanced stage cases through uptake of diagnosis and treatment services, and building a sustainable network for CRC screening, diagnosis, and treatment. The program's success was rewarded with extended grant funding for three more years to continue disseminating education and screening services in El Paso. In that time, CRC screening rates have increased from 47.1% to 55%[4]. After six years of funding, the program expanded to an additional 25 West Texas counties, and renamed the Southwest Coalition for Colorectal Cancer Screening (SuCCCeS) program. Data in these geographic areas revealed much lower screening rates, ranging 4.3% to 48.6%. That was far below overall county and state average screening rates, attributable in part to socioeconomic disadvantages experienced within the population, and a significant migrant population[5]. The program offers free colorectal cancer screening services to eligible men and women, bilingual colon cancer prevention education (in-person and video), and navigation to timely treatment for participants diagnosed with cancer. It builds upon the original framework of ACCION, but incorporates new and innovative components, with a West Texas network of clinical and community partners bringing evidence-based strategies into clinical settings, and creative strategies to disseminate education and address sustainability. SuCCCeS coalition members include nine hospitals, 26 clinics, and over 150 community partners. In the 11 years of the division's CRC prevention programs, more than 32,000 people have enrolled in educational programing, 22,200 fecal immunochemical tests (FITs) have been completed, over 1,600 individuals have undergone colonoscopies, and 30 individuals have been diagnosed with cancer while being successfully navigated for follow-up services. SuCCCeS was recently funded to continue providing education and services through 2024.

Applying a similar blueprint, the division decided to target both breast and cervical cancer prevention in 2014. The Breast Cancer

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The Research Division Growth: Addressing Cancer Throughout West Texas Using Multicomponent Programs.

(Continued)

Education, Screening and NavigaTion (BEST), and De Casa En Casa programs started as local community-wide evidence-based cancer prevention programs incorporating outreach, education, clinical service delivery, and navigation to create sustainable system changes. Key components of the programs include theory-based and culturally tailored cancer education delivered by bilingual, certified community health workers, provision of no-cost screening to eligible women, on-site diagnostic and treatment services, and patient navigation and tracking to facilitate screening, diagnosis, health insurance coverage, access to a primary care physician, and treatment. Both programs have built upon their initial cycles and expanded their reach throughout West and South Texas, identifying existing barriers in those regions, and addressing the needs and gaps in services within the communities.

Breast cancer is the most common cancer among women in Texas, comprising 30% of all new cancer cases per year, and the leading cause of cancer death among Hispanic women[6]. Hispanic women are 20% more likely to die from breast cancer than age and stage-matched non-Hispanic women[6], and mortality in border counties is higher than in non-border counties[7]. The BEST program has provided over 4,200 mammograms, 1,400 diagnostic tests (diagnostic MMG, ultrasounds, and biopsies), and has navigated 39 cancer cases. This program has received continued funding through 2024.

Women living in underserved rural and border communities in West and South Texas have critical barriers to cervical cancer screening, specifically among populations of uninsured, underinsured, those residing in geographically isolated, rural, and frontier counties, and ethnocultural and racial minorities. Hispanic women have almost double the incidence of all minorities. They are twice as likely to die from cervical cancer than non-Hispanic women, and that mortality exceeds state and national averages of 39.6% and18.3%, respectively[8]. Hispanic women and women in rural areas have higher cervical cancer incidence, are diagnosed at later stages, and suffer excessive cervical cancer mortality compared to non-Hispanic white women and women in urban areas[9]. De Casa en Casa has provided over 5,000 pap smears, 4,300 HPV tests, over 400 colposcopies and has successfully navigated ten cancer cases throughout its program history. De Casa en Casa has a robust presence throughout West and South Texas, reaching 36 counties and providing screening services to 1,225 women, of which 33 (2.7%) completed a follow-up colposcopy.

