



4-1-2008

Breast Brachytherapy Outcomes Evaluation

Margaret S. Pierce

University of Tennessee - Knoxville, ppierce@utk.edu

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Recommended Citation

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BREAST BRACHYTHERAPY OUTCOMES EVALUATION



***Margaret Pierce DNP, APRN, BC
University of Tennessee
Knoxville, Tennessee***



Background

- 178,000 women diagnosed with breast cancer in US in 2007
- 62% localized to breast (stage T1, T2)
- Treatment options include:
 - *Mastectomy*
 - *Partial mastectomy with whole breast irradiation*
 - *Partial mastectomy with brachytherapy*

50% choose mastectomy

MASTECTOMY

1 IN 8
YOUR CHANCES OF GETTING BREAST CANCER

Breast Cancer Striking Younger Than Ever

YOUR BREASTS: NOT JUST FOR LOOKS

BREAST CANCER EPIDEMIC: What's Behind It?

BREAST CANCER QUIZ: Are You At Risk?

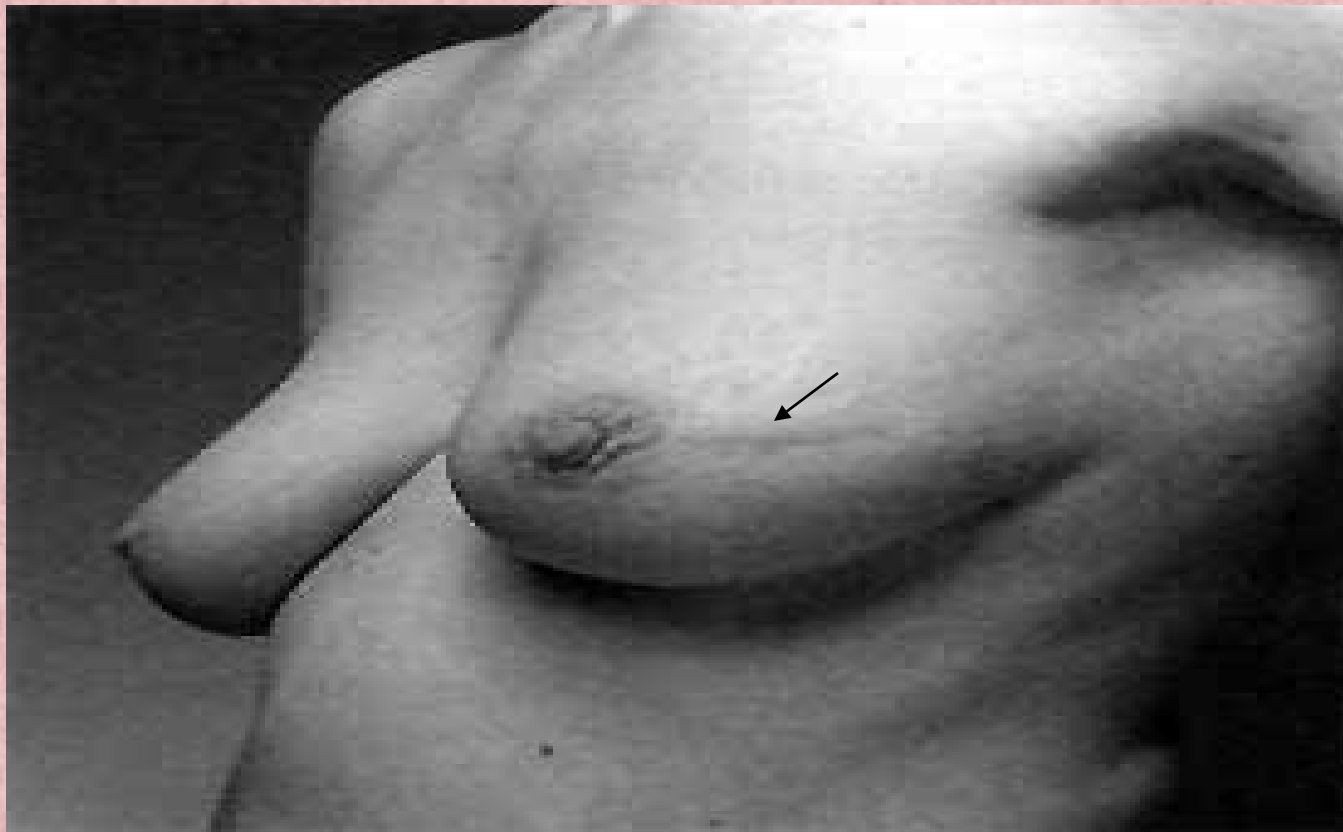
PROFILE OF A KILLER

We're obsessed with breasts. But what are you doing about breast cancer? www.breastcancerfund.org

The advertisement features a woman with dark, curly hair and a serious expression. She is wearing a thin-strapped, patterned top and an orange skirt. A prominent, raised scar is visible on her left chest, indicating a mastectomy. The background of the ad is a dark purple color with white and yellow text. The woman is positioned in the center, with the text arranged around her.



