Objectives

- Discuss why this topic is pertinent to our practices
- Review diagnostic criteria for MPS and MTrP
- Give a historical perspective on MPS and MTrP
- Discuss pharmacologic and non-pharmacologic treatment options
- Case discussions
Introduction

- Myofascial pain syndrome (MPS) is largely under diagnosed and under treated.
- MPS is a distinct from Fibromyalgia and other musculoskeletal pain.
- Prevalence varies from 30-93% among persons with musculoskeletal pain.
- Large variation is likely due to lack of consensus of diagnostic criteria of MPS.
Introduction

- Clinical picture of MPS includes musculoskeletal pain, limited mobility, weakness, and referred pain.
- Occasional clumsiness and incoordination
- Occasional autonomic symptoms
- Myofascial trigger point (MTrP) is the cardinal feature of MPS.
Diagnostic Criteria

- Big problem has been the lack of uniform diagnostic criteria.
- MPS diagnostic criteria
  - Point tenderness
  - Pain reproduction
  - Restricted range of motion
  - Referred pain
  - Local twitch response
  - Weakness without atrophy
Diagnostic Criteria

- MTrP diagnostic criteria
  - Taut band
  - Hypersensitive spot
  - Referred pain
- Latent versus Active MTrP's
- Other diagnostics
  - EMG guided, IR Thermography, Ultrasound
Historical Perspective

- Guillaume de Baillaus of France (16th century)
  - First to write in detail about muscle pain disorders
- Dr. Balfour - Britttish MD (1816)
  - Spoke about thickening in muscles with local and regional pain
- Froiep (1843)
  - Coined the term “muscle callouses” in patients with Rheumatological disorders
- Adler (1900)
  - Described muscular rheumatism
- Gowers (1904)
  - Inflammation of fibrous tissue caused hard nodules (Fibrositis)
Historical Perspective

Three pivotal studies were key in developing our understanding of MPS and MTrP’s.

- Kelly (1941), Good (1942), Travell et al (1942)
- All of these authors paid tribute to the influential work of Kellgran (1938)
- Kellgran injected normal saline into muscles of asymptomatic patients
  - Tendons and fascia gave sharp, localized pain
  - Muscles gave diffuse pain that was often referred
- Provided the foundation for understanding of the existence of MTrP’s
Historical Perspective

- Kelly (1941) studied 200 cases of somatic pain (fibrositis)
  - Described muscular lesion or nodules that were painful
  - Mapped out a distribution of the nodules that were similar to the Travell and Simons map of MTrP’s.
Historical Perspective

- Good (1942) identified myalgic spots and pain referral patterns in 500 patients in the British Army with myalgia
  - Concluded the referral pain was in a dermatomal distribution
Travell et al. (1942) used the term trigger point. They looked at 58 people with shoulder and arm pain and concluded that the referral pattern was not always consistent with somatic reference zones or dermatomal patterns. They described this myalgia as a syndrome of restriction of motion primarily as a reaction to pain.

Janet Travell was a cardiologist studying patients with severe pulmonary disease. Her patients complained more about the pain in their shoulders and arms than their medical diseases.
Historical Perspective

- Travell and Rinser (1952) published a study on "The Myofascial Genesis of Pain".
- Reported pain patterns in 32 skeletal muscles from 1,000 patients with MPS
- Later published a two volume book entitled "Myofascial pain and dysfunction, The Trigger Point Manuel."
- Travell and Simons (83, 92)
- This work by Simons and Travell has remained the foundation of the MTrP theory
Pharmacologic Treatment

- NSAIDS are the most commonly prescribed medications
  - No RCT’s
- COX 2 inhibitors, Tramadol
  - No RCT’s
- Diclofenac patch
  - 1 RCT that studied patients with myofascial pain in Trapezius muscle
  - Revealed clinically significant benefit for pain and cervical ROM by the end of the study.
- Lidocaine patch
  - Few RCT’s, case reports, and observational studies specifically for MPS.
  - Revealed statistically significant increased pain thresholds and increase in general activity.
  - An appealing medication given it is a topical patch versus an oral medication.
Pharmacologic Treatment

- Muscle Relaxers
  - Tizanadine is a centrally active alpha 2 adrenergic agonist.
    - Open label, dose titration study that revealed significant decrease in pain intensity and disability from baseline with improved sleep.
  - Clonazepam
    - No RCT
    - 1 open label study that revealed decrease in pain.
Pharmacologic Treatment

- **Anticonvulsants**
  - No RCT’s for Gabapentin and Lyrica.