Tiempo de Vacunarte, or time to get Vaccinated, is a community human papillomavirus (HPV) vaccine program for individuals ages 9-45 years who are uninsured/underinsured and have not completed the HPV vaccine series. HPV is the most common sexually transmitted infection, and it is responsible for over 70% of cervical cancer cases[10]. The program provides health education and no-cost vaccines to eligible individuals. In partnership with the University of Texas at Austin Center for Health Communication to establish a notable social media presence, the program has expanded service to West Texas, including Culberson, Hudspeth,

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(Continued)

Brewster, Presidio, and Tom Green Counties. Tiempo de Vacunarte is currently in its second cycle of funding through 2022. The program has educated over 3,700 individuals, and provided vaccines to more than 1,800 individuals in El Paso County.

In 2018, the Pasos Para Prevenir Cancer program was established, utilizing a three-arm program. The education program is tailored for current and future healthcare providers, and organizes community-wide walking challenges. The goal is to increase awareness reduce risks for obesity-related cancer by providing information and tools to make health-directed nutritional and physical-activity-related behavioral changes. The education is delivered face-to-face and online via webinars, and includes curriculum topics, live food demonstrations, and three social media platforms. The focus of the healthcare provider education programs is to increase healthcare worker competence in delivering obesity-related counseling to patients. The program has established community partnerships and collaborative efforts, including the El Paso Border Coalition for Fitness university-community partnership to promote physical activity in El Paso. The joint effort uses evidence-based educational and walking strategies to create three walking challenges that promote physical activity in the El Paso community, utilizing the existing regional environment and community resources to facilitate physical activity. The program is currently awaiting notification of continued funding from the Cancer Prevention and Research Institute of Texas, which will sustain the program through 2024.

As the Research Division grows, it will continue implementing data-driven systems change programs and inter-agency coordination across partners. The division strives to address social determinants of health, eliminate health disparities, utilize evidence-based practices to reduce structural barriers, use culturally responsive community educators, and implement client-centered one-on-one education techniques. The division will continue re-innovating our approach to strengthen its presence throughout West and South Texas, further expanding and enhancing all programs to benefit more communities.

Funding: The programs cited have been funded through Texas's Cancer Prevention and Research Institute [CPRIT].

- SuCCCeS Grant
- BEST Grant
- De Casa Grant
- Tiempo de Vacunarte / Time to get Vaccinated 2 Grant
- Pasos Para Prevenir Cancer

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EPP

EL PASO PHYSICIAN TV SHOW

E.P.C.M.S.

Saqib Shahid,MS2

El Paso Physician, a program on El Paso PBS, has a long standing tradition of bringing viewers face to face with their local doctors.

On Thursday, evening, August 12, 2021, local physicians met with program host Katherine Berg to discuss " Delta Variant; a Covid update on the urgency of the moment", the state of our community amidst new developments in the ongoing COVID-19 pandemic, while also addressing the concerns of viewers who called in with specific questions.

The discussion focused mostly on the frightening new Delta variant, a more infectious version of the SARS-CoV2 Virus, and people's concerns surrounding the vaccines ability to keep them safe. Rumblings of a booster for the existing vaccine prompted questions about who should receive one, and when.

Before we get into the details of the broadcast, let's meet our guests, two of El Paso's finest physicians.

Dr. Ogechika Alozie M.D./MPH

Dr. Alozie is the head of Southwest Viral Med (SWVM) a non-profit that serves HIV patients in El Paso. With a background in infectious disease, public health, and HIV medicine, Dr. Alozie is no stranger to the ravages of a widespread viral illness and is equipped with the experience to tackle the problems we face today.

Dr. Hector Ocaranza M.D.

Dr. Ocaranza currently serves as the El Paso County Health Authority, and has led the city in coordinating responses to Ebola, Tuberculosis, and H1N1. His experience in this area allows him to see how the current pandemic affects daily life for the citizens of El Paso.

Here are some of the most notable questions from their discussion:

What is the Delta Variant?

