2 D Plan post MRM

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**Indication of Local RT following MRM**

- Primary > 5 cms
- Grave signs present
- Pathological evidence of skin/nipple invasion
- Perineural or lymphatic invasions
- > 20% positive axillary nodes
- Close margins
- Residual disease present
GRAVE SIGNS OF HAAGENSEN

- Tumor > 5 cms
- Skin oedema, fixation, ulceration
- Satellite nodules
- Axillary nodes 2.5 – 3 cms in diameter
RATIONALE

- Reduce the risk of locoregional disease
- Improve overall survival
Post Operative RT

- **Fletcher** showed the benefits of postoperative LRRT in reducing the nodal recurrence from 20% to <5%, and the chest wall recurrence from 30% to <10%.

- **ECOG group** also had shown the benefit of adjuvant postoperative RT for reducing the local and regional recurrence.
PORT in High-Risk Premenopausal Women with Breast Cancer Who Receive Adjuvant Chemotherapy

**Conclusions:** The addition of postoperative irradiation to mastectomy and adjuvant chemotherapy reduces locoregional recurrences and prolongs survival in high-risk premenopausal women with breast cancer.
Conclusions: Radiotherapy combined with chemotherapy after modified radical mastectomy decreases rates of locoregional and systemic relapse and reduces mortality from breast cancer.
TREATMENT TECHNIQUES
• Chest wall
• Axillary
• Supraclavicular
• Internal mammary field (sometimes)
• Bilateral MRM
Chest wall irradiation or radiation to breast flap

- Tangential photon field irradiation
- Single electron field
- Arc therapy
Tangential Photon Field Irradiation

- Patient Position & Immobilisation
- Simulation
- Contour
- Planning
- Verification
PATIENT POSITION
Tangential fields for chest wall RT

- Upper border is placed at the level of first or second intercostal space
- Lower border is placed 2 cm below the inferior mammary line
- Medial border is placed 1 to 2 cm away from the mid-sternal line to the opposite side.
- Lateral border is marked at the mid axillary line.
- Single Electron Field
- Arc therapy or Rotation
Axillary and supraclavicular field

- Inferior border of the field is placed at the upper border of the tangential field.
- Upper border is placed at the neck so that it includes the supraclavicular fossa.
- Marking starts at the level of suprasternal notch-1 cm medial to the SCM muscle and extends upwards along the medial border of the SCM. The patient’s head is tilted to the opposite side so that the SCM is taut and can be felt easily while marking.
Lateral border is placed at the acromioclavicular joint (junction of medial two third and lateral one third of Clavicle) and extend inferiorly to meet the inferior border.

If the axillary nodes are heavily involved histologically, the lateral border should extend up to the deltoppectoral groove, and in this situation the humeral head is protected by a circular shield.
If the axilla is extensively involved or in a fatty patient where the anterior field is unable to deliver adequate dosage to the axillary nodes.

- given as a boost towards the end of the treatment for the last 10-15 Gy.

- **Position**: patient is placed prone and head is turned to the contralateral side. The forearm is rotated downwards and the shoulder tip should touch the table top.
- The medial superior border follows the spine of scapula.
- The lateral superior border bisect the head of humerus.
- The lower lateral border is medial to the border of Latissimus dorsi.
- The inferior border matches the inferior border of anterior field.
- The straight medial border is drawn to allow 1.5-2 cm lung tissue to be shown on the simulator film.
Posterior Axillary Field
Portal for the IMC nodes

- **Lower border** lies just above the level of xiphoid process, or if the upper 3 IMnodes are to be included this border is at the 5th intercostal space level.

- **Medial border** of IMC is 2cm across the midline to the contralateral side and the lateral border is marked 3-4cm away from the midline towards the ipsilateral side.

- This portal is a rectangular field and the lateral border forms the junction between the IMC field and the medial tangential field for the chestwall.
When IMC field is placed along with the supraclavicular-axillary field, a common area abuts both the portals. This is shielded while treating the IMC, and is left open during the supraclavicular field irradiation.
Dose schedule

- Breast flap & nodal Irradition
- 50Gy/25# in 5 weeks. (Energy 6MV)
- Use of bolus
Challenge for a Radiation Oncologist – Simultaneous B/L Cancer Breast
PORT
Complications:

- **Acute**: general malaise, nausea and skin desquamation.

- **Late**: lung, heart, skin and soft tissues.
  - Sub-optimal RT techniques in the past resulted in excess cardiac deaths.
  - Modern radiation techniques reduced heart dose which decreased cardiac deaths and improvement of OS.

HER2, ER, vascular and lymphatic invasion, etc.

Other tumor characteristics

Mastectomy

All patients treated with neoadjuvant therapy and

Patients with 1 to 3 positive nodes

Patients with 4 or more positive nodes

Insufficient data to PMR:

Patients with T3 or Stage III Disease

ASCO Guidelines for PIRT

Take Home Message
Any Questions????
Thank you