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Trigeminal Nerve Block in the Head and Neck Cancer Patient: A Case of Metastases Misattributed to Procedural Complications

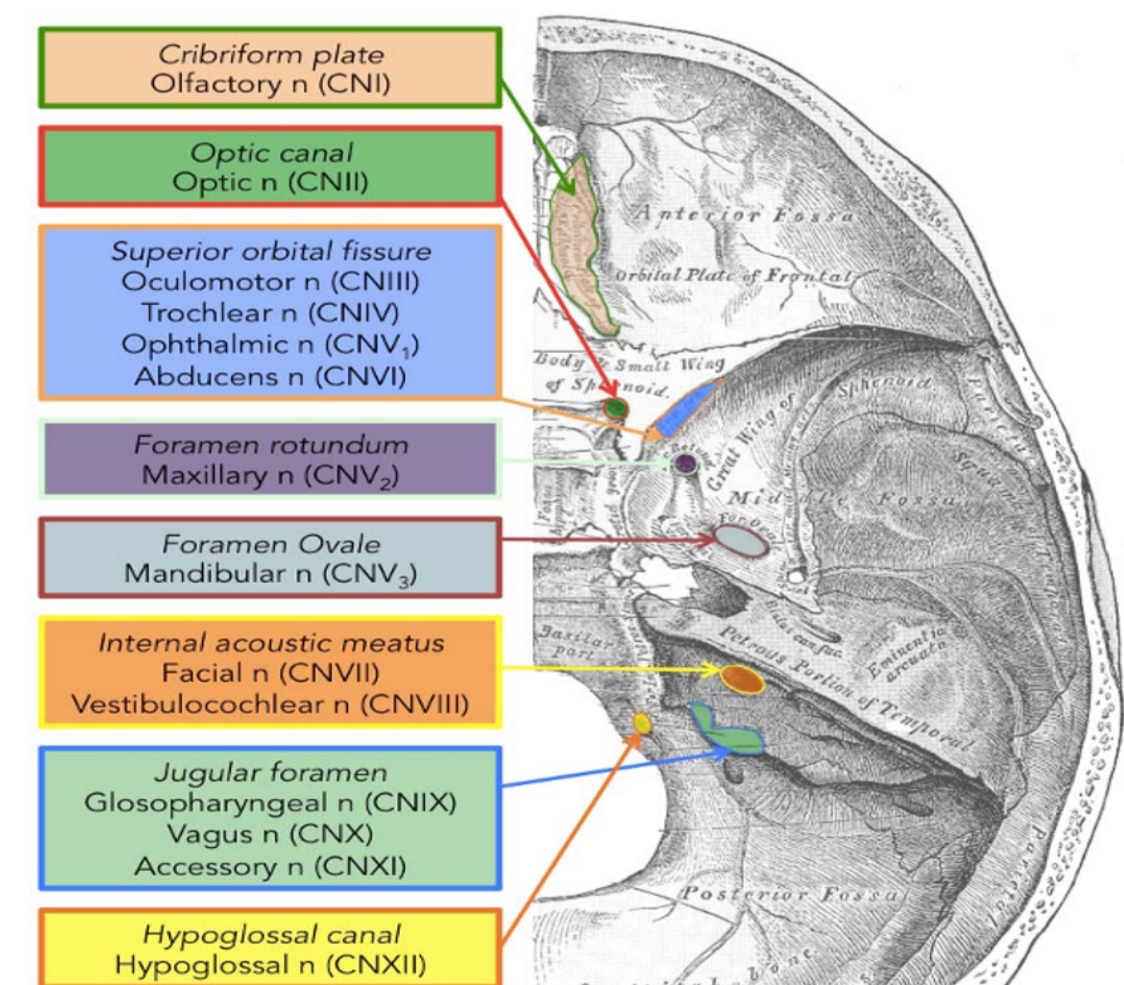
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Introduction

Trigeminal neuralgia is a debilitating disorder characterized by episodic severe pain in the distribution of the trigeminal nerve. The trigeminal nerve block is one modality that has shown efficacy in treating this condition. Many patients benefit greatly from this chronic pain intervention. Although rare, some patients may experience adverse reactions to the block. We present a case of a long-term cancer patient who received a trigeminal nerve block for secondary trigeminal neuralgia. Shortly after the procedure, he developed several clinical neurologic deficits which were at first attributed to complications of the nerve block. Instead, the patient was found to have metastatic extension of his primary malignancy which produced these deficits. In this report, we seek to show how fundamental knowledge of neuroanatomy as well as thorough familiarity with the possible complications of a procedure allows clinicians to accurately diagnose the cause of such neurologic symptoms.



Acknowledgment

This research has been conducted with the support of the Ochsner IRB as well as full informed consent as per Ochsner IRB guidelines.

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FIGURE 1: Sanders K. Summary of the Cranial Nerves Teachmeanatomy.info Last Updated March 30, 2019.

Case Presentation

We present the case of a 73-year-old Caucasian male with a long history of tobacco dependence who was originally diagnosed with laryngeal cancer after presenting with left throat and ear pain to his otolaryngologist. Flexible laryngoscopy at that time demonstrated an erythematous exophytic lesion on his left arytenoid. Further workup with biopsy and fine needle aspiration confirmed supraglottic squamous cell carcinoma. After neoadjuvant chemotherapy and surgical treatment, the patient's malignancy had seemingly stabilized until he was referred for trigeminal pain management with our clinic. On initial assessment at our chronic pain clinic, the patient reported left trigeminal nerve pain which began shortly after his laryngeal cancer debulking 3 months prior. The pain was located along the left side of his face, jaw, eye, and scalp. He described the pain as constant, severe as well as sharp and tingling in nature; the pain was also exacerbated by touching his face. The patient's pain was moderately controlled with Oxycodone 15 mg q4h. It was determined that this patient would be a prime candidate for left trigeminal ganglion block with possible radio-frequency ablation in the future. The patient underwent trigeminal ganglion block as per protocol that same week. The patient tolerated the procedure well.