Dr. Alozie: It is a more infectious version of the virus that caused this pandemic. Is it more transmissible? Yes. Experts argue on the specific degree of increased transmissibility, and debate continues on its virulence. Does it evade immune capture? That remains to be seen. In those that got the vaccine a long time ago, there seems to be a waning response to the virus. Which begs the argument for a booster. I believe a virus can mutate only a certain amount of times. Once it mutates too many times, it can evade the vaccine, but it may not be able to infect you. So far the delta variant is the most efficient in terms of infection. Think of it like play-doh. If you have too many designs and colors, it loses its original form and is eventually a mess.

My friend got vaccinated, and still got COVID-19. How is this possible?

Dr. Alozie: The job of the vaccine is not to prevent you from getting infected in the first place, but to prevent the most severe outcomes related to this virus. If your friend did not end up in the ICU or hospital, then the vaccine did its job.
Dr. Ocaranza: The vaccine gives your immune system the ability to recognize the virus. Think of it like a wanted poster for a criminal, and your immune system is the police department. Once the cells inside the "police department" see a picture of the virus, they can recognize and eliminate it more easily. Some people have doubts because of how fast the vaccine was made. But they need to understand the tech behind this has been in the works for years, and it is now just being applied to COVID. And who knows, future vaccines may be made even faster, using the COVID process as a template.

Is there any solid data about the vaccine?

Dr. Alozie: Yes, there is lots of data regarding the efficacy of the vaccines. If in August of 2021 we are still arguing about the efficacy of the vaccine, we will not get to 100% vaccination. That no longer needs to be a question to ask. The only thing up to debate now are booster shots. How will we manage small children? How will we carry forward year to year? I apologize, but if you are part of the 10-20% of people that are unvaccinated, go ahead and take your risk, and we will take care of you if you get sick. Refusing to acknowledge the effectiveness of the vaccine has taken us backward. Let's move past this, and focus on what we can do to protect our community.

How do we protect small children aged 5-11, as well as those under 5 years?

Dr. Ocaranza: Vaccinated pregnant mothers can protect their baby. The question for toddlers and pre-teens really is the dosage.

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EPP
EL PASO PHYSICIAN TV SHOW

Children have very different immune responses to adults. How can we navigate this without triggering multi system inflammatory response syndrome? For now, this is where the herd immunity comes in. We need to get as much of our population vaccinated as we can so that we can protect those who cannot be vaccinated currently.

For unvaccinated children, school is in session now. The state is currently not mandating masks, but El Paso and other cities may feel differently. What do we do?

Dr. Alozie: Every parent has a decision to make. If you have concerns, or are worried, wear the mask. There are very few downsides to wearing a mask. Certain special needs children who need verbal cues from facial expressions or children with a respiratory disease are ones we can make exceptions for. We always talk about the exceptions, but let's focus on the average kid. If they wear a mask they will be fine. On average, kids will be protected by wearing a mask.I feel that schools are spending more energy on masking than vaccinating their staff and teachers. I would recommend vaccinating the staff and teachers, because that will be more effective. Move beyond the politics, and focus on what can actually be done. Take action to protect our children.

Where can we get the vaccine?

Dr. Ocaranza: Go to the civic center, get the vaccine as a family. You can go to your neighborhood pharmacy as well. Many school districts are setting up drives for vaccinations, and health departments have done a good job publicizing the vaccine, as well as making the vaccine more available and convenient to receive. It is free, and easy to get.

How can the immunocompromised and elders receive a vaccine booster?

Dr. Alozie: The expectation is that the FDA will make an announcement about boosters soon, likely within a week.

[At the time of writing, the FDA has approved boosters for those previously vaccinated]

How do we protect ourselves from the Delta variant?

Dr. Alozie: If you want to be protected, wear an N-95, KN-95, or surgical mask that you replace regularly. Cloth masks do not protect as well against this strain. You can buy N-95s and KN-95s on Amazon or Office Depot, and they are very affordable. After the Q&A session, Dr. Alozie went on to stress the importance of staying safe during the upcoming flu season. He recommended that anyone who feels sick at any point should remain diligent and get tested, either through a clinic or through use of a home kit. He was adamant that if you test positive, you should stay home. Above all, both Dr's Ocaranza and Alozie emphasized the importance of getting vaccinated. In Dr. Alozie's words, "If COVID is the riddle, then the vaccine is the answer."