- **Antidepressants**
  - Amitriptyline has a few studies with MPS that revealed significant decrease in pain and tenderness.
  - Growing body of evidence for their efficacy in chronic pain syndromes suggesting an increased role for MPS.
  - Duloxetine has less evidence than amitriptyline for treatment with MPS.
Non-pharmacologic Treatment

- Injections into MTrP’s are a common and effective treatment
- MTrP injections employ dry needling, short or long acting anesthetics, steroids, and even normal saline.
Non-pharmacologic Treatment

- Trigger point injection with local anesthesia was the initial treatment and has been the gold standard.
  - Effective in reducing pain and de-activating the trigger point in multiple studies.
- There is no evidence to support the use of steroids over the use of local anesthetic.
- However, Frost et al (1980) discovered that in a double blind comparison patients injected with normal saline had better results than those injected with mepivacaine (80% versus 52% effectiveness).
Non-pharmacologic Treatment

- This led to the question of whether saline was even necessary for deactivating MTrP’s.
- In 1979, Lewit was one of the first to try needling without the use of anesthetic or even saline in a technique that became known as dry needling.
  - Lewit found that the dry needling caused immediate analgesia in nearly 87% of cases.
  - Several other studies have shown that dry needling is an effective treatment that is equal in efficacy to trigger point injections.
  - Biggest side effect is some post injection soreness.
- Acupuncture has also shown to be an effective treatment for MPS.
Non-pharmacologic Treatment

- Manual therapy is also a commonly used treatment for MPS and is considered one of the most effective techniques for the inactivation for MTrP’s.

- Most effective modalities in the literature include:
  - Deep pressure massage
  - Spray and stretch therapy
  - Superficial heat
  - Myofascial release
Other Treatments

- Botulinum type A toxin injections
- Ultrasound
- Transcutaneous electric nerve stimulation (TENS)
- Magnetic stimulation
- Laser therapy
Case Report 1

- History of present illness
  - 27 yo female with chronic migraine headaches with right shoulder pain that extends down her back for the past 6 months. Attempted one session of physical therapy.

- Physical Exam
  - FROM right shoulder, neurologically intact, TTP right trapezius, posterior deltoid, and rhomboid muscles, positive trigger points in posterior deltoid and rhomboid.
Case Report 1

- Clinical Decision Making
  - Right shoulder girdle and posterior back myofascial pain syndrome with two associated trigger points. Patient also with chronic migraine headaches that is not adequately controlled.
  - Trigger point injections x 2 with Lidocaine 1%.
  - Physical Therapy referral
  - Start Nortriptyline 25 mg at bedtime
  - Follow up 6 weeks
Case Report 2

- History of presenting illness
  - 40 yo female who presents with subacute right shoulder pain that radiates down her arm for 3-4 weeks. No known trauma. Symptoms are worse at night and her symptoms are worse with typing. Ibuprofen is of limited help.

- Physical Exam
  - FROM right shoulder with negative Hawkins sign.
  - TTP right anterior deltoid with associated trigger point
  - Positive phalens and negative tinels sign
  - DTR equal and reactive in upper extremities bilaterally
  - Motor strength slightly diminished in right C6 distribution
Case Report 2

- Clinical Decision Making
  - Right Carpal Tunnel Syndrome with secondary right deltoid MPS, MTrP. Cervical radiculopathy is still in the differential diagnosis.
  - Rx given for right wrist cock up splint
  - EMG ordered
  - Tizanadine 4 mg at bedtime
  - Follow up one month
Review

- Pertinence to practice
  - Extremely prevalent and amenable to treatment
- Diagnostic criteria
  - Heterogeneous but some core components
- Historical perspective
  - Travell and Simons are the key researchers that have done the key studies on diagnosis and treatment of MPS
Review

- Treatment
  - Pharmacologic
    - NSAIDS, Tizanadine, Clonazepam, Amitriptyline, Diclofenac patch, Lidocaine patch
  - Non-pharmacologic
    - Trigger point injection, Dry needling, Acupuncture, Manual Therapies
  - Other
    - Botulinum type A Toxin, Ultrasound, TENS, Magnetic Stimulation
- Case discussions