50% choose partial mastectomy
with whole breast irradiation







Whole Breast Irradiation

- 5-7 weeks of daily treatments
- Disease-free survival is significantly improved with completion of therapy
- ***25% do not complete course of radiation***



Background

- Tumor bed most common site of recurrence
- Led to efforts to target therapy to surgical site
 - Limit radiation side effects?
 - No increased risk of recurrence

Interstitial catheters



www.gammawest.com/images/clip_image006.jpg

Balloon Brachytherapy

- Placement of balloon catheter before treatment with radioactive seed placement twice daily for 5 days.
- Localized irradiation



innovation.freedomblogging.com/files/2007/10/

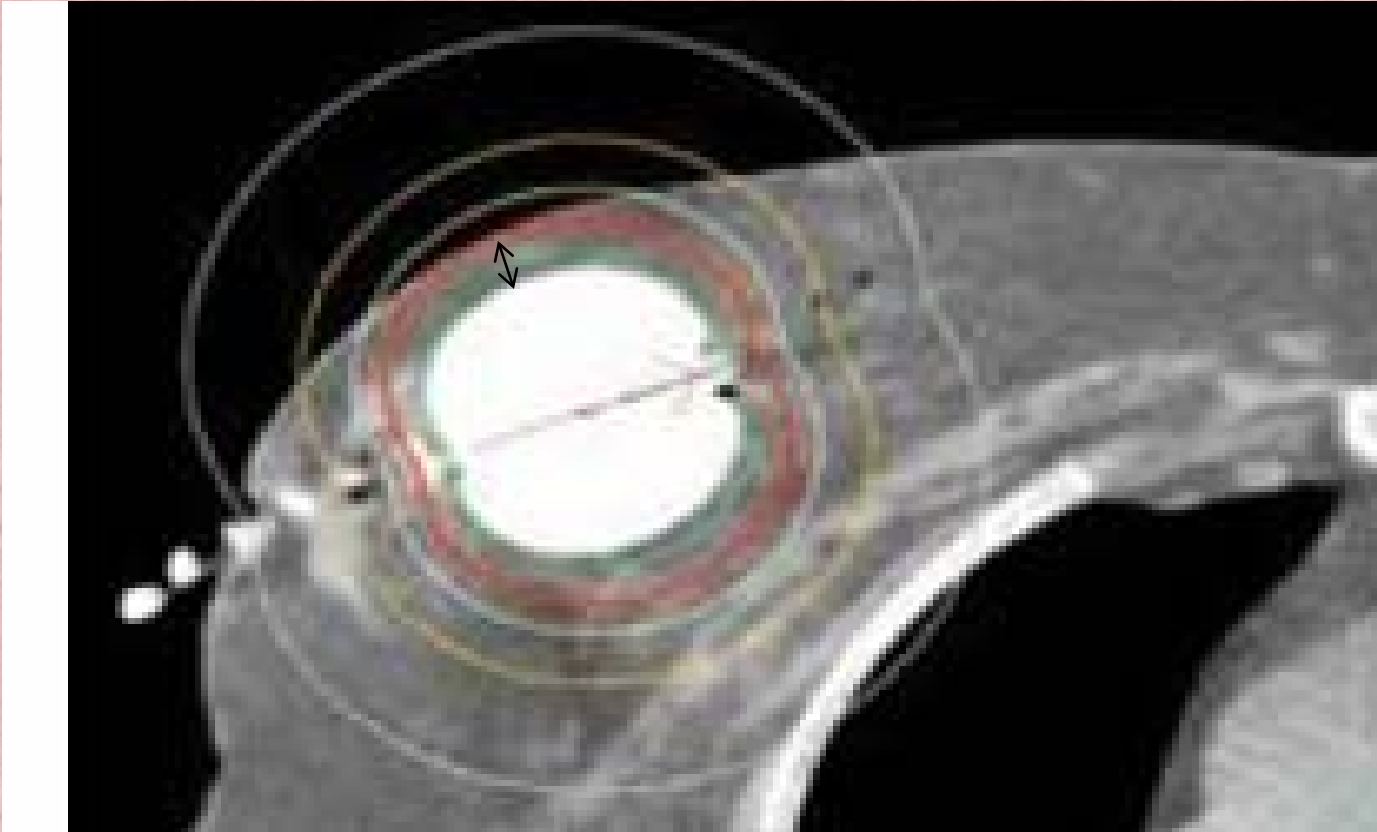


innovation.freedomblogging.com/files/2007/10/



Surgical Placement of Catheter, Continued

The wound is closed and you can see the catheter exiting the skin. www.breastlink.com/.../img-mammosite-2.jpg



www.evansvillecancercenter.com/publications

Literature Review

- Initial studies- survival and cosmetic outcomes comparable to whole breast irradiation.
- Identification of variables affecting outcomes other than tumor size, cell type and grade has been limited