One week after discharge, the patient presented to the emergency department with a chief complaint of oral swelling. Specifically, the patient had severe tongue swelling and was unable to swallow for the past 4 days. The patient's wife stated that his speech had become mumbled and she was having a hard time understanding him. Due to the temporal proximity of the ED visit to the trigeminal ganglion block, this presentation was originally attributed to be a complication of the nerve block. A consult was placed for interventional pain management, and the patient was thoroughly examined. The neurological examination of the patient showed bilateral tongue and right sided lateral gaze paralysis (contralateral to the procedure side). The pain management team determined that the complication was unlikely to be due to the trigeminal block and work-up for possible cancer recurrence was recommended. The patient's oncologist concurred and the patient was informed of the diagnosis. A conversation concerning end of life care took place. He was subsequently referred to hospice care.

Conclusion

Our patient had a well known history of supraglottic cancer but due to the temporal relationship of his trigeminal nerve pain treatment and emergency room visit, there was suspicion for nerve block complication. We demonstrate that fundamental knowledge of neuroanatomy and complications of peripheral nerve blocks can help clinicians narrow in on a diagnosis. We also show how recognizing focal neurologic deficits and exam signs can lend itself to exclude the incorrect diagnosis. In this case, the patient's neurologic exam did not correlate well with any known injury to neuroanatomical structures in the vicinity of the trigeminal nerve. By recognizing this, the pain management team was able to exclude iatrogenic injury. Our patient was subsequently found to have an extension of a previously diagnosed malignancy causing his abnormal neurologic findings. We hope that this case helps demonstrate the importance of sound knowledge of neuroanatomy and the possible adverse effects of peripheral nerve blocks in the interventional pain management patient.

Introduction

Catfish can be found throughout the world in both fresh and saltwater.¹⁻² They can inflict stings through their spines located on their dorsal and pectoral fins leading to puncture and laceration wounds.³ The spines of catfish contain toxins that can have rare but devastating effects on their victims.

Case Report

- 56-year-old R hand dominant man presented to the ED with right hand pain and swelling 24 hours after being stung by a catfish(**Figure 1**).
- Exam was suggestive of compartment syndrome and patient was taken to the OR for emergent fasciotomies and I&D (**Figures 2-5**).
- Patient developed gangrene to digits which progressed over his hospital course
- POD 1 repeat I&D
- POD 2 cultures grew *Vibrio damsela*
- POD 3 repeat I&D (**Figure 6**)
- POD 10 finger amputation of index and long finger to P1 (**Figure 7**)
- POD 12 wrist disarticulation



Figure 1. Patient's right hand in ED.



Figure 2. Dorsal incisions for interosseal release



Figure 3. Carpal tunnel and thenar release



Figure 4. Hypothenar release



Figure 5. Brunner incision over the volar thumb



Figure 6. Dry gangrene of fingers on POD3



Figure 7. Wet gangrene of fingers on POD 10

Discussion

- Spines on the dorsal and pectoral fins become erect when the fish is agitated.⁴
- Glands in the skin of the catfish as well as at the base and lateral edges of the spine contain toxins.⁵
- These toxins have dermonecrotic, edemogenic, vasospastic, inflammatory, and nociceptive factors.⁶
- Trauma from the sting itself introduces native aquatic bacteria into the wound.
- Treatments include hot water soaks, local or regional anesthesia, calcium channel blockers, antibiotics, I&Ds.^{1,7}
- No previously reported cases of compartment syndrome of the hand after a catfish sting

Conclusion

The combination of venom inflicted from the catfish sting, *Vibrio damsela* infection, and late presentation led to the eventual wrist disarticulation seen in this patient. In addition, previous stings endorsed by the patient may have resulted in a significant immune response such as a hypersensitivity type reaction.

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Introduction

- Spontaneous intracranial hypotension (SIH) is an increasingly recognized cause of secondary headache¹⁻³.
- Cranial nerve palsies are associated with SIH, with CN VIII as the most commonly reported and less frequently III, IV, and VI¹.
- Hemifacial spasm refers to unilateral and involuntary contractions of the facial muscles⁴⁻⁶.
- It is often caused by facial nerve demyelination from aberrant vascular contact at the nerve root exit zone, akin to classic trigeminal neuralgia, although there can be other etiologies⁷⁻⁸.
- This report is the first described case in the literature of hemifacial spasm secondary to SIH.

Case Report

- In 2017, a 63 y/o F developed new onset headaches which would start abruptly in the upper neck and radiate “shocks” to the occiput. They were uniquely triggered by bending over and Valsalva maneuvers and were associated with ear fullness.
- The patient was diagnosed with tension headaches and occipital neuralgia. Diet, exercise, and weight loss mildly improved her initial headaches.
- In 2019, she developed right periorbital twitching, right lower face weakness, and a “pulling” sensation in her right lower face which would occur multiple times per hour throughout the day and worsen towards the end of the day.
- The patient would experience improvement upon waking up from sleep in the morning. She also developed dizziness, hearing difficulty, and subjective memory impairment.
- A diagnosis of Bell’s Palsy and steroid treatment was administered without improvement.
- The patient presented to Dr. Fermo for a second opinion. On exam, there was mild weakness of the right lower face overcome with activation. There were also continuous contractions in the right periorbital and perioral regions at rest, and more so with activation. Her exam was otherwise unremarkable, including a normal eye exam.

Radiographic Findings

- MRI of the brain with and without contrast demonstrated diffuse, smooth pachymeningeal enhancement, engorgement of the venous sinuses, pituitary engorgement, cerebellar tonsillar ectopia, and signs of brain “sagging” (**Table 1**), highly suggestive of intracranial hypotension²⁻⁷. There were no aberrant vessels near the CN VII root zone.

