International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

Effectiveness of Rocabado Techniques and Conservative Treatment in Post-Operative Buccal Mucosa Carcinoma Patients: A Randomized Controlled Trial

Sapna Kumari[1], Dr. Ritu Das (PT)[2], Dr. Deepak Rajpurohit (PT)[3]

MPT Student, Vivekananda Global University, Jaipur

Associate Professor, Department of Physiotherapy and Occupation therapy, Vivekananda Global University, Jaipur

MPT Musculoskeletal & Sports, Associate Professor & Vice Principal, Swasthya Kalyan College of Physiotherapy, Jaipur

Abstract: ***Background: Trismus, pain, decreased temporomandibular joint (TMJ) range of motion, and functional limitations impacting speech, mastication, and quality of life are frequently experienced by patients with post-operative buccal mucosa cancer. Objectives: To assess the efficacy of Rocabado procedures in conjunction with traditional physical therapy as opposed to traditional physical therapy alone in patients with post-operative buccal mucosa cancer. Methods: Forty individuals were split into two groups at random: the Experimental Group (n = 20) and the Control Group (n = 20). While the control group only received traditional physiotherapy, the experimental group received both Rocabado treatments and traditional TMJ exercises. TMJ range of motion using a Vernier caliper and the Visual Analogue Scale (VAS) were used as outcome measurements. Results: With statistically significant p-values, the experimental group outperformed the control group in terms of pain reduction and TMJ range of motion. Conclusion: For patients with post-operative buccal mucosa cancer, Rocabado procedures in conjunction with traditional physiotherapy are more successful than conventional therapy alone in enhancing TMJ range of motion and lowering pain.***

Keywords: Buccal mucosa cancer, trismus management, temporomandibular joint mobility, Rocabado exercises, postoperative physiotherapy.

1. Introduction

In India and Southeast Asian nations, buccal mucosa carcinoma is among the most prevalent mouth cancers. Severe post-operative sequelae, including trismus, pain, limited mouth opening, temporomandibular joint stiffness, dysphagia, trouble speaking, and reduced oral function, are frequently the result of surgical therapy.

After surgery, physiotherapy rehabilitation is crucial for regaining oral movement and enhancing quality of life. Rocabado procedures are specific temporomandibular joint rehabilitation exercises intended to enhance joint stability, neuromuscular control, muscle coordination, and mandibular biomechanics.

Controlled jaw opening, protrusion-retrusion, lateral movement, postural correction, and muscular relaxation are the main goals of these exercises. Despite the widespread clinical usage of Rocabado procedures, there is little data on their efficacy in patients with post-operative buccal mucosa cancer. In order to assess the efficacy of Rocabado procedures in conjunction with traditional physiotherapy, the current randomized controlled trial was carried out.

2. Aims and Objectives

Aims:
To assess the efficacy of conservative care and Rocabado procedures in patients with post-operative buccal mucosa cancer.

Objective:
- To use VAS to lessen the degree of pain.
- To increase the range of motion of the TMJ.
- To contrast the results of the experimental and control groups.
- To ascertain whether treatment effects are statistically significant.

Hypothesis:
Null Hypothesis (H0): The experimental and control groups won't differ significantly from one another.
Alternative Hypothesis (H1): The experimental group that receives Rocabado treatments in addition to traditional physiotherapy will significantly improve.

3. Materials and Methods

Study Design:
Randomized Controlled Trial.

Study Setting:
Oncology ward, Mahatma Gandhi Hospital.

Sample Size:
40 participants.

Group Allocation:
Experimental Group (n=20):
Received Rocabado techniques along with conventional TMJ exercises.

Control Group (n=20):
Received conventional physiotherapy only.

Inclusion Criteria:
- Age group between 30–60 years.
- Post-operative buccal mucosa carcinoma patients.
- Medically stable patients.
- Patients with restricted mouth opening.

Exclusion Criteria:
- Critically ill patients.
- Neurological disorders.
- Cardio-respiratory disease.
- Patients with active bleeding.
- Mentally unstable patients.

