

## Introduction

Post traumatic stress disorder (PTSD) is a mental health disorder caused by a significant stress response of a perceived traumatic event. Symptoms of PTSD include ongoing re-experiences of the traumatic event, avoidance of triggering stimuli, and hyper aroused states. Patients with PTSD may experience chronic pain as a result of dysregulation of neurobiological substrates altering pain transduction pathways and pain processing mechanisms mediated by the central nervous system. Substance abuse is a common problem in patients with PTSD to manage both physical and emotional symptoms. Battlefield acupuncture (BFA), a subset of acupuncture available only to active and veteran military personnel, may be an alternative tool to manage pain for more effective physical therapy treatment of chronic pain.

## Patient History/ Systems Review

- 57 y.o. male with chronic neck and low back pain
- Symptoms increase with functional movement, including bed mobility, transfers, pushups, pullups, pull downs, and sit ups, limiting his ability to engage in physical exercise
- PMH: BMI 30, PTSD, sleep disorder, impaired fasting glucose, hyperlipidemia, benign prostatic hyperplasia, gastroesophageal reflux disease, sacroiliac inflammation, shoulder joint pain, chronic low back pain, history of colon polyp, umbilical hernia, and seborrheic dermatitis
- Prescription opioids were contraindicated in this patient due to history of chronic substance abuse