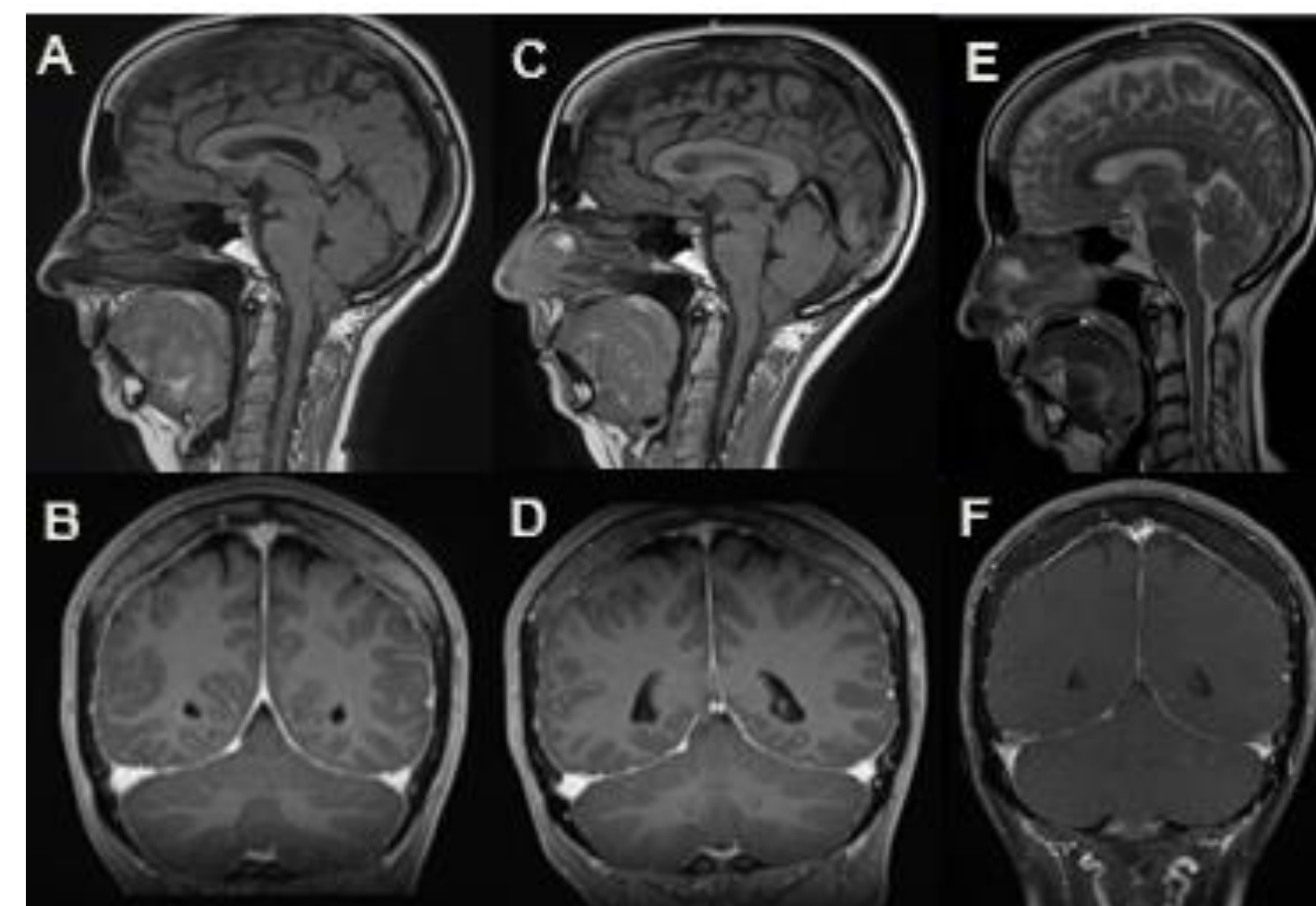


Figure 1. T1 sagittal and coronal MRI brain with contrast before treatment (A,B) after blind EBP (C,D), and after targeted EBP (E,F).

Table 1. Key radiographic signs of SIH and their change in response to EBP.

Radiographic Signs of Intracranial Hypotension	Brain MRI 7/22/19 (Before treatment)	Brain MRI 9/5/19 (After first blind EBP)	Brain MRI 2/12/20 (After second blind EBP and one targeted EBP)
Engorged Venous Sinus	Yes	Yes	No
Pachymeningeal Enhancement	Yes	Yes	Yes – improved
Subdural Collections	No	No	No
Suprasellar Cistern (abnormal < 4 mm)	< 4mm	< 4mm	< 4mm
Prepontine Cistern (abnormal < 5 mm)	1.6 mm	2.3 mm	3 mm
Mamillopontine Distance (abnormal < 6 mm)	3.4 mm	4.8 mm	5.2 mm
Descent of Iter below Incisural line	8.1 mm	7.7 mm	6.6 mm

Treatment and Outcome

CT myelogram of the spine showed perineural cysts at C6-7, C7-T1, T1-2, T8-9, and T10-11 neuroforamina. Multiple large, irregular, cysts were suspected to be the site of CSF leak and were the target of several epidural blood patches (EBP). Follow up brain MRI showed near-resolution of brain sag, pachymeningeal enhancement, and of venous sinus engorgement (**Figure 1**). The patient also received botulinum toxin, clonazepam, and baclofen with resolution of her hemifacial spasm and headache.

Discussion and Conclusion

- SIH causes traction, compression, displacement or congestion of critical brain structures, leading to symptoms¹⁻⁴.
- Improvement of spasm “attacks” and radiographic improvement of brain sag and cerebral venous congestion after targeted EBP suggests that downward traction on CNVII and sub-radiographic venous congestion close to the nerve root were the most likely initial mechanisms of the patient’s hemifacial spasm^{2-4,5,7}.
- This is further supported by the original history of end-of-day symptoms and improvement of symptoms with sleep reflecting greater CSF leakage with prolonged upright posture akin to end-of-the-day headache⁹.
- SIH is a condition that can present in a highly variable manner. When investigating the etiology of atypical headaches, SIH and its physiologic effects on other structures within the CNS must be considered. Neuroimaging allows for precise characterizations of SIH, and EBP is an effective means of treatment of SIH.**

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Dual Thoracic and Caudal Epidural Catheters for Abdominoperineal Resection: A Case Report on a Novel Approach for Postoperative Analgesia

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Background

- Abdominoperineal resection (APR): surgical excision of the sigmoid colon, rectum, and anus, and the construction of a permanent end colostomy¹
 - Performed for patients with a distal rectal cancer
- Recent years: Epidural analgesia recommended for open colorectal surgery
- APR surgical sites= Non-contiguous dermatomes (sacral and thoracic)
- Double catheter method shown effective in large abdominal exploratory laparotomies²
 - This is the first time this therapy has been reported for APR