Outcome Measures:
1) Visual Analogue Scale (VAS).
2) TMJ ROM measured using Vernier caliper.

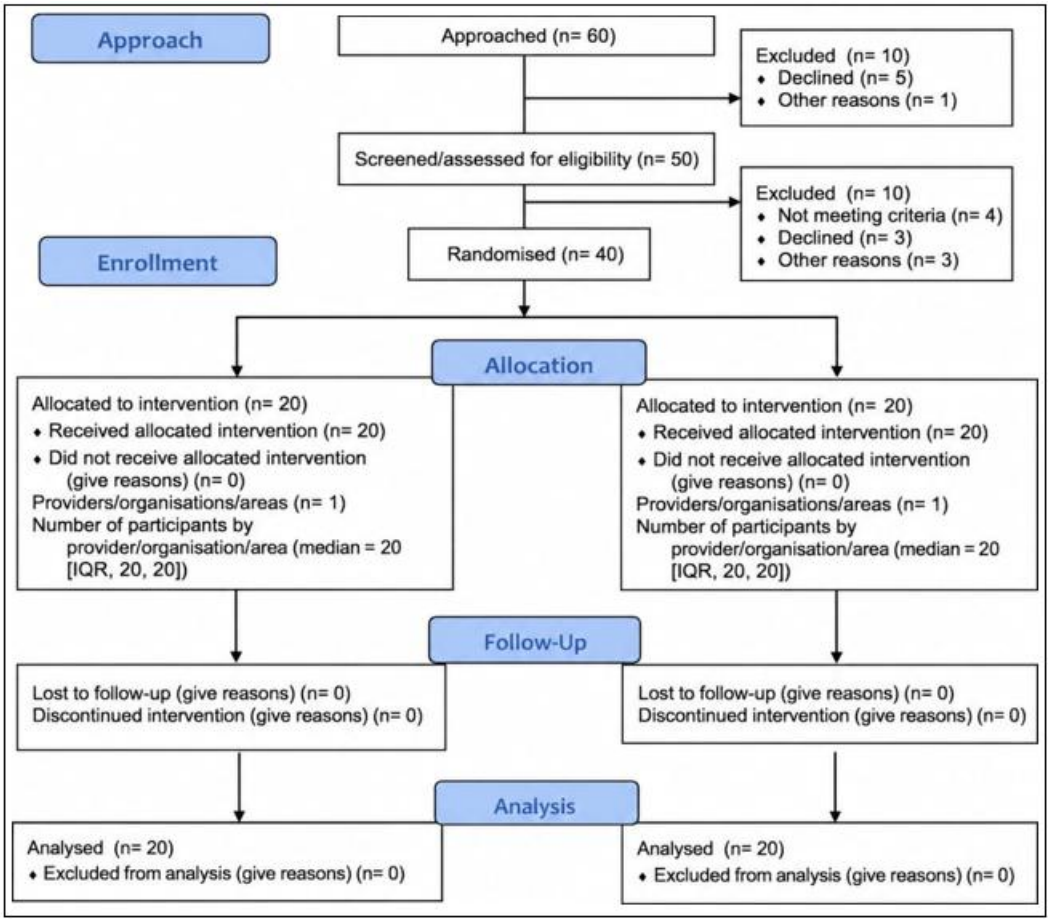
Procedure:
Before the study started, informed consent was obtained from each participant and the institutional ethical committee granted ethical clearance. Prior to intervention, a baseline evaluation of TMJ ROM and pain was carried out.

Simple random selection was used to divide participants into experimental and control groups at random. For ten days in a row, both groups received therapy.

The experimental group was given both traditional physiotherapy exercises and Rocabado procedures. Jaw opening and closing activities, protrusion-retrusion exercises, side-to-side jaw movement, tongue-to-palate exercises, isometric stability exercises, relaxation treatment, and facial muscle exercises were all part of the intervention.

Only standard physiotherapy exercises, such as breathing exercises, stretching, mouth opening exercises, and simple facial workouts, were given to the control group.

