Tumors affecting the skin and its connective tissue
(Rehabilitation Medicine)

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Carcinoma of The Breast

The treatment plan for rehabilitating the patient with carcinoma of the breast depends on how far advanced the disease is on diagnosis. Radiotherapy and chemotherapy before surgery, mastectomy alone?

Depending on the tumor’s response to treatment, her rehabilitation program will need frequent readjustment as she experiences markedly limited shoulder range of motion, varying degrees of neurological involvement of the brachial plexus, edema and lymphedema, disabling pain, and ulceration of the skin.
Presurgical Evaluation

Is there a history of trauma injury, or disease of the bony or soft structures of the shoulder that may have limited its range of motion?
Exercise After Mastectomy

- Positioning to avoid stress on the shoulder or undue pressure on the ulnar nerve at the elbow
- Relaxation exercises to avoid tightness of the shoulder girdle
- Active ROM for the elbow, wrist, and fingers of the involved extremity
- One-handed activities of daily living
Fifth postoperative day,

Take baseline circumferential and volumetric measurements of both arms provide guidelines for proper skin and hand care.
Activities of Daily Living

Complete healing may take several weeks, one-handed activities, use of adaptive equipment
Preventing Lymphedema

Undergone a radical mastectomy or dissection of the axillary or inguinal lymph nodes are especially susceptible to developing lymphedema.
Lymphoedema

Definition

Lymphoedema is excessive interstitial fluid with a high protein content associated with chronic inflammation and fibrosis.

Lymphoedema can occur in any part of the body, generally a limb with or without adjacent trunk involvement. It is progressive and, if left untreated, becomes a gross and debilitating condition. Acute inflammation (whether infective or not) and trauma cause a rapid increase in swelling.
Causes

Lymphoedema may be:

- Primary, e.g. congenital
- Secondary, e.g. cancer and anticancer treatments, infections, trauma
In the UK, cancer and anticancer treatments account for most cases of secondary lymphoedema, i.e.:

- Axillary surgery
- Postoperative infection
- Radiotherapy
- Axillary, groin or intrapelvic recurrence
Clinical Features

- A swollen limb which feels tight and does not resolve with elevation
- If acute, will pit on pressure; when chronic, less or no pitting
- Impaired limb mobility and function
- Pain related to tissue swelling and/or shoulder strain. May be concurrent neuropathic pain if there is recurrence in the axilla
- Psychological distress because of altered body image, unsightlinees and imability to wear short sleeved garments or shoes
Management

Because lymphoedema cannot be cured, management focuses on maximizing improvement and long term control. The earlier treatment is started the easier it is to achieve a good result. Treatment is of there types:

- Standard
- Intensive
- Palliative

The choice of treatment depends on
- Whether there is local recurrence of cancer
- The patient’s general physical condition
- The state of the swollen limb
Criteria for and aims of lymphoedema management

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<td>Long term control of swelling</td>
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<td>Intensive</td>
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<td>Awkwardly shaped limb, e.g. deep skin folds</td>
<td>Improve skin condition</td>
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<td>digit swelling</td>
<td>Reduce volume</td>
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<td>severe trunk swelling</td>
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Skin Care

Wash and moisturize daily, e.g. with aqueous cream. This is often best done at bedtime. Give advice about avoiding trauma, thereby reducing the likelihood of infection.
Massage

Simple skin-moving massage of the affected limb and adjacent trunk bd. This stimulates skin lymphatic to contract, thereby increasing superficial lymphatic drainage. Areas affected by cancer should not be massaged. If appropriate, relatives can be taught to massage the skin.
Compression

International standard graduation compression garments class 1-3 or shaped tubigrip or light support bandaging, e.g. setopress, applied daily with soft padding
Exercise

Encourage normal use or gentle active or passive movements. If flaccid, use a broad arm sling when standing. Support the heavy limb when resting.