Dr. Alozie and Dr. Ocaranza have provided us with their valuable input regarding the Delta strain and the current state of the pandemic. It is now up to us to follow their advice, remain cautious, and keep ourselves and those around us healthy.

Saqib Shahid,MS2, PLFSOM, TTUHSC, El Paso, TX

PUBLIC HEALTH

E.P.C.M.S.

Update on RSV Infection in El Paso

Gilbert A. Handal, MD, FAAP

As of March 2020, most likely due to the precautions for SARS-2 infection, infections by Respiratory Syncytial Virus (RSV) practically disappeared. As the measures for COVID precautions were relaxed in the spring and summer 2021, we are witnessing an upsurge in the country of infections by this virus.

As per a brief clinical survey, done with information from every hospital that cares for children and many pediatric offices, El Paso showed an increase of RSV infections from the last two weeks of July 2021 to the first two weeks in August 2021. In that period of time the cases rose from 16 cases to well over 100 cases.

The Texas Pediatric Society Task Force working with DSHS have recommended and authorized the use of Palivizumab (Synagis) to prevent serious outcomes in patients at risk, using the same criteria approved in 2014 by the AAP Committee on Infectious Diseases (COID). It is not yet clear for how long will these criteria will be approved, it is my impression that these measures will be dependent on the number of cases that present in subsequent months. It is likely that the administration will be continued until March of 2022.

A summary of the patients that qualify for the administration of Palivizumab includes the following:

1. Premature babies of less than 29 weeks gestation. Beyond that gestation only if they have Congenital heart Disease or Chronic lung Disease (not recommended for the second year of life)
2. Premature babies of less than 32 weeks gestation continuing to require Oxygen 28 days after delivery
3. Babies less than 12 months of life with Congestive Heart Failure that are hemodynamically unstable. (Children with stable CHD not requiring medication or after the second year of life are not eligible)
4. Children under 24 months of life undergoing cardiac transplantation or cardiopulmonary bypass (As the Palivi zumab serum concentration decreases during the bypass, a dose is recommended after the surgery)
5. Unless there are issues for specific acceptance there is no in dication for Palivizumab for the following categories of children:
    a. Children with Anatomic Pulmonary Abnormalities
    b. Children with Neuromuscular Disorders
    c. Children that are Immunocompromised
    d. Children with Down Syndrome
    e. Children with Cystic Fibrosis
    f. Children with asthma or subsequent wheezing
6. Palivizumab should not be administered to a child who has a break-through RSV infection
7. Administration of Palivizumab during the second year of life is only recommended for preterm babies that have required oxygen during the first 28 days of life and still are oxygen or steroid dependent during the second year of life.
8. Palivizumab has no therapeutic effect.

The original discussion recommended no more than 5 months of Palivizumab administration; this recommendation may be revised given the unusual seasonality of the infection.

Updated Guidance for Palivizumab Prophylaxis Among Infants and Young Children at Increased Risk of Hospitalization for Respiratory Syncytial Virus Infection

COMMITTEE ON INFECTIOUS DISEASES AND BRONCHIOLITIS GUIDELINES COMMITTEE

1.Pediatrics August 2014, 134 (2) 415-420; DOI: https://doi.org/10.1542/peds.2014-1665

2.DSHS weekly Texas report of RSV

3.TPS RSV task Force on RSV

Gilbert A. Handal, MD, FAAP, Professor of Pediatrics, Infectious Disease and Critical Care, TTUHSC, El Paso, TX

MS
MEDICAL STUDENTS
E.P.C.M.S.

