

Physical Therapy Intervention for a Patient with Temporomandibular Joint Dysfunction Caused by Two Traumatic Events: A Case Study

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Background

- Temporomandibular disorders (TMD) are a collection of pathoanatomical dysfunctions of the temporomandibular joint (TMJ)¹
- Associated with a variety of symptoms throughout the head and neck
- Severe lack of supportive evidence for PT management used in the conservative and/or post-surgical treatment of TMD¹
- The dental profession provides much of the current literature on TMD but is limited in conservative and surgical interventions.¹
- Research has showed arthrocentesis to be a beneficial procedure to perform initially.
- Long-term outcomes for pain and functional impairments were comparable with conservative treatment.²

Purpose

- Purpose is to provide information regarding conservative and post-surgical physical therapy treatment of TMD due to a traumatic mechanism of injury
- Rationale for this case report was to describe a physical therapy plan of care for TMD

Case Description

- 32 year old female education technician for adolescents with mental and behavioral problems.
- Physically assaulted twice at work.
- Referred to PT after 2nd event.
- Unable to speak or eat because of pain, locking, and limited ROM of mandible.
- Liquid diet weeks 1-3, soft foods diet weeks 4-7, and limited normal diet weeks 7-8.
- Severe locking incident prompting MRI during week 3.
- MRI finding were left TMJ disk dislocation and left TMJ lagging behind right during depression and elevation.
- Appointment with oral surgeon week 4
- Underwent arthrocentesis for left TMJ during week 4 and arthrocentesis for right during week 6

