ICD-O-3
Carcinoma, infiltrating ductal, NOS 8500/3
Path Site: breast, lower outer quadrant C50.5
CQCF Site: breast, NOS C50.9 2/15/11 hr

TSS: -

SPECIMENS:

A. SENTINEL LYMPH NODE 1 LEFT AXILLA
B. SENTINEL LYMPH NODE 2 LEFT AXILLA
C. SENTINEL LYMPH NODE 3 LEFT AXILLA
D. LEFT BREAST

DIAGNOSIS:

A. SENTINEL LYMPH NODE #1 LEFT AXILLA, EXCISION:
- METASTATIC ADENOCARCINOMA, IDENTIFIED IN ONE LYMPH NODE (MICROMETASTASES, 1.8 MM IN GREATEST DIAMETER).

B., C. SENTINEL LYMPH NODES #2-3, LEFT AXILLA, EXCISION:
- TWO LYMPH NODES, NEGATIVE FOR MALIGNANCY (0/2).

D. LEFT BREAST, MASTECTOMY:
- WELL DIFFERENTIATED INFILTRATING DUCTAL CARCINOMA, (1.5 CM IN GREATEST DIAMETER, SBR GRADE I).
- MULTIFOCAL INTERMEDIATE GRADE DUCTAL CARCINOMA IN SITU (CRIBRIFORM, MICROPAPILLARY, AND PAPILLARY PATTERNS).
- PROLIFERATIVE TYPE FIBROCYSTIC CHANGES.
- ATYPICAL DUCTAL HYPERPLASIA.
- ATYPICAL LOBULAR HYPERPLASIA.
- CHANGES CONSISTENT WITH PREVIOUS BIOPSY SITE, UPPER INNER QUADRANT, WITH ORGANIZING HEMATOMA.
- THREE ADDITIONAL LYMPH NODES, NEGATIVE FOR TUMOR (0/3). SEE COMMENT.

SPECIMEN(S):

A. SENTINEL LYMPH NODE 1 LEFT AXILLA
B. SENTINEL LYMPH NODE 2 LEFT AXILLA
C. SENTINEL LYMPH NODE 3 LEFT AXILLA
D. LEFT BREAST

UUID:F23523C7-B6E9-4205-BD36-D76E9EE9C453
TCGA-E2-A1L6-01A-PR
Redacted

CLINICAL HISTORY:

year old with left breast ca

GROSS DESCRIPTION:

A. SENTINEL LYMPH NODE 1 LEFT AXILLA
Received fresh for touch prep evaluation labeled with the patient name designated "A - sentinel lymph node #1 left axilla" is a beige-tan lymph node measuring 1.6 x 1.2 x 0.7 cm. The specimen is bisected, touch preps are performed. The entire specimen is submitted in a cassette labeled A1.
B. SENTINEL LYMPH NODE 2 LEFT AXILLA
Received fresh for touch prep evaluation labeled with the patient name designated "B – sentinel lymph node #2 left axilla" is a fragment of yellow beige soft tissue measuring 2.2 x 1.8 x 0.5 cm. A tan lymph node is identified and measures 0.6 x 0.5 x 0.4 cm. The lymph node is bisected, touch preps are performed. The entire specimen is submitted in cassette labeled B1.

C. SENTINEL LYMPH NODE 3 LEFT AXILLA
Received fresh for touch prep evaluation labeled with the patient name designated "C – sentinel lymph node #3 left axilla" is a tan lymph node measuring 1.3 x 0.9 x 0.5 cm. The specimen is bisected, touch preps are performed. The entire specimen is submitted in a cassette labeled C1.
D. LEFT BREAST
Received fresh for tissue procurement labeled with the patient name designated "D – left breast" is a mastectomy specimen weighing 228 grams measuring 15.3 x 15.0 x 3.0 cm. The axilla measures 5.0 x 3.5 x 1.0 cm. The specimen is received with orientation, a black suture indicating the axillary tail. The specimen is inked as follows: posterior deep margin, black; anterior, blue. The overlying ellipse of beige-tan skin measures 8.0 x 2.5 cm. The light beige areola measures 2.0 cm in diameter. The everted nipple measures 0.9 cm in diameter. The specimen is serially sectioned from medial to lateral.