Case Description

- Patients: A= 55 yo M, 61 kg ; B= 34yoF, 73kg
- Pre-surgical diagnoses: Rectal Cancer (Both)
- At PACU: Infusion programmed to 2mg/ml of ropivacaine-- basal rate of 4mL/hour caudally and 6mL/hour thoracically
 - PCA dose- 2mL, lockout time- 30min
- PACU multimodal Protocol
 - Preoperative/ postoperative gabapentin, preop celecoxib, intraop/ postop low dose ketamine infusion
- A's 6-day post-op: Total 1,000 mg PO tramadol
 - 1/2 after no caths on Post-Op Day 5
- B's 6-day post-op: Total 105mg PO oxycodone
 - More after no caths on Post-Op Day 4
- Neither pt breakthrough pain post-op Day 1
- Neither pt need more beyond PO analgesics
- Neither need morphine (atypical)

Methods

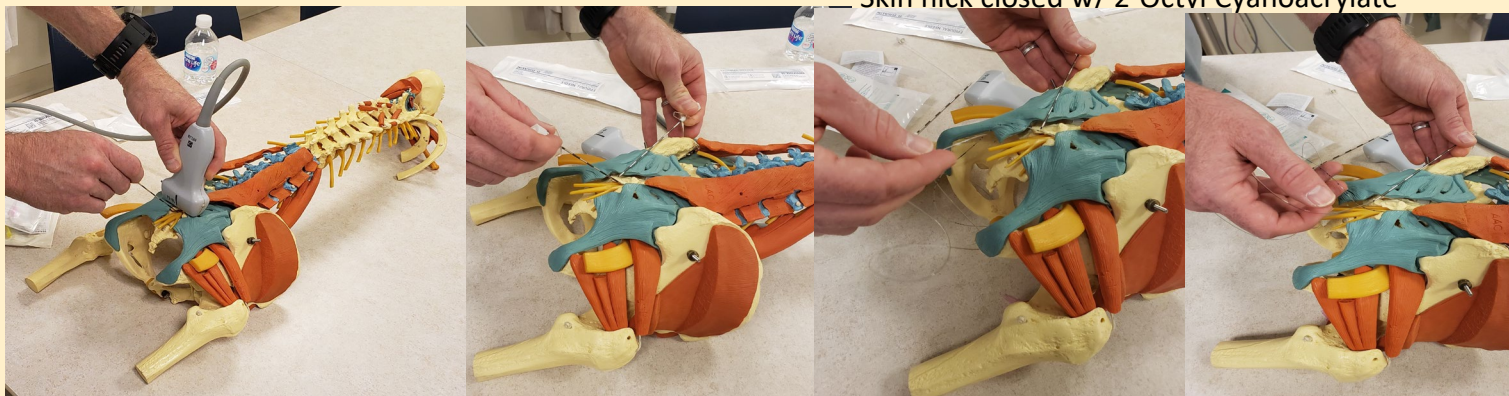
- Patients positioned in the left lateral decubitus
- T10 epidural placed via right paramedian approach
 - Used loss of resistance to air and saline
 - 17g Touhy needle, 19g epidural catheter
- Caudal catheter placed using ultrasound (US)
 - 40mm footprint high freq linear probe
 - Sacral cornu via transverse plane thru hiatus
 - 17g Touhy needle, 19g epidural catheter
- US visualization of satisfactory spread of injectate
- Touhy withdrawn but left in subq space
 - Technique to protect in tunneling
- 2nd 17g Touhy inserted near right PSIS
 - Directed subq to needle- place caudal cath
- 1st needle completely withdrawn
- Cath passed retrograde thru 2nd tunneled Touhy
- 2nd needle w/drawn
- Skin nick closed w/ 2-Octvl Cyanoacrylate

Conclusions

- Advanced regional anesthetic technique for non-contiguous surgical site dermatomes
- Req's experience for placement
- Req's extra time preop
- Other Techniques considered:
 - Thoracic epidural w/ IV PCA
 - Likely increased opioid usage, comparatively³
 - Thoracic epidural hydrophobic opioid
 - Increased opioid side effects from systemic absorption⁴
- Epidural anesthesia administration w/ add'l local anesthesia at perineal site
 - Long post-op recovery for APR

Photos Right to Left

- Out-of-Plane needling position
- Touhy needle slightly withdrawn over the catheter, but left in the subcutaneous space to protect the catheter during tunneling
- Tunneling Technique
- Final Step Tunneling



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Periorbital Myxedema Treated with Intralesional Hyaluronidase

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Introduction

- **Orbitopathy with periorbital edema:**
 - Seen in about 25% of patients with Graves' disease (GD)¹
 - Also known as Graves' orbitopathy (GO)
 - *What is it?:* Extraocular muscle enlargement with orbital fat expansion²
 - *Pathophysiology:* active inflammatory phase and a chronic fibrotic phase associated with glycosaminoglycan deposition, including hyaluronic acid (HA)³
- **Management:**
 - No treatment options targeting the underlying pathogenesis of Graves' eye disease (GED) until January 2020 when the FDA approved teprotumumab
 - Requires a team approach
 - Includes restoring the euthyroid state, treating the active disease with procedures, prescribing immunomodulators, and modifying risk factors^{1,3}
- **Hyaluronidase:**
 - *What is it?:* An FDA approved enzyme that breaks down hyaluronic acid
 - *Uses?:* Adjunct to local anesthesia in ophthalmology and to correct HA filler complications⁴
 - Has been used with success to treat severe pretibial myxedema⁵

Case Report

- **History of the Present Illness (HPI):**
 - A 45-year-old woman with a 10-year history of GD
 - Initially treated with radioactive iodine
 - Now maintained in a euthyroid state with levothyroxine
 - Presents with gradual upper and lower eyelid swelling over 10 years (Fig. 1)
 - Diagnosis: periorbital myxedema with dermatopathy
- Equipped with experience using hyaluronidase to treat complications following HA fillers, the patient was educated on and offered a trial of intralesional injection with hyaluronidase (ILH)
 - **Methods:**
 - An established protocol of 10 units of hyaluronidase per 0.1 cc of estimated hyaluronic acid was used based on the amount of skin distortion^{4,6}
 - A total of 120 units of hyaluronidase (Vitraxe) mixed 1:1 with xylocaine with epinephrine (1:100,000) was injected into the dermis and subcutis of each lesion (based on standard use of hyaluronidase used for removing HA fillers)
 - The hyaluronidase was injected in the subcutis with approximately 0.1 cc per each involved centimeter
 - **Results:**
 - Some immediate improvement was noted
 - No adverse effects reported except swelling and mild bruising
 - Increased improvement over 7 days which persisted for one year after the treatment (Fig. 2). She will pursue further treatment with ILH as desired.