Patient Timeline

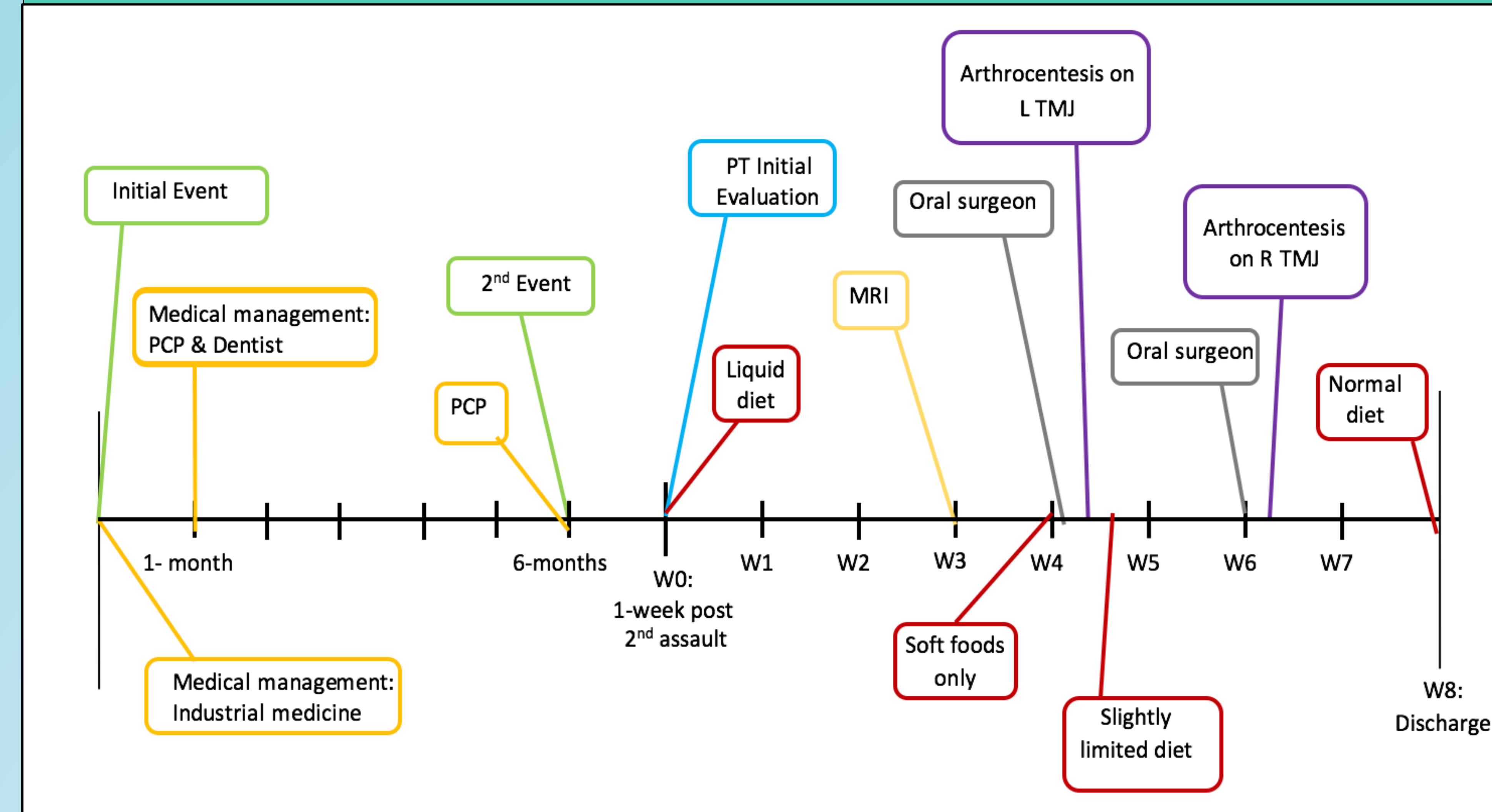


Figure 1: Sequence of events throughout the patient's plan of care

Outcomes

- Continuous gains in mandibular ROM, especially after each arthrocentesis procedure
- Patient's goals were met regarding pain, ROM, speaking, and eating.
- Patient returned to work with limited restriction.
- Returned to normal diet at discharge.
- Pain and locking decreased significantly.



Figure 3: Mandibular Range of Motion on Observation

Mandibular Depression	Mandibular Right Lateral Excursion	Mandibular Left Lateral Excursion
A. Initial evaluation: 17 mm	C. Initial evaluation: 4 mm	E. Initial evaluation: 4 mm
B. Discharge: 31 mm	D. Discharge: 9.5 mm	F. Discharge: 8 mm

