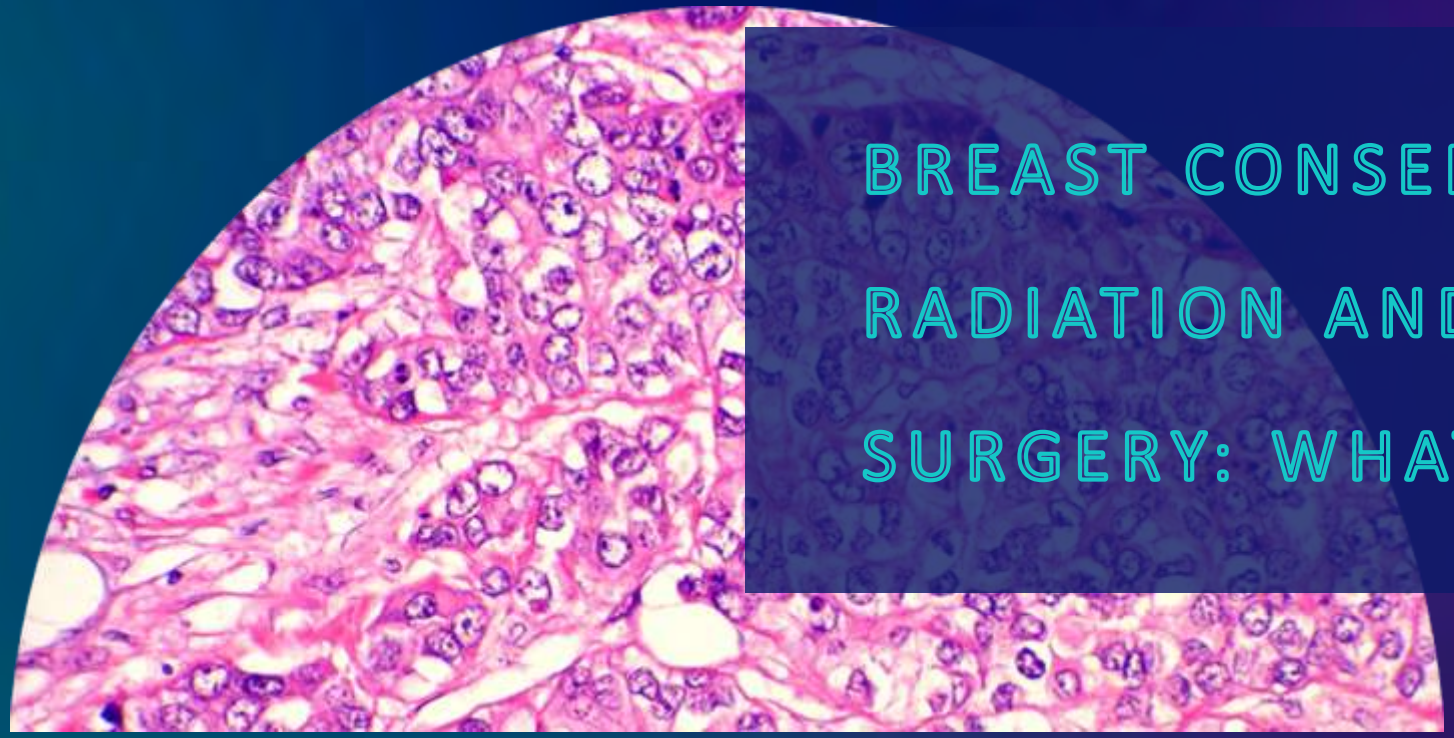


BREAST CONSERVATION, RADIATION AND ONCOPLASTIC SURGERY: WHAT TO EXPECT

Jessica Maxwell MD MS FRCSC FACS
Section Chief, Breast Surgery, Division of Surgical Oncology
Associate Professor, University of Nebraska Medical Center
Medical Director, Nebraska Medicine Multidisciplinary Breast Program

NO RELEVANT FINANCIAL DISCLOSURES

Honorarium, Dilon Technologies

GLOBAL OBJECTIVE

To review the relationship between radiation and oncoplastic surgery and their effects on aesthetic outcomes for patients with breast cancer.

PRESENTATION OBJECTIVES

1. Review the basic principles of oncoplastic breast surgery
2. Describe the challenges that oncoplastic surgery can present for radiation planning
3. Explain the relationship between oncoplastic surgery, radiation, and aesthetic outcomes

WHAT *IS* ONCOPLASTIC SURGERY, ANYWAY??