## Examination

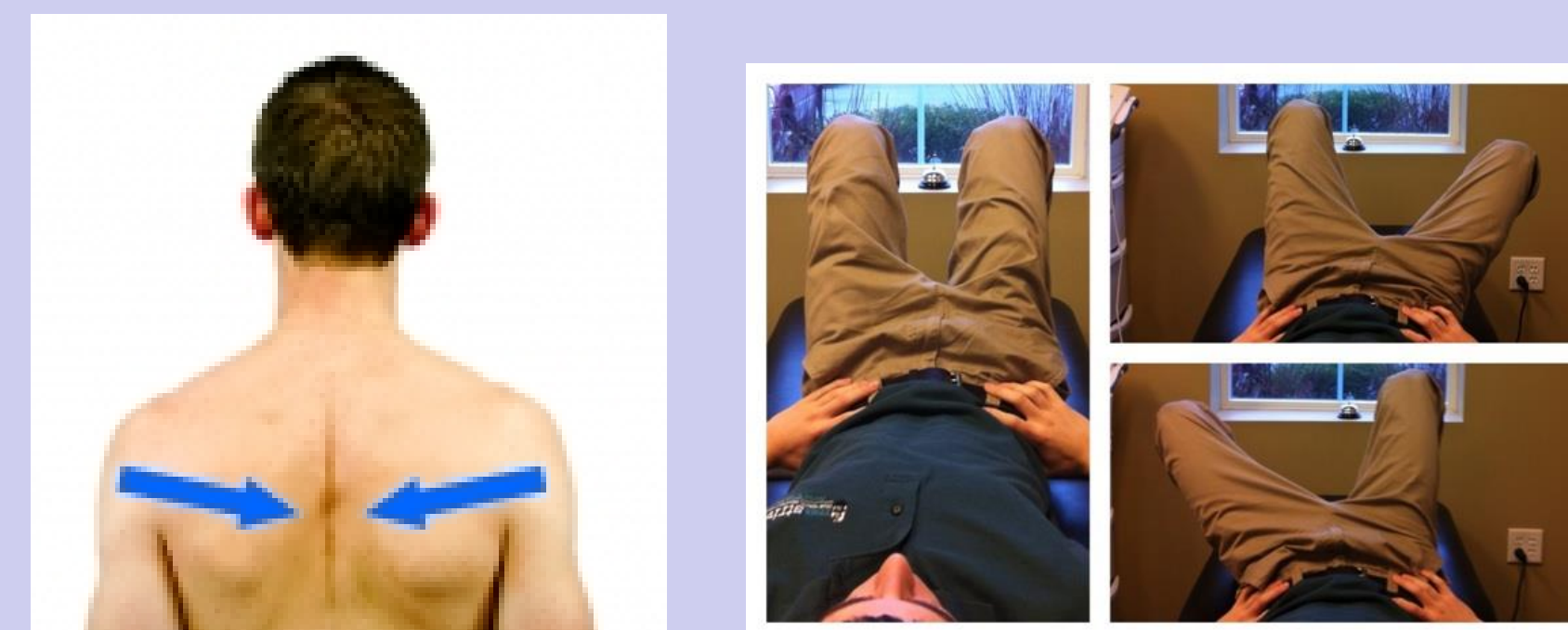
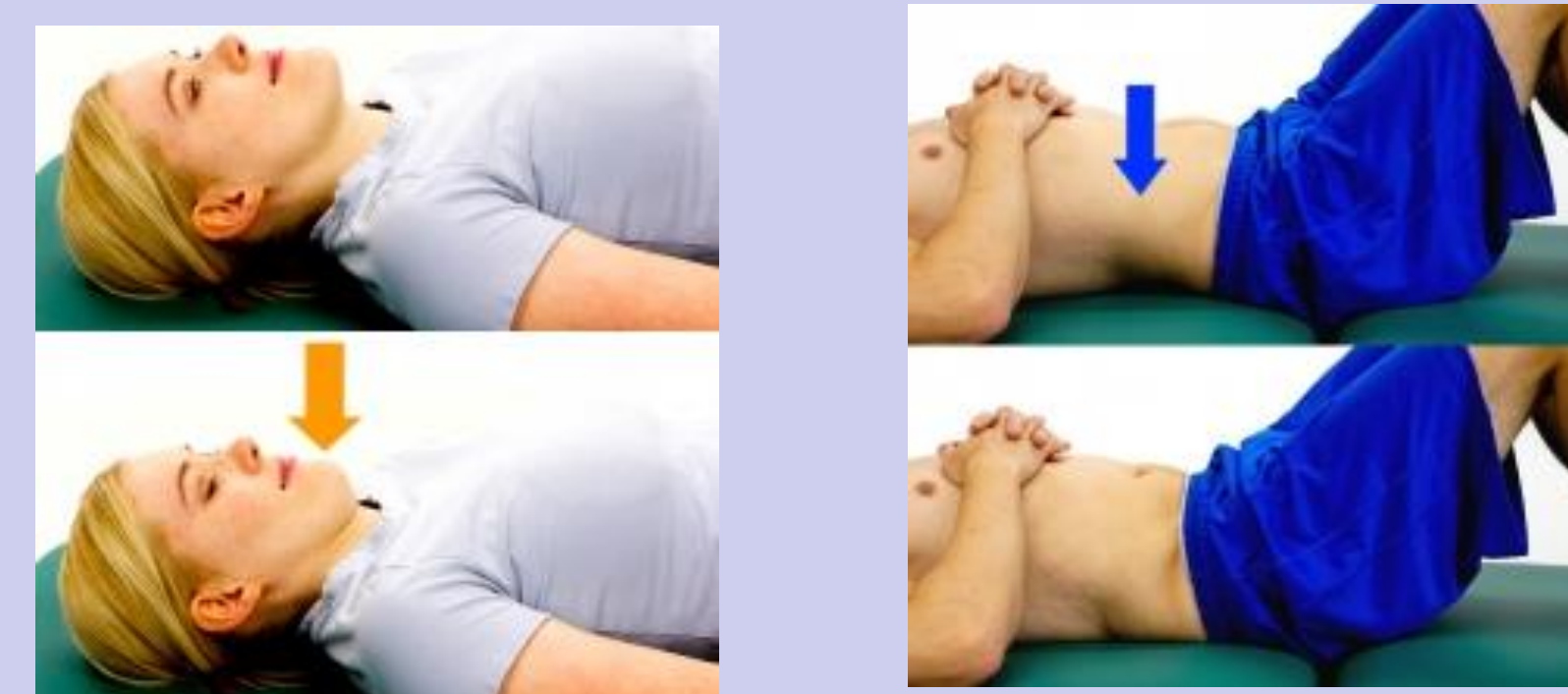
- Completed NDI and Oswestry each scored 25/50 (50%), indicating severe disability each
- General limitation of cervical and lumbar segmental mobility and pain with cervical and lumbar AROM
- Weakness in C6-C7 and L4-L5 key muscles, diminished C7 DTR BIL
- Cervical soft tissue dysfunction with active trigger points BIL and postural imbalances
- Core weakness and poor motor planning demonstrated by double leg lowering test
- Excessive pain with functional movement upon observation