Interventions

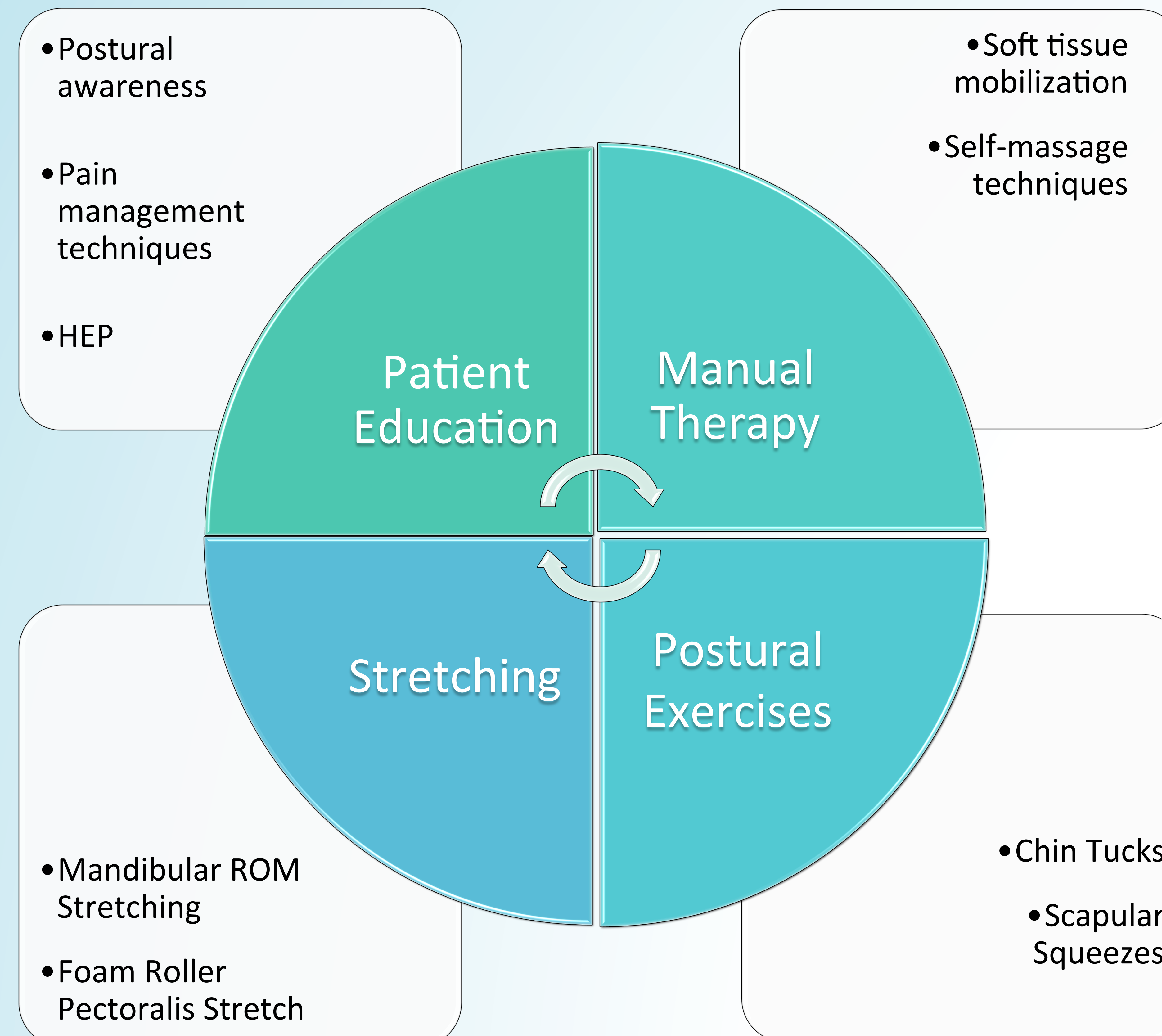


Figure 2: Procedural Interventions categories and prescribed interventions in the PT plan of care

Initial Evaluation Test & Measures

Goniometric Measurements

- Depression: 17 mm
- Left Lateral Excursion: 4 mm
- Right Lateral Excursion: 4 mm

Strength

- Mandibular: not tested at initial evaluation
- Cervical & UE: 5/5

Palpation of Joint Mechanics

- BL clicking/ popping
- Left TMJ lags behind right during depression

Sensation

- Numbness & paresthesia reported

Soft Tissue Integrity

- Mandibular: masseter
- Cervical: scalenes, SMC, trapezius, levator scapula, etc.

Joint Mobility Assessment

- Restricted L>R

Pain

- Current NPRS: 6/10
- Worst NPRS: 9/10
- Best NPRS: 2/10

Observation

- Posture: forward head and rounded shoulders.
- Cueing: moved into proper alignment

Primary Impairments

- Decreased mandibular ROM
- Increased pain
- Severe muscular tightness
- Hypomobility of TMJ
- Forward head and rounded shouldered posture

Discussion

- The patient had an overall decrease in symptoms and impairments throughout her course of PT treatment.
- She showed the most dramatic changes after each of the arthrocentesis procedures.
- At discharge she was able to communicate with her family and friends
- Most importantly, she was pleased with her progress and happy about her ability to return to the many things she enjoyed.
- Future research should be focused on the following areas of physical therapy conservative and/or post-operative TMD treatments, and the efficacy for soft tissue mobilization techniques in reducing mandibular muscular tightness.

References

- Shaffer SM, Brismee JM, Sizer PS, Courtney CA. Temporomandibular disorders. Part 2: conservative management. *J Man Manip Ther.* 2014;22(1):13-23. Doi: 10.1179/2042618613Y.0000000061
- Vos LM, Huddleston Slatter JJ, & Stengena B. Arthrocentesis as initial treatment for temporomandibular joint arthropathy: a randomized controlled trial. *J Craniomaxillofac Surg.* 2014; 42(5): 134-9. Doi: 10.1016/j.jcms.2013.07.0101.

Acknowledgments

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