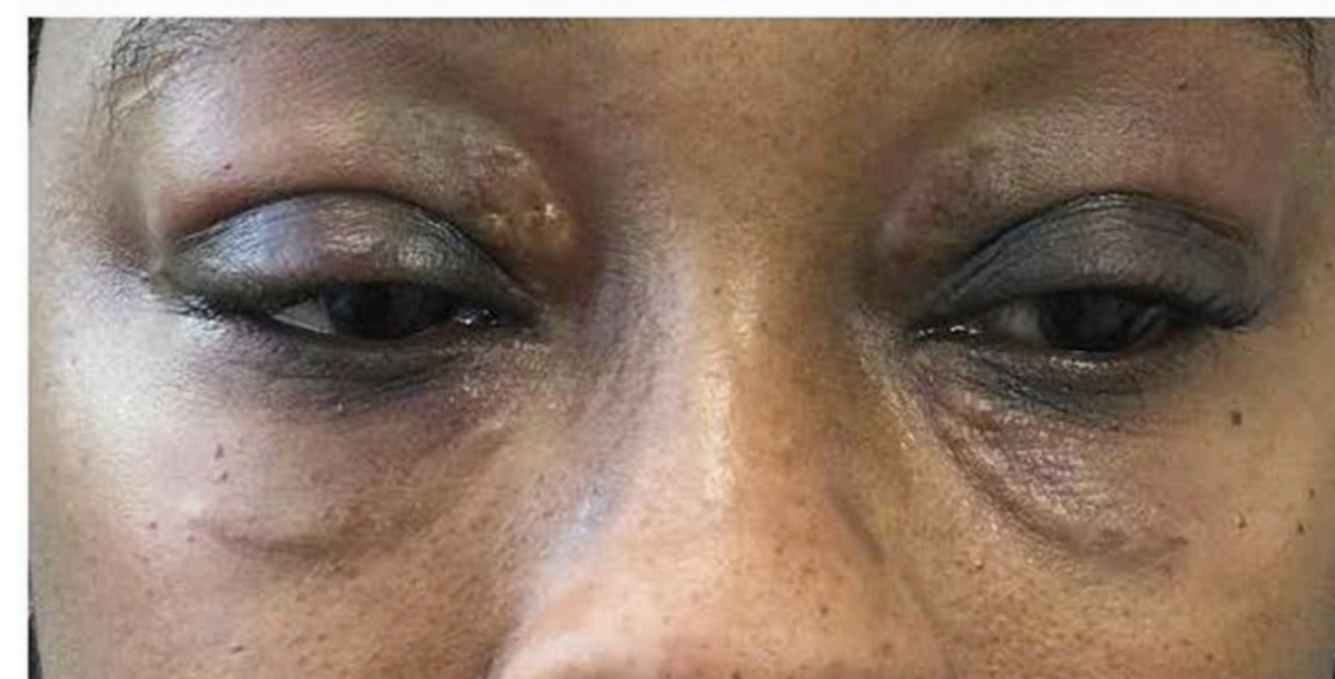


Fig. 1. Patient at presentation with persistent periorbital myxedema.

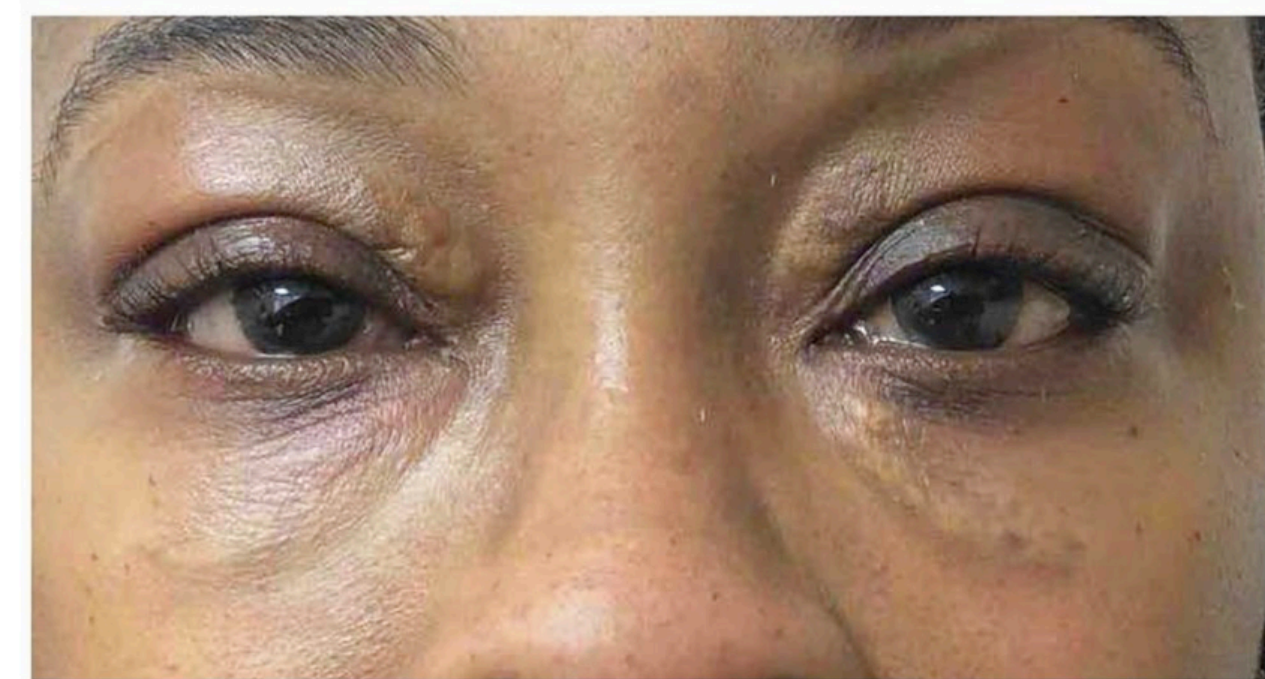


Fig. 2. Patient at 7 months following one treatment with intralesional hyaluronidase 30 units to each tear trough/lower lid and 30 units each to medial upper lid.