The approach was created to guarantee reliability and scientific validity. Randomization guaranteed equitable participant distribution among groups and reduced selection bias. The Vernier caliper measurement offered an objective assessment of the mouth opening range, while the VAS was employed for the subjective assessment of pain.



4. Result

For every outcome measure, the mean and standard deviation were computed. For intra-group comparisons, the paired t-test was employed, and for inter-group comparisons, the independent t-test. The threshold for statistical significance was fixed at $p < 0.05$.

Forty patients with post-operative buccal mucosa cancer who successfully finished the study were included in the current randomized controlled experiment. Twelve women and twenty-eight men made up the total number of participants. The participants' average age was 46.8 ± 7.2 years.

Both groups' TMJ range of motion and pain intensity were measured before and after the intervention. Both groups showed improvement, according to statistical analysis, however the experimental group that received Rocabado techniques showed more progress.

Improved neuromuscular control, less muscle spasm, enhanced joint mechanics, and periarticular tissue relaxation can all contribute to pain reduction. Increased soft tissue flexibility and mandibular mobility restoration are indicated by improved TMJ ROM.

Table 1: Pre-treatment VAS Scores

Group	Mean ± SD
Experimental Group	7.35 ± 1.12
Control Group	7.20 ± 1.08

Table 5.2: Post-treatment VAS Scores

Group	Mean ± SD
Experimental Group	2.10 ± 0.88
Control Group	4.85 ± 1.14

Table 5.3: Pre-treatment TMJ ROM Scores

Group	Mean ± SD
Experimental Group	1.58 ± 0.27 cm
Control Group	1.60 ± 0.25 cm

Table 5.4: Post-treatment TMJ ROM Scores

Group	Mean ± SD
Experimental Group	3.12 ± 0.33 cm
Control Group	2.26 ± 0.31 cm

The reported p-values showed statistically significant improvements in TMJ range of motion and pain reduction, with the experimental group showing better results.

5. Discussion

Both groups' TMJ range of motion and pain reduction significantly improved in the current randomized controlled experiment. In contrast to the control group that received only traditional physiotherapy, the experimental group that received Rocabado treatments demonstrated better improvement.

Rocabado exercises may have improved neuromuscular coordination, reduced muscle spasm, increased joint mobility, and promoted relaxation, all of which may have contributed to the experimental group's notable pain reduction.

Increased flexibility of the muscles around the temporomandibular joint, restoration of normal mandibular biomechanics, and stretching of periarticular tissues could all contribute to improved TMJ range of motion.

The results of this study are in line with earlier research by Sushma Pundkar et al. and Niha Siraj Mulla et al., who similarly found that Rocabado therapies significantly reduced the symptoms of TMJ dysfunction.

Clinically, patients with post-operative buccal mucosa cancer can benefit from improved mouth opening and pain relief in terms of chewing capacity, speech, swallowing, oral hygiene, and general quality of life.

6. Conclusion

The current randomized controlled experiment found that in patients with post-operative buccal mucosa cancer, Rocabado techniques in conjunction with conventional physiotherapy considerably outperform conventional physiotherapy alone in terms of pain reduction and improved TMJ range of motion.

Both intra-group and inter-group analyses showed statistically significant improvement, with p-values near 0.01 suggesting high treatment efficacy.

Therefore, it is advised that Rocabado procedures be incorporated into post-operative rehabilitation protocols in order to improve the quality of life and functional recovery of patients with buccal mucosa cancer.