TSS:

Cut section shows a firm, granular beige-tan mass in the lower outer quadrant approaching the deep margin at a distance of 0.2 cm. The mass measures 1.5 x 1.3 x 1.2 cm and is located 4.5 cm from the axilla. Extending from the area of the mass through the central portion and to the medial, beige-tan fibrous parenchyma is demonstrated. In the upper inner quadrant there is a hemorrhagic well-circumscribed area measuring 2.4 x 1.6 x 1.0 cm. This area approaches the deep margin at a distance of 0.2 cm and is located 4.8 cm from the lesion. A portion of the specimen is submitted for tissue procurement. Representative sections are submitted as follows:

D1-D4: sections of the lesion and overlying posterior margin lower outer quadrant
D5-D9: representative sections of central fibrous tissue
D10-D17: the entire hemorrhagic area in the upper inner quadrant
D18-D20: representative sections from the upper outer quadrant
D21-D23: representative sections from the lower inner quadrant
D24-D25: sections of nipple
D26: representative section of skin
D27-D30: possible axillary lymph nodes

COMMENT:

Re-examination of the original touch-prep examined at the time of the intra-operative consultation again was interpreted as no evidence of malignant cells on this slide. The permanent sections from the lymph node however, show a micrometastases, (1.8 mm). Gross examination of the breast reveals an ill defined mass in the lower outer quadrant measuring 1.5 x 1.3 x 1.0 cm in greatest extent. In addition, in the upper inner quadrant there is a hemorrhagic area measuring 2.4 x 1.6 x 1 cm.

BREAST CANCER TEMPLATE:

Specimen type:	Mastectomy
Needle localization:	No
Laterality:	Left
INVASIVE TUMOR:	Present
Multifocal:	No
Histologic type:	Ductal
Tumor Size (cm):	1.5 x 1.3 x 1.2 cm
Tumor site:	Lower outer quadrant
Grade, Tubular:	2
Grade, Nuclear:	2
Grade, Mitotic:	1
Modified Scarff Bloom Richardson grade:	I
Necrosis:	Absent
Invasion Vasc/Lymphatic:	None identified
DCIS COMPONENT:	
DCIS Quantity:	Estimated 20%
DCIS Type:	Cribriform, micropapillary and papillary
DCIS Location:	DCIS is associated with the invasive tumor with separate foci seen away from the invasive tumor in the central region of the breast
Nuclear grade:	Intermediate
Necrosis:	None identified
Location of Ca++:	DCIS and benign epithelium
Margins:	Negative.
Distance from closest margin:	DCIS extends to within 2 mm of carcinoma extends to within 3 mm of the deep margin

TSS

Specimens Involved
Specimens: D: LEFT BREAST

HER2 Status Results, Immunohistochemistry Evaluation
SPECIMEN
Surgical Excision
Block Number: Block
D4
TEST RESULTS
Interpretation: Negative
Intensity: 1+
% Tumor Staining: 40%
FISH ORDERED
No
METHODOLOGY
Methodology: Fixation Type and Length: Tissue was fixed in 10% neutral buffered formalin
) for no less than 8 and no longer than 24 hours. Antibody and Assay Methodology:
Rabbit anti-human HER2, HerceptestTM (FDA-approved test kit), Control
Slides Examined: External kit-slides provided by manufacturer (cell lines with high, low and negative HER2 protein expression), and in-house known HER2 amplified control tissue were evaluated along with the test tissue. These control slides run along side of this patient's sample showed appropriate staining. Adequacy of Specimen: Adequate, well preserved, clear-cut invasive carcinoma identified for HER2 evaluation.
Scoring Criterion and Scoring System:
IHC Level of Expression(Score) /Tumor Cell Membrane Staining Pattern
Negative (0)/Absence of Staining
Negative (1+)/Faint Incomplete membrane Staining, >10% of Cells
Equivocal (2+)/Weak complete membrane Staining, >10% of Cells
Positive (3+)/Strong complete membrane Staining, >10% of Cells
Equivocal Category for HER2 IHC results: A HER2, 2+ staining result that is interpreted as equivocal may not indicate gene amplification. A FISH test for HER2 gene amplification will be ordered for all HER2 IHC 2+ results.
COMMENT
HER2 analysis was performed on this case by immunohistochemistry utilizing the FDA approved HercepTest (TM) test kit following the manufacturer's instructions listed in the package insert. This assay was not modified, and adherence to all instruction and guidelines were strictly followed. Interpretation of the HER2 immunohistochemical staining characteristics is guided by published results in the medical literature (4), information provided by the reagent manufacturer and by internal review of staining performance within Pathology Department.
HER2 TEST VALIDATION
This HER2 immunohistochemical assay has been validated according to the recently revised recommendations and guidelines from the NCCN HER2 testing in Breast Cancer Task Force, and the jointly issued recommendations and guidelines from ASCO and the CAP (5). 80 randomly selected breast cancer samples were tested for HER2 by IHC as outline above and interpreted as, negative (score 0/1+) equivocal (score 2+) and positive (score 3+) without knowledge of the previous reported results.

These cases were also blindly read using two different FISH assay as amplified or non-amplified and the HER2/CEP17 ratios were recorded. After analyzing these results, there was 100% concordance between the IHC and FISH results for cases that were interpreted as either positive or negative by IHC. 9 of the 80 cases were interpreted as equivocal by IHC and of these 3/9 (33%) were non-amplified by FISH and 6/9 (66%) were found to be amplified.