Discussion

- Late stage periorbital myxedema is most commonly seen with GED in Graves' Disease
 - Difficult to treat and may exacerbate or not improve with treatment of the underlying condition¹
 - Can cause ocular debilitation and the cosmetic appearance is usually very concerning for patients
- ILH gave our patient with GED persistent and excellent cosmetic improvement as a simple in-office procedure
 - Hyaluronidase is very easy to administer
 - Few adverse effects
 - Swelling, erythema and mild itching occur in 25% of patients^{4,6}
 - Very rarely, anaphylaxis and angioedema can occur with non-human preparations of hyaluronidase^{4,6}
 - Observation after injection and/or a pretreatment skin test may be done as needed^{4,6}
- **Conclusion:** ILH is a possible safe and effective treatment for refractory cases of periorbital myxedema. More studies are needed to determine generalizability, injection scheduling, dosing and duration of effect

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SCAN ME

Cutaneous Scar Outcomes

A Case Series of Secondary Intention Healing Following Mohs Micrographic Surgery

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Introduction

- While Australia consistently holds the highest rates of non-melanoma skin cancer, the incidence in the United States rose by 77% between 1994 and 2014.¹ These increased rates indicate the importance of finding techniques to effectively treat skin cancers as well as restore function and natural appearance to our body's protective barrier.
- Definitions:
 - Mohs Micrographic Surgery (MMS)**
 - Current first-line treatment for high risk non-melanoma skin cancers²
 - Consists of precise staged removal of the least amount of tissue necessary to eradicate the cancerous cells, followed by mapping of tissue borders after each stage using frozen sections²
 - Wound depth, location and size as well as patient preferences are considered when choosing the appropriate closure technique
 - Secondary Intention Healing (SIH)**, also known as 'granulation'
 - Open wound healing upwards from the base, without the use of sutures or other closure techniques
 - A technique that has fallen out of favor with modern Mohs surgeons
 - Other surgical closure options:
 - Primary linear closure – edge-to-edge apposition of defect using sutures
 - Flaps – skin moved from an adjacent area to cover the defect
 - Grafts – skin taken from an area of the body and transplanted to the defect
- Life-expectancy, post-surgical facial function, and appearance are major concerns for patients undergoing MMS³
 - One study found that those with visible facial scars become more self-conscious of onlooker gaze.⁴ The study also found that 50% of patients would risk a 7% chance of death over having a facial scar.⁴
- The arrival of these nuanced surgical repairs changes the question of “can we provide better outcomes?” to “why isn't this standard practice?” This paper reviews the outcomes and satisfaction levels of patients who underwent SIH following MMS

Methods

- Fifteen patients presented with non-melanoma skin cancer(s) previously qualified for removal with MMS and deemed favorable for SIH by both patient and surgeon
- Post-Procedure Care:
 - Pressure dressings consisting of mupirocin ointment, gauze, and skin tape were applied and kept on the cauterized wound for 24 hours
 - At home, patients removed the dressing twice a day, gently cleansed the site, then covered the wound with a topical emollient and new dressing
 - After two weeks of this process, patients returned for wound debridement (if necessary) and assessment of the new tissue growth.

Results

- Favorable cutaneous scar outcomes were observed following MMS in patients whose wounds healed via SIH. Figures 1 - 4 serve as examples of the results.



Figure 1: Left: Wound on left inferior temple following basal cell carcinoma removal via MMS (2 stages) on October 7, 2019; Right: Well-healed scar at follow-up 3 months later on January 15, 2020



Figure 2: Left: Wound on philtrum following morpheaform basal cell carcinoma removal via MMS (3 stages) on June 24, 2019; Right: Well-healed scar at follow-up 4 months later on October 30, 2019



Figure 3: Left: Wound on nasal dorsum following squamous cell carcinoma removal via MMS (1 stage) on July 1, 2019; Right: Well-healed scar at follow-up 2 months later on September 4, 2019



Figure 4: Left: Wound on left ear following basal cell carcinoma removal via MMS (2 stages) on March 9th, 2020; Right: Well-healed scar at follow-up 5 months later on August 3rd, 2020

Discussion

- Evidence suggests scar phenotypes might be dictated by balancing pro- and anti-inflammatory elements during tissue healing. Therefore, reducing inflammation and wound tension promotes favorable scar outcomes.^{5,6}
- SIH does not require closing materials and is advantageous over other closure techniques because:
 - Placing sutures causes increased inflammatory reactions and an increased risk for unpleasant scarring^{7,8}
 - Compared with primary closure, SIH is a quicker procedure and more cost effective for patient and hospital. It also spares more healthy tissue than alternative techniques.
 - There is reduced skin tension which lessens post-surgical activity restrictions
 - SIH allows for easy future revisions if necessary

Conclusions

- Study conclusions:**
 - Appropriately utilizing SIH when post-surgical wounds are superficial, small, and relatively uncomplicated provides favorable scar formation outcomes, patient satisfaction, and increased quality of life
 - SIH is procedurally time- and cost-effective which is important in patient-focused care
- We acknowledge there are defects with characteristics that will necessitate primary intention healing in which subsequent scar treatment may be beneficial
- Future research potential:**
 - Elucidate the relationship of inflammatory marker ratios between suture placement and SIH
 - A case-control study to assess and standardize patient satisfaction using sutures versus SIH for defects of similar sizes, depths, and locations.