## Clinical Impression

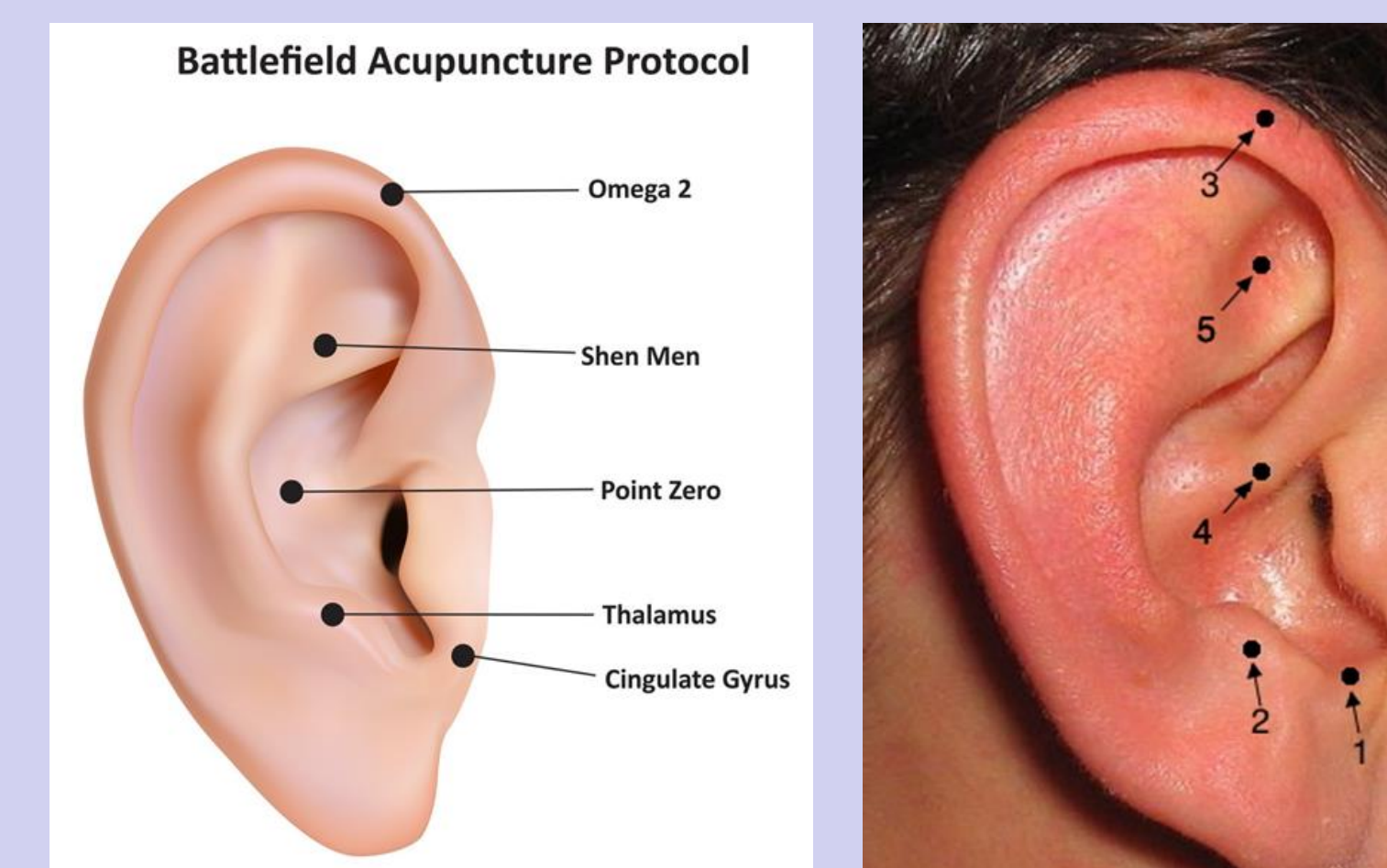
- Diagnosis: ICF- neck pain with mobility deficits and low back pain with movement coordination impairments
- Problem List: soft tissue dysfunction, postural imbalances, poor biomechanics, core weakness, and poor motor planning of core and postural muscles
- Examination findings indicated cervical and lumbar musculoskeletal impairments as the structural cause of functional limitations
- Prognosis of the patient was complicated by fear avoidance behaviors in anticipation of pain and hyper reactive neural response to painful stimuli, likely associated with PTSD
- Patient was referred for BFA treatment in conjunction with PT intervention after 5 PT visits without improvement as an alternative for pain management
- Patient began BFA after 10 PT visits due to scheduling limitations of a shared medical appointment

