

Physiotherapy and Head and Neck Cancers

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Review on Head and Neck Cancers

Among all Cancers, head and neck cancers constitute the majority of cases in developing country like India. Over 200,000 cases of head and neck cancer occur each year in India [1]. Head and neck cancers include oral cancers, pharyngeal cancers, laryngeal cancers, salivary gland cancers, cancers involving the skin of head and neck region, etc. Treatment for head and neck cancer involves surgery, radiotherapy and chemotherapy. Surgery involves excision of tumor from a primary site with margin, including dissection of the cervical lymph nodes in most of cases, with or without removal of the sternocleidomastoid muscle, jugular vein and spinal accessory nerve depending on disease burden. Defect created by surgery often requires immediate reconstruction using local, regional or free flaps.

Surgery followed by reconstruction has many acute and chronic complications [2]. With radiotherapy added during treatment either upfront or post operatively adds to morbidities already patient is at risk. Acute complications are wound infections, chyle leak, flap necrosis, donor site morbidity and medical morbidities, such as cardiac problems, deep vein thrombosis, etc. Chronic complications include shoulder pain/dysfunction, neck stiffness, edema, trismus, etc. Loss of motor innervation to the sternocleidomastoid and Trapezius, results in loss of mobility and strength of the shoulder leading into reduced cervical range of motion [3]. Skin complications include cervical contracture, pain, thickening and edema of tissue (lymphedema). Other complications include, restricted mouth opening and ankylosis of the temporomandibular joint. The sequela of the disease and the treatment interferes with the patient's quality of life.

Physiotherapy plays major role in rehabilitation of head and neck cancer survivors [4]. It prevents and/or treats multiple complications arisen because of treatment. Physiotherapy helps cancer survivors in restoring them physically, emotionally and socially.

Complications and physiotherapy management

Shoulder pain and weakness [5,6]: Neck dissection is associated with various shoulder dysfunctions such as shoulder droop, scapular dyskinesia, trapezius atrophy, loss of shoulder abduction and shoulder and neck pain which was first described by Ewing and Martin [7].

- Prevention of frozen shoulder through the active and assisted range of motion (ROM).
- Strengthening of scapular elevators and retractors.
- Neuromuscular retraining of shoulder girdle muscles.
- Preservation of Trapezius muscle tone through electrical stimulation.
- Providing shoulder support allowing recovery of the Levator scapulae.
- Use of orthosis giving support to shoulder.

Trismus/temporomandibular joint dysfunction (Figure 1) [8,9]:



Figure 1: Trismus.

- Mouth-opening exercises (oro-motor exercises).
- Use of jaw stretchers by increasing mouth opening (Figure 2).
- Diet modification, incorporating more semi-solid food.
- Use of moist heat to relax muscles.
- Dynamic splinting

Lymphedema [10,11]:

- Avoiding excessive heat or cold to skin.
- Sequential manual lymphatic drainage.
- Use of compression garments.
- Avoiding smoking as tobacco intervenes in wound healing.
- Nutritional advice keeping in mind positive protein balance.

Swallowing difficulty [12,13]:

- Diet modification and motivation.
- Weight recording and close watch on weight loss.
- Maintaining tongue strength and mobility.

- Laryngeal muscles exercises.
- Mendelson's maneuver (holding the larynx in its most supine position during swallowing, for 2-3 sec during each swallow).



Figure 2: Calipers (jaw stretchers).

Respiratory complications and Deep vein thrombosis:

Oral cancer ablative surgery mostly involves excision of the muscles and mucosa required for the swallowing. The resultant handicap produces risk of aspiration and respiratory complications. Since most of these patients are smokers and with compromised respiratory function, it is important to initiate chest physiotherapy and ambulation early in post-operative period.

Pain [14]:

- Use of oral and parental analgesics.
- Exercises, active or passive mobilization techniques.
- Postural and positioning education.
- Heat or cold massage therapy.
- TENS (Transcutaneous Electrical Nerve Stimulation).

Cervical contracture (Figure 3) [15]:

- Active and active-assisted ROM in all planes of neck motion.
- Additional stretch during end-range by exerting pressure with the contralateral hand.
- Postural modifications with help of visual aids.
- Self-massage to augment the efficacy of ROM activities.
- Compression garments: helping by applying compression.

Conclusion

Once cancer patient is cured by primary treatment modality most patients experience some physical impairment resulting in a physical disability [16]. This aspect of treatment is most neglected among all treating physicians, especially in third world countries.



Figure 3: Neck contracture.

It's our responsibility to ensure that all cancer patients regain maximum function, making them to return to all former duties. The exact functional deficits should be identified and proper rehabilitation should be started immediately. Preventive aspects of rehabilitation should be taught to the patient long before the patient develops symptoms. Multidisciplinary rehabilitation should be made an integral part of the total management of the head and neck cancer.

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