Patients must wear compression bandaging or a containment garment during exercise. The compression enhances the effect of muscle contraction on lymph flow and surface friction stimulates contractions in the superficial lymphatics.
Metastases to the spine

Spine Orthotic
Pruritus

Causes:
- Dry flaky skin (xerosis)
- Wet macerated skin
- Skin disease, e.g. contact dermatitis, scabies
- Drug reaction
- Cholestatic jaundice
- Renal failure
- Paraneoplastic, particularly in Hodgkin’s lymphoma (15%)
- Diabetes—usually localized and related to candidiasis
- Psychiatric
Management

A dry skin is almost always present in patients with advanced cancer who experience pruritus, even when there is a definite endogenous cause. Measures to correct skin dryness should precede specific measures, or go hand in hand with them.

Pruritus in renal failure is often more difficult to treat. It is associated with an increase in dermal mast cells and divalent ions (magnesium and calcium). In patients with hypercalcaemia associated with secondary hyperparathyroidism, correction of hypercalcaemia leads to the rapid of pruritus.
General Measures

- Discourage scratching; keep nails cut short; allow gentle rubbing
- Discontinue use of scap
- Use emulsifying ointment or aqueous cream as a soap substitute, or add oilatum to bath water
- Avoid hot, long baths
- Dry skin gently by patting with soft towel
- Avoid overheating and sweating
Disabilities Caused by Cancer

The type and stage of the tumor has a profound effect on what therapeutic modality is selected at any given stage of the cancer’s progression or remission.
Osteogenic sarcoma with amputation

Rehabilitation of patients who require amputation due to cancer differs from that of patients who require amputation for other reasons. Because the entire host bone must be removed in osteogenic sarcoma. The level of amputation is generally higher.
Managing lower-extremity amputation

- Chemotherapy may cause weight loss with corresponding rapid changes in stump size, as well as decreased strength and endurance.

- Hemipelvectomy or interscapulothoracic amputations are more common than below-knee or below-elbow amputations.
Managing upper-extremity amputation

Interscapulothoracic and shoulder disarticulation are the most common levels of amputation in treating cancer.

Once sufficient healing has occurred, a terminal device can be ordered and the patient can begin lessons in one-handed activities of daily living.
- Pre-amputation phase
- Amputation phase
- Post-amputation phase
  - Pre-prosthetic
  - Prosthetic
Levels of the amputation in the upper limb

Levels of the amputation in the lower limb
Phantom limb phenomenon (both phantom sensation and phantom pain) is a continuing memory of self body image/perception of the missing limb (amputated limb), with or without pain.
Phantom Limb

Past
Impulses from peripheral nerve tissue scars at the stump

Present
Central theory (stable neuroplasticity, cortical somatosensory reorganization, memory process).

- Converse situation with agnosia, neglect/denial syndrome
  - Amputee → stroke → phantom disappear
  - Brain imaging technique (PET, MEG) → cortical somatosensory reorganization / neuroplasticity process
    - Studies by Pons, Merzenich, Jenkins, Ramachandran, Katz, Kaas et.al on Monkeys and Human.
  - Neuromatrix theory of Melzack
  - Memory mechanism.
Dorsal column—medial lemniscal pathway

Cerebral cortex

Thalamus

Medial lemniscus

Dorsal column nuclei

Dorsal column

Dorsal root axon (Aα, Aβ, Aδ)

Midline

Spinothalamic pathway

Lateral spinothalamic tract

Dorsal root axon (Aδ, C)

Midline

Touch, vibration, two-point discrimination, proprioception

Pain, temperature, some touch
Penfield Somatosensory Homunculus
A3-26 **Nevus.** Nevi are benign proliferations of nevomelanocytes characterized by regularly shaped hyperpigmented macules or papules of a uniform color.
Gambar 1, 2 dan 3. Luka Kanker
A3-30 Nodular melanoma most commonly manifests itself as a rapidly growing, often ulcerated or crusted black nodule.
A3-31 Acral lentiginous melanoma is more common in blacks, Orientals, and Hispanics and occurs as an enlarging hyperpigmented macule or plaque on the palms and soles. Lateral pigment diffusion is present.