## Intervention

- Initial PT intervention focus on lumbar stabilization of the transverse abdominis and strengthening of the deep cervical flexors with and without limb movement in supine
- Active trigger point release performed for cervical soft tissue dysfunction
- Segmental mobilization of cervical spine
- BFA intervention performed by a trained physician in a private room
- Interdisciplinary education on pain management by therapy, mental health, and nutrition departments in a group setting
- Full BFA treatment was performed according to the established protocol
- Patient demonstrated increased stress response prior to the first BFA and experienced increased pain with plug insertion



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## Outcomes

Reported Pain Scale	Initial PT Evaluation	Post- PT (10 visits)	Pre- BFA 1	Post- BFA 1	Pre- BFA 2	Post- BFA 2	Post- BFA + PT 2	Pre - BFA 3	Post- BFA 3
Cervical	5-7/10	6/10	6/10	0/10	4/10	0/10	3/10	7/10	0/10
Lumbar	5-7/10	4/10	6/10	0/10	4/10	0/10	3/10	3/10	0/10

Oswestry		Neck Disability Index	
Initial PT Evaluation	Post- BFA + PT Intervention 2	Initial PT Evaluation	Post- BFA + PT Intervention 2
25/50 = 50%	22/50 = 44%	25/50 = 50%	22/50 = 44%

Cervical Range of Motion	Initial PT Evaluation	Post- PT Intervention (10 visits)	Post- BFA + PT Intervention 1	Post- BFA + PT Intervention 2
Flexion	30°	25°	21	36°
Extension	15°	20°	11°	12°
Left side bending	15°	18°	-	16°
Right side bending	10°	10°	-	14°
Left rotation	20°	-	20	16°
Right rotation	20°	-	32	20°

Lumbar Range of Motion	Initial PT Evaluation	Post- PT Intervention (10 visits)	Post- BFA + PT Intervention 1	Post- BFA + PT Intervention 2
Flexion	80°	15°	12°	12°
Extension	15°	8°	10°	10°
Left side bending	15°	10°	8°	4°
Right side bending	15°	10°	8°	4°

## Discussion

- The patient reported less pain and demonstrated improved quality of functional movement after 3 BFA treatments with 2 subsequent PT interventions
- This case is limited by restricted access to patient records after this case report to see full results with additional BFA + PT interventions
- This case reports does not indicate effectiveness of interdisciplinary treatment using BFA and PT intervention to manage chronic pain and improve functional outcomes
- Further research is needed to:
  - further support the efficacy of BFA for managing chronic pain
  - look at longevity of BFA effects
  - determining the average number of BFA treatments needed to see consistent reports of pain control, and
  - determine efficacy in the civilian population