

Case study

Physiotherapeutic Rehabilitation of a 48-year male with buccal mucosa carcinoma of squamous cell: A Case Report

ABSTRACT:

Buccal mucosa carcinoma of squamous cell is an uncommon kind of oral cavity cancer that is known to be dangerous. It's also linked to a high probability of local regional recurrence, and it's more likely in persons who chew tobacco and/or smoke, whether or not they drink alcohol. A 48-year patient is an elderly man who works as a farmer, mesomorphic built with right-hand dominance came to the tertiary care hospital with complaints of painful ulcers in upper left Jaw's front portion, which was relatively small initially and further increases to 6 x 4 cm approx., since last 4 months. Patient was complaining of pain, difficulty in mastication and manipulations etc. He has history of kharra chewing and tobacco chewing since last 10 years. With these complaints patient has come to the oral surgery department with buccal mucosa skin involvement and underwent surgery as compartmental resection of lesion, Modified Radical neck dissection and segmental mandibulectomy. Following surgical procedure patient has complaints of discomfort, limitation of movements at the operated site, chest pain, and limited mouth opening. For these complaints, programmed physiotherapy treatment was given to the patient which mainly concentrates on mouth opening and increasing range of motion of affected side.

Key words: Buccal mucosa, carcinoma of squamous cell, physiotherapy, case report

INTRODUCTION:

The most common kind of oral cancer is oral carcinoma of squamous cell, which accounts for the great majority of cases .(1) Whereas the oral cancer is quite common, prevalence of oral cancer varies widely throughout the world, it is generally agreed that the oral cavity is the 6th to 9th most frequent anatomical

site for cancer, depending primarily on the nation (and even geographical area in certain countries) and gender of the patients.(2)

Chewing tobacco, kharra, and consuming alcohol are all known risk factors for oral carcinoma of squamous cell.(3) Oral carcinoma of squamous cell is a condition that affects adults and the elderly, with the most frequent clinical manifestation being an ulcerated tumor with a necrotic core region and raised rolling borders.(2)(1) The most common postsurgical oral problems after any surgical technique includes pain, infection, swallowing problems, speech difficulties etc. The most fundamental concept of surgical oncology is to remove the primary tumor while leaving a broad margin of healthy tissue.[3](4)

For post operative rehabilitation, with oral or buccal mucosa carcinoma of squamous cell, physiotherapy plays an important role, which includes various techniques such as mouth opening exercises, shoulder shrugs and shoulder mobility exercises, head and neck mobility exercises, pursed lip breathing exercises, thoracic expansion exercises, bilateral upper and lower limb strengthening exercises etc. (5). It helps to prevent and/or treat a variety of side effects that might occur as a result of cancer treatment. Physiotherapy therapeutic interventions assist cancer survivors, particularly postoperatively, in regaining normal movement range and thereby enhance the standard of living.(1,6)

Patient information:

A 48 year patient is an elderly man who works as a farmer, mesomorphic built and right-hand dominance came to the tertiary care hospital with complaints of painful ulcers in upper left Jaw's front portion, which was relatively small initially and further increases to 6 x 4 cm approx., since last 4 months. Pain was dull aching, periodic, and localized in character, with a slow start. Pain got aggravates on consumption of hot and spicy food, mastication and manipulations and relieves by analgesics. With that, patient was also complaining of increased

| Variable | Movement | Post operative Day 1 | |
|----------|----------|----------------------|-----------|
| | | Right side | Left side |

salivation and difficulty in mastication. Patient has given a history of 7-8 times tobacco chewing each day, and alcohol consumption from last 10 years.

Clinical Findings:

Patient had undergone biopsy, and it shows carcinoma of left buccal mucosa (T4a N1 Mx) in oral cavity.

Diagnosis:

Oral cavity carcinoma of squamous cell.

Timeline:

Patient was undergone for surgical procedures such as compartmental resection of lesion, Modified radical neck dissection on left side, segmental mandibulectomy on 08-09-2021.

| | |
|--------------------------------|------------|
| Date of surgery | 08-09-2021 |
| Day 1- physiotherapy treatment | 09-09-2021 |
| Day 7- physiotherapy treatment | 16-09-2021 |

On the first postoperative day (POD), physiotherapy evaluation was performed, and the patient complained of discomfort, limited movements of the upper extremities, swollen areas of the neck and shoulders, eating difficulties, limited mouth opening, drowsiness, muscle pain.

