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).
- 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 TMD.
- The dental profession provides much of the current literature on TMD but is limited in conservative and surgical interventions.
- 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.

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.
- Returned to normal diet at discharge.

Patient Timeline

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

Interventions

- Postural awareness
- Pain management techniques
- HEP
- Soft tissue mobilization
- Self-massage techniques

Patient Education

Manual Therapy

Stretching

Postural Exercises

- Mandibular ROM Stretching
- Foam Roller Pectoralis Stretch

Figure 2: Procedural Interventions categories and prescribed interventions in the PT 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 within limited restriction.
- Returned to normal diet at discharge.
- Pain and locking decreased significantly.

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 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

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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 lagging 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.
- Cuesing: moved into proper alignment

Clinical Impairments
- Decreased mandibular ROM
- Increased pain
- Severe muscular tightness
- Hypomobility of TMJ

Primary Impairments
- Forward head and rounded shoulders posture

Figure 3: Mandibular Range of Motion Observation

Interventions

A. Mandibular Depression
- Initial evaluation: 17 mm
- Discharge: 31 mm

B. Mandibular Right Lateral Excursion
- Initial evaluation: 4 mm
- Discharge: 9.5 mm

C. Mandibular Left Lateral Excursion
- Initial evaluation: 4 mm
- Discharge: 8 mm

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.