A LITTLE ART

Development of an aesthetic eye

SPECIFIC TECHNIQUES

Volume Displacement vs. Volume Replacement
Level I vs. Level II

A LOT OF SCIENCE

Decades of research demonstrate oncologic safety

A MINDSET

Considering the whole patient, not just their disease

LEVEL I VS. LEVEL II PROCEDURES

LEVEL I: <20% BREAST VOLUME EXCISED

- Local tissue rearrangement
- Crescent mastopexy
- Round block mastopexy

LEVEL II: 20 – 50% BREAST VOLUME EXCISED

- Pedicle based
- Circumvertical mastopexy
- Reduction mammaplasty

CASE SCENARIO

57 year-old female

- Diagnosis:
  - Right breast triple negative IDC
  - Grade 3, + LVSI, Ki67 60%
  - cT12N0
  - ypT1cN0
- Pre op asymmetry noted
- Desired balancing procedure

CHEMO

Neoadjuvant dose dense AC -> T x 4 cycles

Adjuvant capecitabine x 8 cycles

SURGERY

Right seed localized lumpectomy and sentinel node biopsy

Bilateral breast reduction

RADIATION

Adjuvant WBRT

4256 cGy in 16 fractions

PRE-OPERATIVE

Photos courtesy of Dr. Heidi Hon

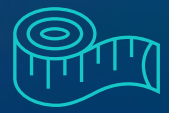
CHALLENGES FOR RADIATION

TUMOR BED

Seroma cavity is not always reliable
Surgeons must mark the tumor bed intra-op

MARGINS

Lower positive margin rates
Can generally re-excise



VOLUME LOSS

Can be a challenge to accurately predict

WOUND HEALING

Larger incisions, moving nipple around, large tissue flaps may delay healing

RETHINK THE SEROMA AND SCAR

- Scar does not indicate tumor location
- Does not reliably mark the tumor cavity
- May have multiple sites of seroma formation
- May have little to no seroma

MARKING OPTIONS

- Clips
- Implantable devices
- Radio-opaque suture material

MARGINS

WHEN DO WE RE-EXCISE?

- Invasive disease = no ink on tumor
- DCIS = 2mm
- Consideration of margin width and omission of radiation

RE-EXCISION

- Margin positivity rate lower in OPS cases
- Almost always possible without moving to mastectomy
- May need to take down pedicle or local flap to find cavity
- Multiple positive margins or repeat re-excisions may require mastectomy

CAN WE PREDICT?

- 10-15% volume loss historical estimate
- Studies on autologous flap volume loss suggest 20-25% is more accurate

HOW AND WHEN DO WE MANAGE ASYMMETRY?

- Perform contralateral balancing procedure at time of cancer surgery
    - 6% revision rate for symmetry at 5 years (MD Anderson)
- Revise the non-irradiated breast
- Fat grafting to the radiated breast
- At least 1 year post radiation
    - The longer the better

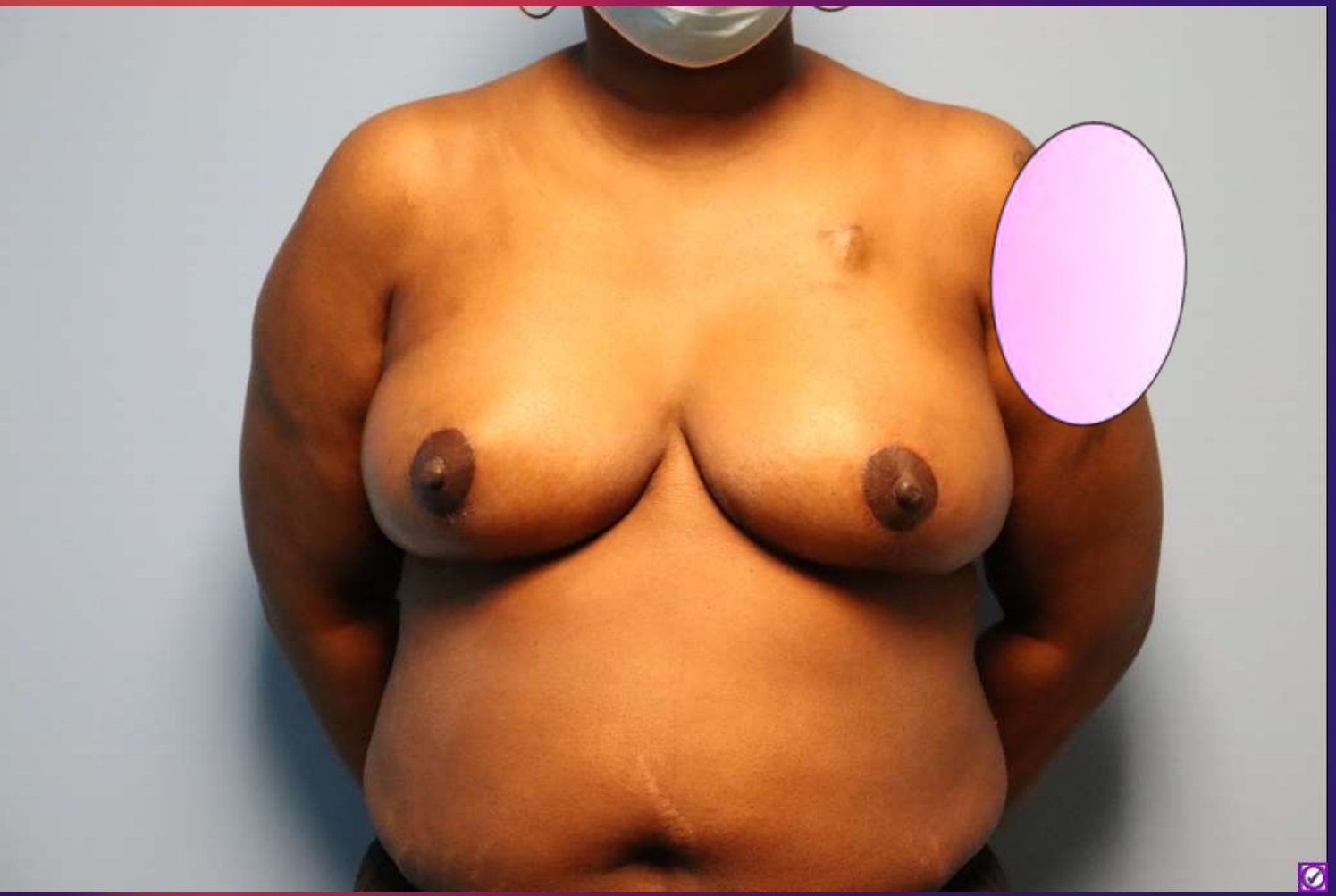
IS THIS A REAL CONCERN?

