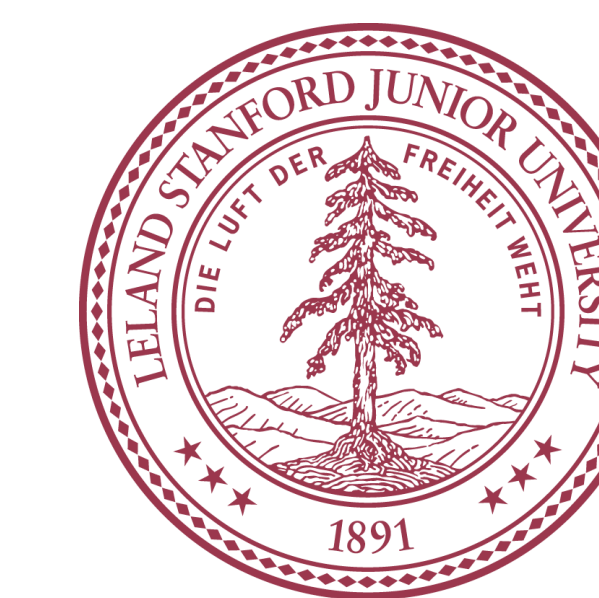




Association of Clinical and Pathologic Variables with Lumpectomy Surgical Margin Status after Preoperative Diagnosis or Excisional Biopsy of Invasive Breast Cancer

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Introduction

Core biopsy techniques have become an increasingly preferred method for diagnosis of breast cancer. There are limited data on the relationship between various clinicopathologic factors and the surgical outcome of lumpectomy in the setting of preoperative biopsy. This study examines the impact of a variety of these factors in patients undergoing breast conservation. The primary purpose of the study is to evaluate the impact of preoperative diagnosis relative to clinicopathologic factors in obtaining negative lumpectomy margins.

Methods & Materials

Five hundred and thirty five consecutive patients who underwent breast conservation surgery and radiation for Stage I or II breast cancer during the period 1971 –1996 were included in this retrospective analysis. Of these, 399 patients had a defined inked margin status after initial excision and pathologic review. Sixty seven underwent core or fine needle biopsy prior to excision and 328 underwent excisional biopsy for mammographically detected or palpable lesions. One hundred and twenty nine had negative margins at initial excision (no invasive or in situ cancer within 2mm from the inked margin), and the remainder had close (98) or positive (172) margins. The following factors were evaluated for correlation with margins at initial excision: T stage, age, grade, family history, histology, estrogen receptor status, presence of EIC, presence of LVI, and biopsy type (excisional/core or needle) using statistical software with chi-square analysis.

Results

Significant correlations of initial margin status with clinical and pathologic factors for the entire group and for a group treated since 1992 are shown in the tables below. The use of core or needle biopsy was the variable most associated with negative initial margins. Among patients who underwent preoperative biopsy, 52% had negative initial margins as compared to 29% for excisional biopsy. Age less than 45 years, EIC, ER status and lobular histology were also significantly related to initial margin status. The rate of re-excision was 34% for patients diagnosed with core or fine needle biopsy vs. 61% with excisional biopsy (p<.0001).

Among patients who underwent preoperative diagnostic biopsy, only lobular histology (p=.04) and LVI (p=.04) were significantly associated with initial margin status. For patients with lobular histology, none (0/4) had negative margins after preoperative biopsy vs. 55% (23/63) for non-lobular histology. With LVI, 31% (4/13) had negative margins as compared to 64%(23/36) in the absence of LVI.

Percentage with Negative Initial Margins by Biopsy Type , Age, EIC, ER status, and Histology

	Core/Needle Preop	Excision	p
Whole group	35/67 (52%)	94/328 (29%)	<.0001
Since 1992	35/67 (52%)	41/161 (24%)	<.0001

	<=45 years	>45 years	p
Whole group	17/79 (22%)	112/320 (35%)	.02
Since 1992	4/32 (13%)	72/196 (37%)	.003

	EIC present	EIC absent	p
Whole group	6/49 (12%)	80/229 (35%)	.002
Since 1992	5/39 (13%)	51/143 (36%)	.004

	ER positive	ER negative	p
Whole group	68/184 (37%)	15/72 (21%)	.02
Since 1992	49/124 (40%)	10/48 (21%)	.01

	Lobular	Other histology	p
Whole group	3/26 (12%)	126/373 (34%)	.02
Since 1992	2/16 (13%)	74/212 (35%)	.04

Conclusions

This study attempted to assess the impact of preoperative diagnosis along with other clinicopathologic factors that may impact the adequacy of initial excision. A single recently published series by Dillon et al^[i] also evaluated several factors along with biopsy type. They found preoperative diagnosis (p<.0001), macroscopic multifocality (p<.0001), EIC (p = .002), lobular histology (p=.024) and tumor size or stage to impact the risk of compromised margins. Age <45 (p=.02) and lobular histology (p=.07) were related to the risk of finding residual disease at re-excision. However, they defined negative margins as those with a >=5mm tumor-margin distance. With a more conventional definition of negative margins for the United States (>2mm tumor-margin distance), our results confirm the importance of preoperative diagnosis, along with EIC, lobular histology, age and ER status. Among patients who had preoperative diagnosis, only lobular histology and LVI were related to attainment of negative margins. Further improvements in preoperative and/or intraoperative evaluation may be needed to improve reoperation rates for lobular histology.

[i] Dillon, MF, Hill, AD, Quinn, CM, McDermott, EW, O'Higgins, N. A pathologic assessment of adequate margin status in breast-conserving therapy. Ann Sur Oncol 2006; 13: 333-339.