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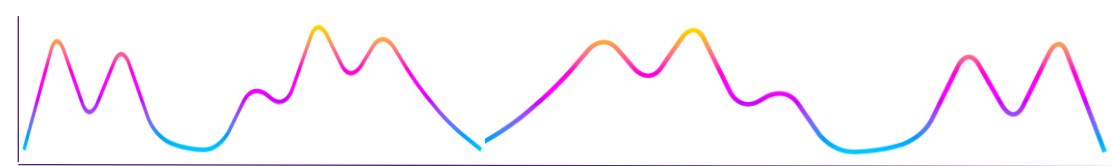
Managing Symptoms in Multiple Sclerosis using Scientific Insights from N-of-1 Studies: A Pilot Series of N-of-1 Observational Studies

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Background

- Around 65-80% of people with Multiple Sclerosis (MS) experience severe fatigue, among a variety of other chronic symptoms¹⁻³.
- Symptoms experienced by people with MS vary **between** individuals and **within** individuals over time in type and severity.
- Existing research has used group-based research designs to study MS symptoms, their patterns and predictors for people with MS **on average**, but this may be **unique** to each individual.
- Quantitative N-of-1 studies can provide necessary insight into the heterogeneity in MS and guide **personalised** interventions for managing symptoms.
- Quantitative N-of-1 studies involve **repeated measurement of an outcome** over time in the same individual⁴.
- N-of-1 studies can provide **individual-level empirical insights**, which may help people with MS with managing their condition.



Study Aim

- This study aims to assess the **feasibility** and **acceptability** of using N-of-1 studies to explore symptom patterns and predictors in people with MS.

Method

Design: This study is a series of quantitative N-of-1 observational trials lasting 6-12 weeks.

Participants: Up to 20 adult (>18 years) volunteers with a pre-existing medical diagnosis of MS are eligible to participate.

Procedure: Participants will complete an enrolment questionnaire collecting data about symptom severity (SymptoMScreen⁵), fatigue severity (Modified Fatigue Impact Scale – MFIS⁶), impact of MS on daily life (Multiple Sclerosis Impact Scale - MSIS-29⁷) and extent of disability (Expanded Disability Status Scale – EDSS⁸). An in-depth discussion about the participant's symptoms and triggers will inform individualised daily questionnaires for the data collection period.

During the data collection period, participants complete a questionnaire three times per day collecting data about:

- **Symptoms:** fatigue, stress, mood and participant-selected symptoms.
 - **Triggers:** physical activity (measured objectively), cognitive activity, stress, sleep, mood, and participant-selected triggers.
- After completion, participants are provided with highly personalised feedback about their data and invited to participate in a semi-structured interview to elicit views about participation.

Materials: Participants are prompted to complete questionnaires three times daily about symptom severity and triggers via a 'PRO-diary' (see Figure 1), an electronic diary with integrated accelerometer.



Figure 1. PRO-Diary (CamNtech, Ltd.; Cambridge, UK)

Analysis: Rates of participation, attrition, questionnaire completion and feedback from the acceptability interview will be assessed to determine feasibility and acceptability. Quantitative N-of-1 data will be analysed individually to determine symptom patterns and predictors using Bayesian time series analysis.

Preliminary Results

- Six patients have been recruited to date and two have commenced data collection. Figure 2 displays participant characteristics.
- Each participant has a different constellation of symptoms and identified a number of "most troubling" symptoms that differ across the sample (e.g. fatigue, lack of concentration, weakness, numbness, loss of physical capability, foot drop, short term memory loss, balance issues and cognition issues). Symptom triggers included temperature (heat), alcohol, stress, tiredness, physical and mental activity.
- Pilot testing and preliminary findings show that participants are highly engaged with the study procedures and enthusiastic to obtain detailed feedback about their condition at the end of the data collection period

ID	Sex	Age	Work Status (hours/week)	Diagnosis (year)	Fatigue Severity (MFIS) ⁶	Disability (EDSS) ⁸
1	F	43	50 hours	2014	22	4
2	F	36	Not working	2013	63	6
3	F	58	Not working	2010	50	7
4	F	36	30 hours	2017	64	5
5	F	37	40 hours	2017	56	3
6	F	41	Not working	2009	16	2.5

Figure 2. Participant Characteristics

Anticipated Outcomes

- This study will provide **novel insight** into the patterns and predictors of symptoms experienced by MS patients at the individual level.
- Participant compliance and feedback will inform the **feasibility** of N-of-1 study procedures in patients with MS.
- The findings will provide crucial information about the **value** of N-of-1 studies in identifying factors associated with symptom exacerbation in patients with MS.
- By providing objective, detailed and rapid feedback, N-of-1 studies may display **clinical utility** in informing highly personalised interventions for MS symptom management.

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Novel Dextrocardia with Transposition of Great Arteries in Cri Du Chat Syndrome

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INTRODUCTION

Cri Du Chat Syndrome also known as 5p deletion syndrome. It occurs in an estimated 1 in 50,000 newborns [1].

Heart defects described have thus far been ventricular septal defect, Patent Ductus Arteriosus, Tetralogy of Fallot, pulmonary valve atresia with ventricular septal defect, pulmonary valve stenosis, and double-outlet right ventricle.

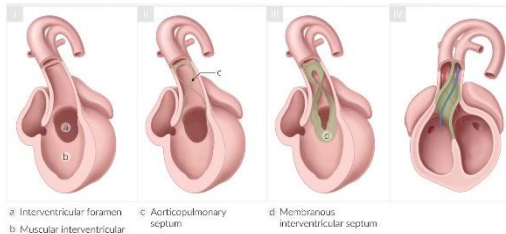


Figure 1: Normal Embryonic Development [2]

Transposition of great arteries have not been described in CdCS. Which is a failure of the aorticopulmonary septum to separate causing completely unconnected systemic and pulmonary circuits resulting in cyanotic disease.

CASE HISTORY

The patient is a PEG tube dependent 15-month-old girl with known CdCS diagnosed in utero. She presented with unresolvable emesis. Her baseline with oxygen saturation in the 70s. Born at 35 weeks 3 days APGARs: 2; 7; 9. At birth she was diagnosed with sinus inversus with dextrocardia-transposition of great arteries with an atrial septal defect. She was not expected to survive for more than 6hrs and was discharged to hospice from NICU.

EXAMINATION

Characteristic morphological features of CdCS: hypertelorism, round facies, micrognathia, frontal bossing. Oxygen saturation was at 76%, with significant central and peripheral cyanosis. Cardiac exam revealed a 4/6 systolic murmur heard on the right sternal border and a global wheeze.