- Complication rates are higher than standard BCS
- Complications usually occur prior to radiation
- Multiple studies show no significant delay to radiation in OPS cases

COMMON PITFALLS

- T junction dehiscence with wise pattern reduction incision
- Contralateral breast rarely an issue

IMMEDIATE POST-OPERATIVE

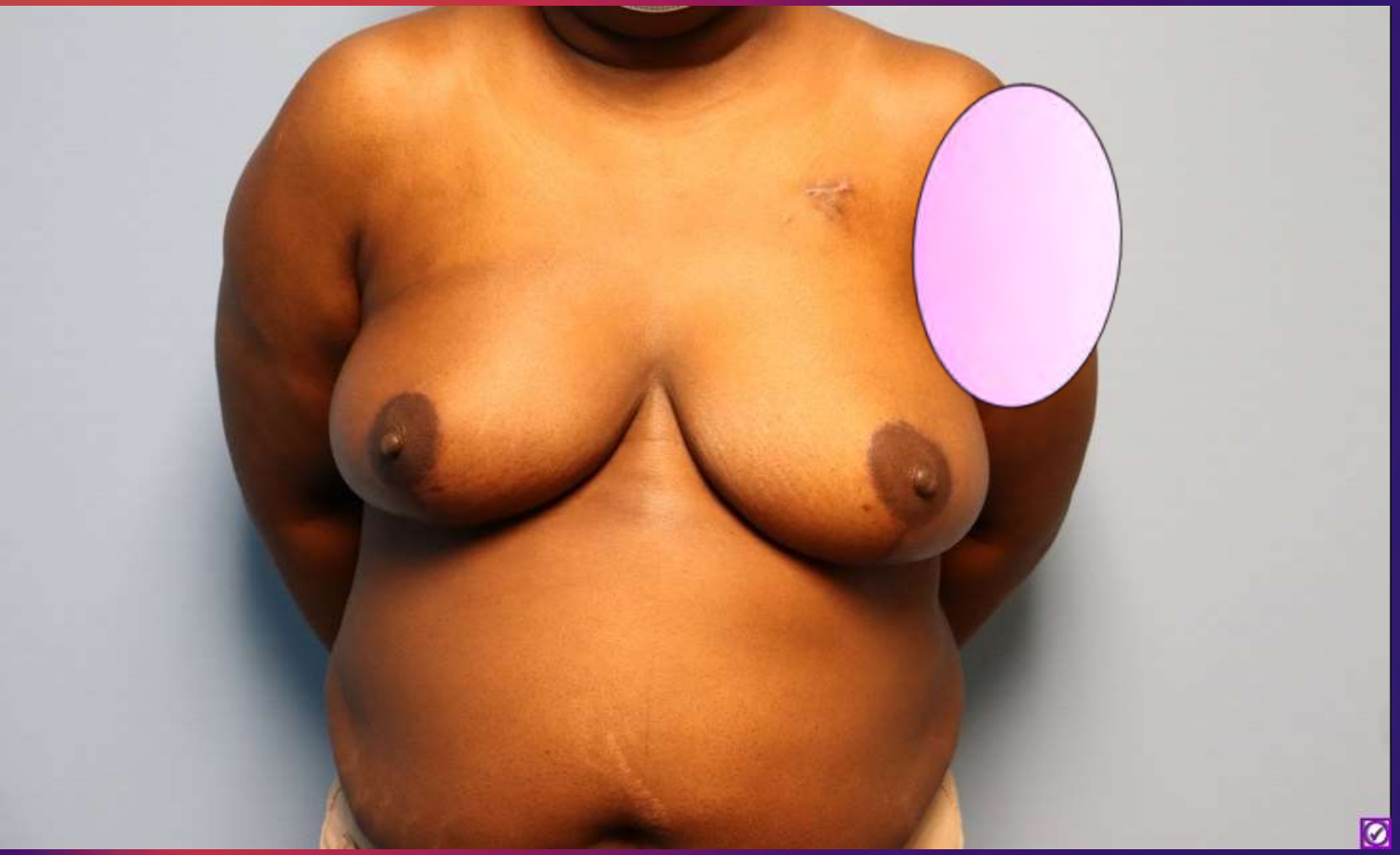


Photos courtesy of Dr. Heidi Hon

3 MONTHS POST RADIATION

Photos courtesy of Dr. Heidi Hon

9 MONTHS POST RADIATION



Photos courtesy of Dr. Heidi Hon

SUMMARY

- Radiation affects oncoplastic outcomes
- Oncoplastic surgery affects radiation outcomes
- Best oncologic and aesthetic outcomes are not mutually exclusive
- Careful planning and multidisciplinary approach are key for achieving patient care goals

THANK YOU

Jessica Maxwell MD MS

jessica.maxwell@unmc.edu

REFERENCES

1. Jacobs JED, Al Shaer S, Schmidbauer U, de Leeuw DM, Rakhorst HA, Zöphel OT. The anterior LICAP flap: a design option for oncoplastic breast reconstruction. Case Reports Plast Surg Hand Surg. 2021 Oct 1;8(1):158-163. doi: 10.1080/23320885.2021.1986048. PMID: 34621915; PMCID: PMC8491666.

2. Metz G, Snook K, Sood S, Baron-Hay S, Spillane A, Lamoury G, Carroll S. Breast Radiotherapy after Oncoplastic Surgery-A Multidisciplinary Approach. Cancers (Basel). 2022 Mar 25;14(7):1685. doi: 10.3390/cancers14071685. PMID: 35406457; PMCID: PMC8996843.

