“Local” therapy for Breast Cancer
Dr. Philip Lowry
The historical context of breast cancer treatment

- Removal of skin, breast, axillary nodes to level III, pectoralis muscles
- IM nodes not removed
- Chest wall defect skin grafted after granulating
Cancer Staging

• With the historical predominance of “local” therapies, staging would guide
  – Surgical candidacy and approach
  – Radiation fields

• Typical evolution of disease from localized at site of origin to regional lymph nodes to distant sites
Breast Cancer Stage
Brief Summary

Stage 0

– *in situ* disease only, no invasive component
– Usually treated with lumpectomy and radiation or mastectomy
  • selected cases may be approached with surgery only
  • hormonal therapy a consideration to prevent metachronous disease
Breast Cancer Stage Brief Summary

Stage I

– early node-negative disease with small lesion contained within the breast and away without skin or chest wall involvement

– Primary therapy is lumpectomy with radiation or mastectomy

– selected higher risk cases may benefit from adjuvant hormonal and/or chemotherapy
Breast Cancer Stage
Brief Summary

Stage II, III

– Larger lesion and/or node involvement
– Usually treated with multimodality therapy
Breast Cancer Stage
Brief Summary

Stage IV

– Distant metastases
– Incurable (with possible exception of selected cases of “oligometastatic” disease)
– Palliative treatment though prolonged responses can be seen in selected cases

(See handout for details of staging)
Evolution of Staging

• Incorporation of biologic characteristics that modulate prognosis and treatment options
  – For breast cancer: estrogen receptors, progesterone receptors, Her2neu
  – Stage based treatments may be altered in the face of differing biological profiles

• Increasingly view breast cancer as a *systemic* not local issue
  – Coordinated local and systemic therapies make anatomic staging only the start of patient evaluation
  – Patient characteristics such as age, performance status
  – Gene expression
Breast Conserving Surgery ("Lumpectomy")

- Regional resection of malignant tumor
- Sampling of axillary nodes usually through a separate incision
Breast Conserving Surgery ("Lumpectomy")

- Better cosmetic result in appropriately selected, especially with oncoplasty
- Same day surgery procedure, lesser complications
- Does require radiation in most cases
  - Smaller Ductal Carcinoma in Situ lesions (DCIS) with good margins and women over 70 with favorable early stage invasive disease who are treated with hormone therapy may forego post BCS radiation
- Contraindications: active connective tissue disease, previous radiation, widespread disease, high genetic risk
Breast Conserving Surgery ("Lumpectomy")

• Issues:
  – Can have ipsilateral relapse or metachronous primary
  – Ongoing need for mammography
  – Margin status and need for re-resection or even mastectomy
Modified Radical Mastectomy
Mastectomy

- Often but not always avoids radiation, less time and radiation tissue damage
- No need for ongoing mammography even with reconstructed breast, less anxiety
- Requires hospitalization, more operative morbidity, issue of reconstruction
ESSENTIALLY EQUIVALENT OUTCOMES YET AN INCREASING NUMBER OF WOMEN ARE CHOOSING MASTECTOMY EVEN BILATERAL MASTECTOMY.
Are Women Making “Informed” Decisions Regarding Breast Cancer Surgery?

• Physicians focus on survival and recurrence issues while women focus on time for radiation and anxiety of conserved breast issues. Need to reassess our values – are women making informed decisions?

• [Some possible advantage to BCS and radiation?]

• The role for chemotherapy and/or hormonal therapy is determined independent of the surgical procedure
Surgical Management of the Axilla

• Historically, aggressively remove all axillary nodes (breast cancer as a local disease) but with more routine use of systemic therapy and better radiation techniques, less critical to do so.
• Nodal status is important to stage and guide therapy
• Clinically positive axilla – traditional axillary dissection unless a core biopsy is negative
• Otherwise sentinel lymph node (SLN)
Sentinel Lymph Node

“First stop” for cancer cells “metastasizing” from primary site
(Issues of semantics)
Sentinel Lymph Node Sampling

• Could omit where will not impact treatment or prognosis such as DCIS, older women, very small tumor especially incidentally discovered.

• Traditionally, with positive SLN proceeded to full axillary dissection but can omit if T1/2 tumor, only 1 or 2 positive SLNs especially if non-palpable, planned axillary irradiation.
Modern irradiation techniques allow a safer and more conformal administration, less dose to heart and lungs.
Radiation Therapy for Breast Cancer

Whole breast irradiation (post BCS)
- Traditionally 50 Gy in 25 fractions, now 40-42.5 Gy in 15-16 fractions
- 4-8 fraction “boost” especially age < 50, high grade, focal + margins

Chest wall irradiation (following mastectomy for high risk disease)
- Large primary > 5 cm and/or positive nodes especially > 3
- Also consider if close or positive margins, triple negative disease, young age, lymphovascular invasion
- 46-50 Gy in 23-25 fractions followed by scar boost to 60 Gy total

Regional nodal irradiation for known or high risk of nodal involvement (large or aggressive tumor)
Radiation Therapy for Breast Cancer

Accelerated partial breast irradiation - investigational and some cosmesis issues

May be an option for older patients, small tumors, favorable histology
Radiation Therapy for Breast Cancer
References

www.uptodate.com
www.cancer.gov
www.nccn.org


Hwang, et al. “Survival After Lumpectomy And Mastectomy for Early Stage Breast Cancer.” Cancer 2013; 119: 1402-1411. [Observational study that suggests a slight advantage to BCS and radiation especially age > 50 and hormone receptor positive.]