The Pathology Department Immunohistochemistry laboratory takes full responsibility for this tests performance and has programs in place to regularly monitor the proficiency and the interpretation of HER2 assays. The laboratory also participates in external quality assurance HER2 programs including the CAP proficiency testing program.
REFERENCE
1. Carlson RW, Anderson BO, Burstein HJ, et al., NCCN breast cancer clinical practice guidelines in oncology. J Natl Compr Canc Netw. 2005;3:238-289.

TSS

Lobular Neoplasia:	Atypical lobular hyperplasia
Lymph nodes:	Sentinel lymph nodes and axillary lymph nodes one positive, (1/6). Micrometastases (1.8 mm in greatest diameter, negative for extranodal extension)
Non-neoplastic areas:	Atypical ductal hyperplasia, atypical lobular hyperplasia, columnar cell change with foci of

BREAST TUMOR BIOMARKERS TEMPLATE

Immunohistochemistry for ER/PR and Her-2 have been ordered on block D4, and the results will be issued as an addendum.

Pathologic Stage : pT1c pNimi

This assay can be used to select invasive breast cancer patients for hormone therapy (1).
ER and PR analysis was performed on this case by immunohistochemistry utilizing the ER (ER 1D5, 1:100) and PR (PGR 136, 1:100) antibody provided by following the manufacturer's instructions listed in the package insert. This assay was not modified, and adherence to all instruction and guidelines were strictly followed. Interpretation of the ER/PR immunohistochemical staining characteristics is guided by published results in the medical literature (1), information provided by the reagent manufacturer and by internal review of staining performance within the Pathology Department.
1. Harvey JM, et al. Estrogen receptor status by immunohistochemistry is superior to the ligand-binding assay for predicting response to adjuvant endocrine therapy in breast cancer. J Clin Oncol. 17:1474-1481, 1999

ADDENDUM:

BREAST ER/PR -1
Specimens Involved
Specimens: D: LEFT BREAST

SPECIMEN
Type: Surgical Excision
Block Number: D4
HORMONE RECEPTOR STATUS
Laboratory:
Estrogen Receptor: Positive
Allred Score: 8 = Proportion score 5 + Intensity score 3
Progesterone Receptor: Positive
Allred Score: 8 = Proportion Score 5 + Intensity Score 3
The Allred score for estrogen and progesterone receptors is calculated by adding the sum of the proportion score (0 = no staining, 1 = <1% of cells staining, 2 = 1 - 10% of cells staining, 3 = 11-30% of cells staining, 4 = 31-60% of cells staining, 5 = >60% of cells staining) to the intensity score (1 = weak intensity of staining, 2 = intermediate intensity of staining, 3 = strong intensity of staining), with a scoring range from 0 to 8.
ER/PR positive is defined as an Allred score of >2 and ER/PR negative is defined as an Allred score of less than or equal to 2.
Methodology: Fixation Type and Length: Tissue was fixed in 10% neutral buffered formalin for no less than 8 and no longer than 24 hours. Antibody and Assay Methodology: Mouse anti-human ER and PR,

TSS

2. Carlson RW, Brown E, Burstein HJ, et al., NCCN Task Force Report: adjuvant therapy for breast cancer. J Natl Compr Canc Netw. 2006;4:S1-S26.
3. Romond EH, Perez EA, Bryant J, et al. Trastuzumab plus adjuvant chemotherapy for operable HER2-positive breast cancer. N Eng J Med 2005;353(16):1673-84
4. Leong ASY, Formby M, Haffajee Z, et al. Refinement of immunohistologic parameters for Her2/neu scoring validation by FISH and CISH. Appl Immunohistochem Mol Morphol. 2006;14:384-389.
5. Wolff AC, Hammond EH, Schwartz JN, et al., American Society of Clinical Oncology/College of American Pathologists Guideline Recommendations for Human Epidermal Growth Factor Recepto 2 Testing in Breast Cancer. Arch of Path and Lab Med 2007; 131:18-43.

Gross Dictation:
Microscopic/Diagnostic Dictation: PATHOLOGIST,
Microscopic/Diagnostic Dictation: PATHOLOGIST
Final Review: PATHOLOGIST,
Final: PATHOLOGIST,
Addendum:,
Addendum Review: PATHOLOGIST
Addendum Final: PATHOLOGIST
Addendum: PATHOLOGIST, 0
Addendum Review: PATHOLOGIS
Addendum Final: PATHOLOGIST, (

Criteria	Yes	No
Diagnosis Discrepancy		✓
Primary Tumor Site Discrepancy		✓
HIPAA Discrepancy		✓
Prior Malignancy History		✓
Dual/Synchronous Primary Noted		✓
Case is (circle): QUALIFIED / DISQUALIFIED		
Reviewer Initials JH Date Reviewed: 2/19/11		