Refrences

[1] Nicolakis P, Redogmus B, Kopf A, Djaber Ansari A, Piehslinger E, Fialka Moser V. Exercise therapy for craniomandibular disorders. Arch Phys Med Rehab. 2000;81(9):1137-42.
[2] Marega S Meddicott and Susan R Harris. A systematic review of Temporomandibular Disorder Training, and Biofeedback in the Management of Exercise, Manual Therapy, Electrotherapy, Relaxation. Phys Ther. 2006;86(7):955-73.
[3] Ali Jakubowski. The effects of manual therapy and exercise for adults with temporomandibular joint disorders compared to electrical modalities and exercise. PT Critically Appraised Topics. 2010; 13:1-12.
[4] L. LeResche. Epidemiology of Temperomandibular Disorders: Implications for Investigation of Etiologic Factors. Critical Reviewes in Oral Biology and Medicine.1997; 8(3):291-305.
[5] Rocabado M, Iglarsh Z: Musculoskeletal approach to maxillofacial pain.1991.
[6] Furto, Eric S., Cleland, Joshua A, Whitman, Julie A. Olson, Kenneth A. Manual physical therapy intervention and exercise for patients with temporo-mandibular disorders. Journal of Craniomandibular practice. 2006; 24(4):283-91.
[7] Mariona Mulet, Karen L. Denker, John O. Look, Patricia A. Lenton, Eric L. S Chiffman. A randamized clinical trial assessing the efficacy of adding 6*6 exercises to self care for thentreatment of masticatory Myofascial Pain. Journal of Oro-fascial Pain. 2007; 21:318-328.
[8] Lisa T. Hoglund, Brian W. Scott. Automobilisation intervention and exercise for temporo-mandibular joint open lock. Journal of manual therapy and manipulative therapy. 2012; 20(4): 182–191.
[9] Margaret L McNeely, Susan Armijo Olivo and David J. Magee. A Systematic Review of the Effectiveness of Physical Therapy Interventions for Temporomandibular Disorders. Journal of American Physical Therapy Association. 2006; 86(5):710-725.

[10] Orthopedic Physical Assessment. David J. Magee. 4th edition; 2002.
[11] Therapeutic exercises. 5th Edition;2007.
[12] Sarkari, E., Dhakshinamoorthy, P. and Multani, N. K. Comparison of Caudal and AnteroPosterior Glide Mobilisation for the Improvement of Abduction Range of Motion. Journal of Exercise Science and Physiotherapy.2006;2:59-65.
[13] Compas, Goncalves, Camparis, Speciali JG. Reliability of a questionnaire for diagnosing the severity of temporo-mandibular disorder. Rev Bras Fi Sioter. 2009;13(1):38-43.
[14] A-M Kelly. The minimum clinically significant difference in visual analogue scale pain score does not differ with severity of pain. Emerg Med J. 2001;18(3):205-207.
[15] Aun C, Lam Y M, Collect B. Evaluation of the use of visual analogue scale in Chinese patients. Pain.1986;25:215-21.
[16] Thomas Lundeberg, Irea Ne Lund, Lisbeth Dahlin, Elsebet Borg, Carina Gustafsson, Lena Sandin, Annika RoseÂ N, Jan Kowalski, and Sven V. Eriksson. Reliability and responsiveness of three different pain assessment. Journal of rehabilitation medicine. 2001; 33: 279–283.
[17] Ohrbach R, Larsson P, List T. The jaw functional limitation scale: development, reliability, and validity of 8-item and 20-item versions. J Orofac Pain. 2008;22(3):219-30.
[18] Ratan Khuman, Dhara Chavda, Lourembam Surbala, Ekta Chaudhar, Urmi Bhatt, Gopal Nambi. Physical Therapy in Temporomandibular Dysfunction Following Int J Physiother 2015; 2(1) Page | 375 Maxillo–Mandibular Fixation in Sub-Condylar Mandibular Fracture - A Single Case Study. International Journal of Health Sciences & Research 2013;3(9):45-55.
[19] Rehabilitation Techniques for Sports Medicine and Athletic Training. 4th Edition;2005.
[20] Peter Nicolakis, Burak Erdogmus, Andreas Kopf, Andreas Djaber Ansari, Eva Piehslinger, Veronika Fialka Moser. Exercise Therapy for Craniomandibular Disorders. Arch Phys Med Rehabil. 2000;81(9):1137-42.
[21] Au AR, Klileberg JJ. Isokinetic exercise management of Temporomandibular joint clicking in young adults. J Prosthet Dent.1993;70(1):33-9