Diagnostic Assessments:

Table 1. Musculoskeletal examination of patient:

| | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pain | | 8/10 | | | | | | | | | | | | | | | | | | |
| Range of motion (cervical) | 1.Fexion 2.Extension 3.Lateral flexion | <table border="1"> <tr> <td>35</td> <td>30</td> </tr> <tr> <td>30</td> <td>25</td> </tr> <tr> <td>30</td> <td>30</td> </tr> </table> | 35 | 30 | 30 | 25 | 30 | 30 | | | | | | | | | | | | |
| 35 | 30 | | | | | | | | | | | | | | | | | | | |
| 30 | 25 | | | | | | | | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | | | | | | | | |
| Range of motion (upper limb) | 1.Shoulder flexion 2.Shoulder extension 3. Abduction 4. Adduction 5. Medial rotation 6. Lateral rotation | <table border="1"> <tr> <td>135</td> <td>120</td> </tr> <tr> <td>45</td> <td>45</td> </tr> <tr> <td>90</td> <td>70</td> </tr> <tr> <td>30</td> <td>25</td> </tr> <tr> <td>40</td> <td>85</td> </tr> <tr> <td>50</td> <td>30</td> </tr> </table> | 135 | 120 | 45 | 45 | 90 | 70 | 30 | 25 | 40 | 85 | 50 | 30 | | | | | | |
| 135 | 120 | | | | | | | | | | | | | | | | | | | |
| 45 | 45 | | | | | | | | | | | | | | | | | | | |
| 90 | 70 | | | | | | | | | | | | | | | | | | | |
| 30 | 25 | | | | | | | | | | | | | | | | | | | |
| 40 | 85 | | | | | | | | | | | | | | | | | | | |
| 50 | 30 | | | | | | | | | | | | | | | | | | | |
| Temporomandibular joint (cm) | Mouth opening | 2 | | | | | | | | | | | | | | | | | | |
| Manual Muscle Testing (MMT) | 1. Cervical flexors 2. Cervical extensors 3. Side flexors 4. Shoulder flexors 5. Shoulder extensors 6. Abductors 7. Adductors 8. Medial rotators 9. Lateral rotators | <table border="1"> <tr> <td>2/5</td> <td>2/5</td> </tr> <tr> <td>2/5</td> <td>2/5</td> </tr> <tr> <td>3/5</td> <td>2/5</td> </tr> <tr> <td>3/5</td> <td>2/5</td> </tr> <tr> <td>3/5</td> <td>2/5</td> </tr> <tr> <td>3/5</td> <td>2/5</td> </tr> <tr> <td>3/5</td> <td>2/5</td> </tr> <tr> <td>2/5</td> <td>2/5</td> </tr> <tr> <td>2/5</td> <td>2/5</td> </tr> </table> | 2/5 | 2/5 | 2/5 | 2/5 | 3/5 | 2/5 | 3/5 | 2/5 | 3/5 | 2/5 | 3/5 | 2/5 | 3/5 | 2/5 | 2/5 | 2/5 | 2/5 | 2/5 |
| 2/5 | 2/5 | | | | | | | | | | | | | | | | | | | |
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| 2/5 | 2/5 | | | | | | | | | | | | | | | | | | | |

Therapeutic Interventions:

Treatment Protocol:

1. WEEK 1:

- Day 1:

Chest physiotherapy: deep breathing exercises 10 repetitions 1 set

Bed side mobility

ROM: Mouth opening and closing exercises

Cervical ROM exercises

Active assisted shoulder exercises

(10 repetitions 3 sets)

Strength: Toe curls

Ankle toe movements

Heel slides

Ball squeeze

10 repetitions 3 sets

- Day 2:

Chest Physiotherapy: Deep breathing exercises

Bed side mobility including supported sitting and standing

ROM: Mouth opening and closing exercises

Cervical ROM exercises

Active assisted shoulder exercises

(10 repetitions 3 sets)

Strength : Toe curls

Ankle toe movements

Heel slides
Ball squeeze
(10 repetitions 3 sets)

- Day 3:
Chest Physiotherapy: Deep breathing exercises
Bed side mobility including standing without support and ambulation
ROM: Mouth opening and closing exercises
Cervical ROM exercises
Active assisted shoulder exercises
(10 repetitions 3 sets)
Strength : Toe curls
Ankle toe movements
Heel slides
Ball squeeze
(10 repetitions 3 sets)
- Day 4:
Chest Physiotherapy: Deep breathing exercises
ROM: Mouth opening and closing exercises
Cervical ROM exercises
Active assisted shoulder exercises
(10 repetitions 3 sets)
Strength: Toe curls
Ankle toe movements
Heel slides
Ball squeeze
(10 repetitions 3 sets)
- Day 5:
Chest Physiotherapy: Deep breathing exercises
ROM: Mouth opening and closing exercises
Cervical ROM exercises

