

## Effect of Maitland Mobilization on Radiotherapy Induced Frozen Shoulder: A Case Report

Ketan Bhatikar<sup>1</sup> and Satyam Bhodaji<sup>2\*</sup>

<sup>1</sup>Department of Physical Therapy, Sport Physiotherapy Aqua Rehabilitation Centre, India

<sup>2</sup>Department of Head Research, Sport Physiotherapy Aqua Rehabilitation Centre, India

\*Corresponding author: Satyam Bhodaji, Department of Head Research, Sport Physiotherapy Aqua Rehabilitation Centre, India, Tel: 9146180090, 8904104766; E-mail: [satyambhodaji33@gmail.com](mailto:satyambhodaji33@gmail.com)

Received date: November 07, 2017; Accepted date: November 27, 2017; Published date: March 27, 2018

Copyright: © 2018 Bhodaji S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

**Background:** Frozen shoulder is the most prevalent case in musculoskeletal conditions due to disuse or after shoulder injury it was a different case to treat as the frozen shoulder may was induced due to radiotherapy on same hand after cancer colon.

**Objective:** To evaluate the effect of Maitland mobilization on radiotherapy induced frozen shoulder

**Method:** We reported unique case in oncology was a 50 year old female having radiotherapy induced frozen shoulder after treated with a case of colon cancer. In the present study with the other symptoms of Cancer colon treated with radiotherapy we reported the effect of frozen shoulder with in Maitland Mobilization and conventional therapy on frozen shoulder.

**Outcome measure:** Numerical pain rating scale, Range of Motion and Penn shoulder score

**Result:** There was a significant difference noted in the pain and increased in range of motion.

**Conclusion:** Maitland mobilization proved to be effective in radiotherapy induced frozen shoulder.

**Keywords:** Radiotherapy induced frozen shoulder; Maitland mobilization; penn

### Introduction

Pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" is derived by Harold Merskey, in 1979 by IASP (International Association for the study of pain) [1]. Pain compromises the quality of life and decline in physical function leading to psychological distress and disturbed social interaction. A series of common pain syndromes in patients with cancer and cancer induced anticancer therapy have been studied (that includes pain associated with direct tumor infiltration, pain resulting from chemotherapy and radiotherapy) and pain unrelated to the cancer or cancer therapy. Survey have demonstrated that 35%-65% of cancer patients experience pain during active anticancer therapy [2] and more than two third among those with advanced diseases. Appropriate management is dependent on their careful evaluation.

Radiotherapy induced-frozen shoulder is a very rare and sensitive case to treat as it has symptoms of radiotherapy effect like pain,

tiredness, and fatigue and skin sensitivity. Along with this it may have lymphoedema in axilla, weakening of the bone in the treated bone, may have damage to the nerves in the arm on the treated side that causes tingling, numbness, pain, weakness and possibly loss in movement [3]. Hence with most of the above symptoms we have to treat the frozen shoulder symptoms with the primary goal as to increase the range of motion with quality of life.

### Case Report

The patient in this study was 53 years female, who gave the history of Stage III colon Cancer, treated with colectomy from October 2016 and followed by radiotherapy till May 17 and other anticancer drug therapy. Her previous medical history was not significant for diabetes mellitus and hypertension. After some sessions she developed tightness and restrictions in the arm movements that was treated with radiotherapy. Medications included at the time were Tab Pantodac 40 mg and Tab Emeset 4 mg twice a day. The patient gave a written informed consent to participate in the study and the treatment was started. Patient concern was to increase the shoulder range, reduction of pain and improve quality of life (Figures 1 and 2).



**Figure 1:** Examination and Assessment.

On examination and assessment subject gave a history of stiffness of the left shoulder joint since 3 months. Symptoms aggravated since last 15 days. Subject found difficulty to perform her daily activities and her pain often worsened at night and also had difficulty in sleeping on the affected side. No warmth and tenderness was noted around the shoulder joint. Capsular pattern was present. Numerical pain rating scale is valid and reliable tool to measure pain intensity [4]. The subject's pre assessment score for the left shoulder joint was 5/10 (moderate).

|                   |     |      |
|-------------------|-----|------|
| Extension         | 27° | 52°  |
| Abduction         | 50  | 100° |
| Internal rotation | 35° | 43°  |
| External rotation | 30° | 37°  |

**Table 1:** The pre and post interventions for shoulder are described.

| Shoulder | Pre intervention | Post intervention |
|----------|------------------|-------------------|
| Flexion  | 70°              | 115°              |

The pre ranges for the shoulder joint is as described in Table 1. Penn shoulder score [5] is a 100 point scale which consists of 3 subscales including pain, satisfaction and function. The subject's pre intervention score was 40/100.