3. Tse T, Knowles S, Bélec J, Caudrelier JM, Lock M, Brackstone M, Arnaout A. Consensus statement on tumour bed localization for radiation after oncoplastic breast surgery. Curr Oncol. 2020 Jun;27(3):e326-e331. doi: 10.3747/co.27.5977. Epub 2020 Jun 1. PMID: 32669940; PMCID: PMC7339854.

4. Haykal S, White CP, Guay NA. An estimation of volume loss after radiation therapy on free flap breast reconstruction. Plast Reconstr Surg. 2013 Jun;131(6):937e-939e. doi: 10.1097/PRS.0b013e31828bd94f. PMID: 23714836.

5. Deigni OA, Baumann DP, Adamson KA, Garvey PB, Selber JC, Caudle AS, Smith BD, Hanson SE, Robb GL, Schaverien MV. Immediate Contralateral Mastopexy/Breast Reduction for Symmetry Can Be Performed Safely in Oncoplastic Breast-Conserving Surgery. Plast Reconstr Surg. 2020 May;145(5):1134-1142. doi: 10.1097/PRS.0000000000006722. PMID: 32332525.

6. Salinas HM, Ainuz BY, Pourmoussa AJ, Levitt EB, Ali A, Bouz A, Treiser MD, Medina MA. Oncoplastic Augmentation Mastopexy in Breast Conservation Therapy: Retrospective Study and Postoperative Complications. Ann Plast Surg. 2023 Jan 1;90(1):33-40. doi: 10.1097/SAP.0000000000003386. PMID: 36534098.

7. Hillberg NS, Meesters-Caberg MAJ, Beugels J, Winkens B, Vissers YLJ, van Mulken TJM. Delay of adjuvant radiotherapy due to postoperative complications after oncoplastic breast conserving surgery. Breast. 2018 Jun;39:110-116. doi: 10.1016/j.breast.2018.04.005. Epub 2018 Apr 12. PMID: 29656223.