Literature Review

- Most studies published in medical journals
 - Focused on disease recurrence rates, complication rates, and MD-judged cosmesis
- No nursing studies

Research Questions

- For women selecting breast brachytherapy
 - What are most frequent complications?
 - What are the relationships of subject characteristics to treatment outcomes?
 - What are the relationships of tumor characteristics to treatment outcomes?
 - What are the relationships of treatment variables to outcomes?

Method

- Retrospective case series study
- Medical records of subjects presenting for breast brachytherapy within the first year of treatment availability at study center

Subject Characteristics

- N= 65, all Caucasian
- Age 44-83 years, mean age- 62
- BMI 20-49, mean 29.45
- Breast size- 70% A, B, or C; 30% \geq D
- Post-menopausal 58 (90%)
- HTN 32 (50%)
- OA 21 (32%)
- DM 13 (20%)

Tumor Characteristics

- 92% T1, 8% T2
- 75% IDC
- Grade
 - 46% 1
 - 26% 2
 - 26% 3
- 75% ER/PR+
- Quadrant
 - 52% UOQ
 - 19% UIQ
 - 13% LOQ
 - 10% LIQ
 - 6% Subareolar

Therapy-related Characteristics

- Margins
 - 58% \leq 2mm
 - 42% \geq 2mm
- Re-resection
 - 26%
- Chemotherapy
 - 61% endocrine
 - 21% anthracycline
 - 23 % other
- Surgery to catheter placement
 - Range 0-60 days
 - Mean/median 21.7/21 days
- Catheter in place (days)
 - Range 6-13
 - Mean/median 8.6/9

Results

- Disease recurrence
 - None at F/U (12-18 months)
- Cosmesis
 - Excellent/Good 47/56 (84%)
 - As noted by MD
 - Not documented for 9 subjects
 - Few records included patient perception

Results: Complications

Complication	N	%
Infection	7	10.8
Chronic Pain	8	12.3
Seroma	18	27.7
Rad. Recall	5	7.7
Fibrosis	6	9.2

Results: Personal Characteristics and Outcome

* p<.05, ** p<.01

	Chronic pain	Fibrosis	Infection	Cosmesis
Age	**	(-) **		
Menopause Status		(-) **		
DM				
RA				

Results: Tumor Characteristics and Outcome

* $p < .05$, ** $p < .01$

	Recall	Erythema	Pain	Infection	Fibrosis	Cosmesis
Grade	**					
ER	(-)**					
PR	(-)**					

Results: Treatment Characteristics and Outcomes

* $p < .05$, ** $p < .01$

	Seroma	Hematoma	Chronic pain	Recall	Cosmesis
Re-resection	**		**		(-)**
Node dissection		**			
Anthracycline			**	**	
Time:Surg to catheter			**		
Time:Cath in place		**			



Conclusions

- Outcomes of recurrence, cosmesis, seroma and infection similar rates as previously published studies.
- Re-resection was associated with seroma, chronic pain, and poorer cosmetic outcome.
- Younger age and re-resection were associated with fibrosis.
- Axillary node dissection was associated with infection, fibrosis and pain.
- Initial data suggests good to excellent cosmetic outcomes and disease control.



Conclusions (cont.)

- Women with radiation recall reactions may be at greater risk for infection and seroma.
- Older women were more likely to report pain and drainage from catheter site after therapy.
- Recall reactions occurred in 5 of 14 subjects receiving anthracycline therapy.
- Menopausal status was negatively associated with erythema and fibrosis.



Limitations

- Incomplete documentation of cosmetic and complications in medical records made outcome evaluation incomplete.
- Small sample size.
- Number of variables to consider in analysis large for data set size.
- Patient satisfaction documented in only 37% of subjects.



Implications for Research

- Prospective study with standard data collection tool.
- Follow this cohort for long-term outcomes.
- Comparative analysis of outcomes with other therapies.
- Sexuality effects of treatment
- Qualitative studies-
 - Decision-making re: treatment options.
 - Women's perceptions of outcomes.



Implications for Practice

- Minimize catheter time
- Prophylactic Abx
- Anthracycline Rx?- more aggressive prophylaxis & monitoring
- Promote early detection
- Ensure education re: treatment options