INVESTIGATIONS

Cardiac Catheterization was done to evaluate for an arterial switch operation results are shown in Figure 2.

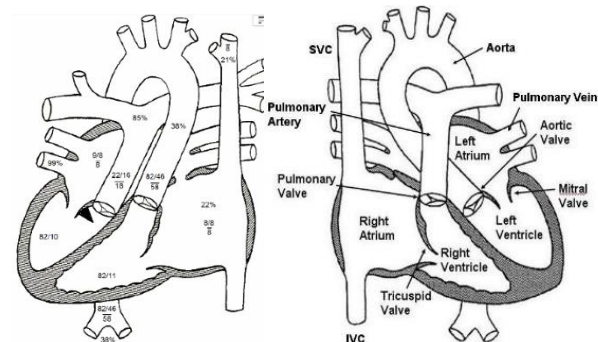


Figure 2: Cardiac Catheterization results depicting dextrocardiac anatomy with TGA as well as an aberrant cardiac papillary in right ventricle and significant ASD, pressures noted. With normal cardiac image on left [3]

The cardiac procedure with an aberrant papillary muscle located at tricuspid valve complicated the correction as the resulting repair would have significant turbulent flow, it was decided that this would not be beneficial for our patient.

DISCUSSION

This variation in cardiac phenotype, transposition of great arteries has not been reported before in patients with Cri du Chat Syndrome. Further the aberrant papillary muscle was an additional variation. Prior to this, abnormal development and malalignments causing congenital defects were reported. This is the first case to report failure for the aorticopulmonary septum to spiral in patient with Cri du Chat syndrome.

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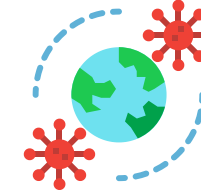
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A Project Protocol: Efficacy of Psychological First Aid Training for Teachers Returning to School During the COVID-19 Pandemic

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Background

- Psychological First Aid (PFA) is a method of mental resilience training for individuals experiencing tragedies such as pandemics, natural disasters and violence. Benefits of PFA include reduction of acute stress, long-term stress and anxiety disorders. (1)
- The efficacy of applied PFA has been widely studied amongst medical workers and first responders, however a knowledge gap exists in PFA's application to educators.
- There are many methods of implementing PFA. One easily accessible method is the *RAPID* model, introduced by Johns Hopkins University in 2014, described in brief below (2):

RAPID model from Johns Hopkins

Reflective listening: building rapport through active listening

Assessment: determine who needs help

Prioritize: psychological triage of individual's needs

Intervention: apply stabilization and stress mitigation techniques

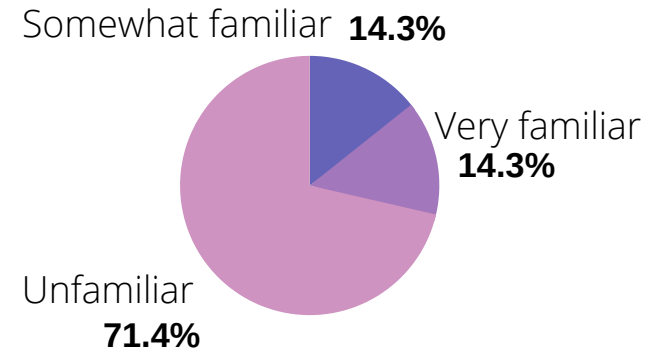
Disposition: follow-up with individual

Significance

- Reduction of acute stress and long term mental health disorders is an area of that requires focus as teachers and students return to school during the COVID-19 pandemic.
- The benefits of PFA experienced by medical workers and first responders may be also be accessible to educators.
- A simple intervention, such as a workshop, may have long-term benefits in reducing the stress associated with returning to school during a pandemic.

Before workshop:

How familiar were you with PFA?

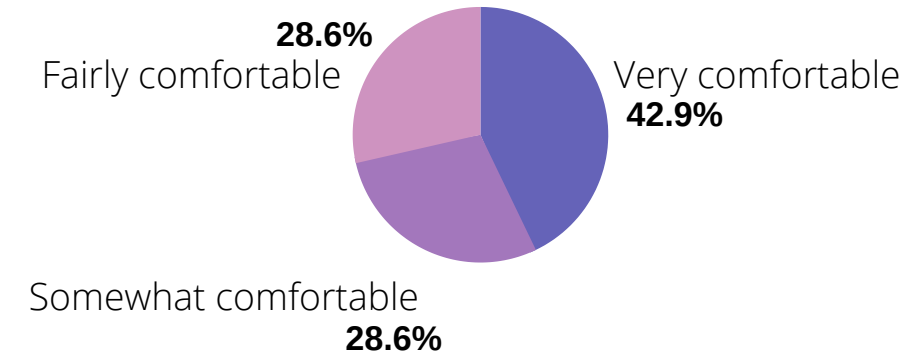


Methodology

- A brief literature review was conducted with an aim to 1) identify benefits of PFA implementation and 2) look for populations in which PFA has been successfully implemented.
- Our project protocol is to measure the efficacy of an instructional workshop in improving teacher's confidence in PFA utilization in the classroom. The workshop is 60 minutes in duration and held in video format. It is taught by two researchers using role play scenarios based on the RAPID model of PFA.
- The role play scenarios feature 5 prototype teachers who encounter students undergoing COVID-19 related distress in the classroom.
- Attitudes toward PFA among teachers before and after the workshop were measured by a self-reported Google Document survey
- The outcome of interest in the survey is perceived ability among teachers to use PFA skills learned in workshop in their classrooms

After workshop:

How comfortable are you using PFA?



Findings

- A small pilot survey was issued to 14 teachers who attended the PFA workshop described in the methodology. The results of the survey indicate that teachers who were previously unfamiliar with PFA felt comfortable using it in their classrooms after attending the 60 minute workshop.

Conclusion

- Although our pilot project was small, its results are encouraging. Our next step is to offer the workshop to a larger population of teachers and collect surveys accordingly. The researchers hope teachers will gain confidence in using PFA to reduce stress during this unprecedented time in education.

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