Active assisted shoulder exercises
(10 repetitions 3 sets)

Strength: Toe curls

Ankle toe movements

Heel slides

Ball squeeze

(10 repetitions 3 sets)

- Day 6:

Chest Physiotherapy: Deep breathing exercises

ROM: Mouth opening and closing exercises

Cervical ROM exercises

Active assisted shoulder exercises

(10 repetitions 3 sets)

Strength: Toe curls

Ankle toe movements

Heel slides

Ball squeeze

(10 repetitions 3 sets)

- Day 7:

Chest Physiotherapy: Deep breathing exercises

ROM: Mouth opening and closing exercises

Cervical ROM exercises

Active assisted shoulder exercises

(10 repetitions 3 sets)

Strength: Toe curls

Ankle toe movements

Heel slides

Ball squeeze

(10 repetitions 3 sets)

RESULT:

Table 2. There is significant increase in mouth opening, ROM of cervical and shoulder joint in patient undergoing physiotherapy treatment.

| Variable | Movement | Pre-treatment | | Post-treatment |
|----------|----------|---------------|-----------|----------------|
| | | Day 1 | Day 7 | |
| | | Right side | Left side | |

UNDER PEER REVIEW

| | | | | Right side | Left side |
|--|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Pain (On NPRS: 0 to 10) | | 8 | | 3 | |
| Range of motion (cervical) | 1.Fexion 2.Extension 3.Lateral flexion | 35 30 30 | 30 25 30 | 70 80 48 | 65 80 45 |
| Range of motion (upper limb) | 1.Shoulder flexion 2.Shoulder extension 3. Abduction 4. Adduction 5. Medial rotation 6. Lateral rotation | 135 45 90 30 40 50 | 120 45 70 25 85 30 | 160 70 130 35 70 60 | 155 70 90 30 90 45 |
| Temporomandibular joint (cm) | Mouth opening | 2 | | 5 | |
| Manual Muscle Testing (MMT) (Grade: 0 to 5) | 1. Cervical flexors 2. Cervical extensors 3. Side flexors 4. Shoulder flexors 5. Shoulder extensors 6. Abductors 7. Adductors 8. Medial rotators | 2 2 3 3 3 3 3 2 | 2 2 2 2 2 2 2 2 | 3 3 3 3 3 3 3 3 | 3 3 3 3 3 3 3 3 |

| | | | | | | |
|--|---------------------|---|---|--|---|---|
| | 9. Lateral rotators | 2 | 2 | | 3 | 3 |
|--|---------------------|---|---|--|---|---|

DISCUSSION:

This case report details the patient's entire physical rehabilitation requirements after undergoing surgery for buccal mucosa carcinoma of squamous cell which includes composite resection of lesion, segmental mandibulectomy, MRND of left side and reconstruction under PMMC flap. Survivors with cancer face a high rate of morbidity due to different therapies including surgery radiation and chemotherapy. Positive outcomes from rehabilitation after surgical activities have been reported, suggesting that they enhance the standard of living in these patients. The findings of this study revealed improvements in mouth range of motion using Thera-bite range of motion scale, shoulder and cervical movement using goniometer, and strength of muscles using manual muscle testing.(7) Post operative physiotherapy treatment also improves the standard of living of patient, this has been assess by quality of life scale. The QOLS was initially a 15-item questionnaire that assessed five different aspects of standard of living: interpersonal connections, material and physical well-being, interpersonal connections, social, communal, and civic engagement, personal development and fulfilment, and enjoyment .(8)

Physical therapy has been found to promote physical and functional well-being by relaxing muscles, developing joint flexibility, reducing tiredness, increasing awareness of changed posture, walking, and breathing patterns, managing problems swallowing and mouth opening, and so on. used difficulty in eating and talking. (9)(10) In palliative care, the therapeutic consequences of physiotherapy treatment techniques to reduce cancer pain have been thoroughly established. Physiotherapy for the chest, muscle stretching, and mobility exercises have been identified as the most effective rehabilitation approaches.(11) Multidisciplinary rehabilitation including physiotherapy should be considered an

intrinsic element of the whole care of cancer survivors for reducing further complications and improving quality of life of patient

CONCLUSION:

The value of a well-designed physiotherapy management during the inpatient phase for buccal mucosa carcinoma postoperative patients in terms of pain reduction, progress in upper limb and cervical movement, mouth movements are highlighted in this case study. However, clinical studies in a comparable clinical setting employing a similar therapist-designed procedure might support the findings of the investigation.

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