**Figure 2:** Shows Manual therapy.

## Discussion

The subject underwent 10 consecutive sessions for 10 days. Each session lasted approximately 45 min. Initially hot moist pack was given around the left shoulder joint for 15 minutes. Manual therapy is well known to work in multitude of different mechanisms to be effective and understanding the neurological, physiological, psychophysiological mechanisms with clinically competent and safe manner [6]. We gave list necessary exercises in the present case to reduce the fatigue and tiredness that was due to radiotherapy effect. According to Harvard Medical school [7] stretching and strengthening exercises for frozen shoulder were advised to the subject which included pendulum stretch (10 revolutions in each direction, once a day), towel stretch (10-20 times a day), finger walk (10-20 times a day), cross body reach (10-20 times a day), armpit stretch (10-20 times a day) and inward and outward rotations (10-15 times, once a day) [7]. We also not used any advanced electrotherapy modalities other than TENS to be on the safer side and planned to record the effect of manual therapy i.e. Maitland mobilization therapy.

Maitland concept effect is well known on stiff joint pain and to increase various joint range of motion within short period of time. We treated the shoulder with the posterior Maitland mobilization for the first session and 10 minutes for the following sessions at starting and at

the end of the every session. Previous studies have also concluded posterior Maitland mobilization to be effective in treating pain due to frozen shoulder [8]. From second session onwards after the 10 minutes of posterior mobilization we gave grade II and III Maitland mobilization in every plan for 4 to 5 minutes each.

At the end of the session we gave Transcutaneous electrical nerve stimulation (TENS) [9] was given in conventional mode for 15 minutes with a frequency of 100 Hz and pulse width 200  $\mu$ s for pain relief due to mobilization if any. The subject was asked then to warm up the shoulder with hot water bag and then perform all the exercises at home at-least 3 repetition per day.

## Conclusion

In the present study patient with colon cancer treated with radiotherapy on left hand developed pain and stiffness in her left shoulder joint. Patient was treated with regular conventional physiotherapy treatment like hot moist pack and hand mobility exercises. We also gave Maitland mobilization for the same and had a positive effect on pain and joint range of motion. In the first session patient had 40% different on pain score pre and post recorded on VAS scale. Patient at the end of the fifth session had positive improvement in shoulder range of motion as shown in Table 1. Patient quality of life

was also recorded on Penn scale and had significant changes with post penn score 69/100. Patient needs to continue at-least 5 more sessions and follow up to have more recovery. In the present study with the positively significant results suggests that Maitland mobilization can also be the first line of treatment that is clinically competitive and safer in patients having frozen shoulder post radiation therapy.

### Ethical Clearance

Signed inform consent was taken from the study subject.

### References

1. [https://en.wikipedia.org/wiki/International\\_Association\\_for\\_the\\_Study\\_of\\_Pain](https://en.wikipedia.org/wiki/International_Association_for_the_Study_of_Pain)
2. Cancer pain: Assessment and Management edited by Eduardo D. Bruera, Russell K. Portenoy.
3. <https://www.breastcancercare.org.uk/information-support/facing-breast-cancer/going-through-breast-cancer-treatment/side-effects/side>
4. Oldenmenger WH, Pleun J, de Klerk C, van der Rijt CC (2013) Cut points on 0-10 numeric rating scales for symptoms included in the Edmonton Symptom Assessment Scale in cancer patients: a systematic review. J Pain Symptom Manage 45: 1083-1093.
5. Leggin BG, Michener LA, Shaffer MA, Brenneman SK, Iannotti JP, et al. (2006) The Penn shoulder score: reliability and validity. J Orthop Sports Phys Ther 36: 138-151.
6. Lederman E (2005) The Science and Practice of Manual therapy. 2nd ed. Elsevier: London.
7. <https://www.health.harvard.edu/shoulders/stretching-exercises-frozen-shoulder>
8. [https://www.physio-pedia.com/Maitland%27s\\_Mobilisations#cite\\_note-Lederman-1](https://www.physio-pedia.com/Maitland%27s_Mobilisations#cite_note-Lederman-1)
9. Hurlow A, Bennett MI, Robb KA, Johnson MI, Simpson KH, et al. (2012) Transcutaneous electric nerve stimulation (TENS) for cancer pain in adults. The Cochrane Library.