Reflections - Return to Campus

MS1: Chukwudumebi "Dumebi" Atuegbu, B.S.
Becoming a physician has been a lifelong dream for many of my classmates and I. From the long nights of studying in undergrad to the early mornings volunteering and countless shadowing hours. In our unique routes we all navigated our individual journey to medicine and prepared ourselves for what was to come. However, we were not prepared to enter medical school amidst a global pandemic. A year and a half into the pandemic we have adjusted to the new found "virtual" way of doing almost everything. As a member of the class of 2025 I can attest to the excitement we felt when we found out we would return to in person learning and experiences. Virtual learning at times gave way to more distractions and difficulties in our pursuit towards medicine. Face to face interactions may foster greater collaboration and learning opportunities. We are beyond grateful to be back in person and excited for this journey!

MS2: Tyson Lumbreras, B.S.
Although COVID-19 forced the PLFSOM class of 2024 off campus to a virtual learning environment, the MS2s have kicked off their year by entering campus with a 'Summer is Over Bash'. This event was put together by a group of MS2 students who've seen a need to rebuild the camaraderie within our cohort that was lost due to online learning. The event gave students opportunities to meet for the first time in person, play team focused field games, and lay the foundation for a positive in person MS2 medical education. To put into perspective how eager students are returning to campus, this event was the largest on campus student organized event at PLFSOM. When asking students about returning to campus, a PLFSOM MS2, Tyler Smith, expressed: "I love having the opportunity to be back with my colleagues in the anatomy lab for hands-on learning. The positive support within our class is really great to see."

MS3: Miraal Dharamsi, B.S.
The return to in-person education from virtual learning has been long awaited by the MS3 class at PLFSOM. From day one of classes, medical students set out with the goal of playing a meaningful role in healthcare delivery; the clerkship years offer us our first consistent opportunity to truly contribute to that endeavor. Though the pandemic certainly had its impacts on education and there is still much for us to learn, we are fortunate that our school prepared us well by providing us with many opportunities in our pre-clerkship years to practice our skills as future clinicians.

MS4: Natalie Satterfield, B.S.
Starting clinical experiences in the middle of a pandemic meant learning to adapt in the face of the unknown. As individuals who were taking on the role of medical students caring for real patients for the very first time, understanding how to balance the learning curve of a new environment with the devastation that surrounded us was incredibly challenging. However, for the sake of our patients, we adapted to every situation that was thrown our way. We became family to our patients who were alone and terrified, we provided hands when we were facing a shortage of workers, and we learned what it meant to show up for our community when it needed us the most.

In Memoriam: Dr. Lyndon Edwin Mansfield

Lyndon Edwin Mansfield, 78, of El Paso, passed away on July 14th, 2021. He was born in Philadelphia, PA on May 16th, 1943. Lyndon graduated with a Doctor of Medicine degree from Thomas Jefferson Medical School and practiced pediatrics, allergy and immunology for over 50 years including as a physician in the US Army.

Lyndon was married to his wife Randee for 52 years. He was a member of Temple Mt. Sinai, Westside Rotary Club as well as many medical associations. His passions included his 9 grandchildren, English Premier League soccer, reading, and all types of Asian cuisine.

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F: 915-307-7558

Pediatric Ophthalmology

Violeta Radenovich, MD, MPH
Elisa Hearn, OD

Pediatric Ophthalmology & Strabismus
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- ✓ Registration page logo placement: top row, visible first.
- ✓ Four 30-day job postings and 60-day access to the resume database on TMA Career Center.
- ✓ Two featured job postings on the job seeker registration page.
- ✓ Company description on registration page.

Silver Sponsor

- ✓ Middle-tier booth lobby placement.
- ✓ Access to database of all candidates with resumes.
- ✓ Fully customized booth, including space for up to two recruiters.
- ✓ Registration page logo placement: middle row, visible second.
- ✓ One 30-day job posting and 30-day access to the resume database on TMA Career Center.
- ✓ One featured job posting on the job seeker registration page.

Bronze Sponsor

- ✓ Third-tier booth lobby placement.
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- ✓ Registration page logo placement: bottom row, visible third.
- ✓ One 30-day job posting on TMA Career Center.

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