CASE STUDY LOOKING AT THE EFFECT OF CLASS IV LASER ON A PATIENT WITH RECENT POST-SURGICAL REPAIR OF A COMPLETE ROTATOR CUFF TEAR

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CLASS IV LASER THERAPY CASE REPORT

ABSTRACT:

OBJECTIVE:

Our aim was to report on the effects of class IV laser on a patient who had recently undergone a surgical repair of a complete rotator cuff tear. We looked at shoulder pain at rest, active shoulder range of motion, shoulder pain at end range, orthopedic testing of the shoulder and muscle strength on a 5 point grading scale.

METHODS:

One female patient (66 years of age) with recent rotator cuff surgery was seen on six separate occasions and treated with 4000 joules at CW to the right shoulder (supraspinatus tendon, teres minor, infraspinatus).

RESULTS:

Significant reduction of pain was noted on Visual Analog Pain Scale and range of motion both actively and passively was restored to normal ranges.

CONCLUSION:

The patient response demonstrated the effectiveness of class IV laser on post surgical healing and restoration of function following surgery to the right rotator cuff. All outcome measures improved dramatically. Future controlled large scale studies are needed to further investigate patient response to class IV laser.

HISTORY:

The patient is a 66 year-old retired female who complained of right shoulder pain of 3 month's duration secondary to a fall. Her pain was graded a 7/10 on the visual analog pain scale and was worse at night. Sleeping was difficult. She noted subjective loss of strength in the right shoulder, painful range of motion (ROM), loss of sleep and significant disruption in carrying out her normal activities of daily living.

Her medical history is complicated, including MS, bilateral OA at both knees, marked pes planus deformity at both feet, lumbar disc disease and disc derangement, recent tibial plateau fracture, liver disease, glaucoma, COPD, corneal transplant, Sjogren disease, and fibromyalgia.

Examination revealed active abduction of the right shoulder measuring 71 degrees at which point pain was experienced and graded 7/10. Passively, abduction was 76 degrees. Internal rotation was 12 degrees both passively and actively and sharp pain was noted. External rotation was 33 degrees actively and 39 degrees passively with pain at the anterior shoulder.

Orthopedic testing revealed a markedly positive supraspinatus press test, positive Codman's Drop Arm Test, positive Apley's inferior and superior and a negative apprehension. Impingement sign (Empty Can Test) was markedly positive.

She had tenderness at the supraspinatus tendon and biceps tendon. No swelling or edema was appreciated. Strength of the supraspinatus tendon was graded 1+/5.

MRI:

An MRI of the right shoulder was ordered and revealed a full thickness tear of the anterior aspect of the supraspinatus tendon 11 mm in AP dimension and 1.7 cm in transverse dimension. There was thickening and intermediate increased signal within the remainder of the supraspinatus tendon, as well as within the infraspinatus tendon compatible with tendonosis. There was a small amount of joint effusion. There was the question of a possible subluxation of the biceps tendon anterior to the subscapularis tendon, suggesting tearing of some of the superficial fibers of the subscapularis tendon. There was a large subacromial spur impinging upon the subacromial space.

The patient was told to follow-up with an orthopedic surgeon for further evaluation. It was recommended by the surgeon that she undergo a surgical repair of the right rotator cuff and the subacromial spur. In April of 2006, the patient underwent surgery and she relayed to me that the surgeon said it was the "worst rotator cuff tear and most difficult surgery he had ever seen."

SURGICAL NOTE:

The surgical procedure consisted of an arthroscope being through a posterior portal into the glenohumeral joint where the findings showed a full thickness tear of the supraspinatus tendon. The scope was then put into the subacromial spasce and a subacromial decompression was carried out including debridement of the rotator cuff tear. Through the same lateral portal, 2 opus anchors were used to do horizontal mattress sutures x2 into the supraspinatus and bring it to its bony bed insertion and attachment. This gave excellent fixation of the cuff and after copious irrigation the instruments were removed. Portals were closed with a 4-0 Monocryl subcuticular stitch. The patient went to recovery in stable condition.

Seven weeks following surgery the patient presented back to our office to see if there was anything we could do for her shoulder, as she was in a great deal of pain. Due to other health issues, she was unable to commence any type of active rehabilitation. She noted that she was improved since having the surgery, but was still in a lot of pain.

POST SURGICAL EXAMINATION:

A. ROM in Abduction =	88 degrees with pain at 8/10
A. ROM in Adduction =	23 degrees with pain at 6/10
A. ROM in Internal Rotation =	19 degrees with pain 7/10
A. ROM in External Rotation =	40 degrees with pain 4/10
P. ROM in Abduction =	100 degrees with pain at 8/10
P. ROM in Adduction =	30 degrees with pain at 6/10
P. ROM in Internal Rotation =	22 degrees with pain 7/10
P. ROM in External Rotation =	45 degrees with pain 4/10

*A. ROM-Active Range of Motion
*P. ROM-Passive Range of Motion

Gentle testing of the supraspinatus tendon (supraspinatus press test) was markedly positive with pain at 10/10. She was tender to touch over the supraspinatus tendon, AC joint and at the biceps tendon. She had moderate Trp's at the right teres minor, subscapularis and supraspinatus. Capsular restrictions were noted secondary to probable adhesions/scar tissue. positive Mild swelling was appreciated. Strength of the supraspinatus tendon was graded 2+/5.

TREATMENT:

A series of six Class IV laser treatments was recommended to the patient in an attempt to decrease pain, improve ROM and function and reduce swelling. She was seen 2x's/week for 3 weeks. It was recommended that the patient be seen 3x's/week, but due to proximity and difficulty with ambulation (other comorbitities) she was only able to come in twice a week.

At the conclusion of six treatments of Class IV Laser using 4000 joules at CW to the right shoulder and associated musculature, she was almost pain free and ROM was completely restored.

POST CLASS IV LASER ROM EXAMINATION:

A. ROM in Abduction =	180+ degrees with pain at 2/10 at end range
A. ROM in Adduction =	23 degrees with pain at 6/10
A. ROM in Internal Rotation =	19 degrees with pain 7/10
A. ROM in External Rotation =	40 degrees with pain 4/10
P. ROM in Abduction =	185 degrees with pain at 2/10 at end range
P. ROM in Adduction =	30 degrees with pain at 6/10
P. ROM in Internal Rotation =	22 degrees with pain 7/10
P. ROM in External Rotation =	45 degrees with pain 4/10

CONCLUSION:

The patient response demonstrated the effectiveness of class IV laser on post surgical healing and restoration of function following surgery to the right rotator cuff. All outcome measures improved dramatically. Future controlled large scale studies are needed to further investigate patient response to class IV laser.

ABOUT THE AUTHOR

Dr. Zohn is a Certified Chiropractic Sports Physician (CCSP) and a Diplomat of the American Academy of Pain Management (DAAPM). He is an active member of the American Chiropractic Association (ACA) and the ACA's Council on Physiological Therapeutics and Rehabilitation. Dr. Zohn is a board certified disability analyst and member of the American Back Society, and lectured on various topics including repetitive use injuries, work place injuries, acute care and whiplash related disorders. He is a graduate of Northwestern College of Chiropractic in Minnesota where he received a Doctorate of Chiropractic and a second bachelor's degree in Human Biology. His medical practice is geared toward conservative management of musculoskeletal injuries, including disc problems, neck and low back pain, headaches, pregnancy related back pain and complaints of the upper and lower extremities such as tennis elbow or rotator cuff injuries. Dr. Zohn is a former collegiate soccer player and currently a competitive table tennis player.

Source of Study: AspenLasers.com