ICD-O-3
Carcinoma, Infiltrating duct, NOS 8500/3
Site Code: breast, NOS C50.9

12/19/10 lw

TSS Pt ID:

SPECIMENS:

A. SENTINEL LYMPH NODE #1
B. SENTINEL LYMPH NODE #2 LEFT AXILLA
C. SENTINEL LYMPH NODE #3 LEFT AXILLA
D. SENTINEL LYMPH NODE #4 LEFT AXILLA
E. SENTINEL LYMPH NODE #5 LEFT AXILLA
F. WLE LEFT BREAST
G. AXILLARY CONTENTS

SPECIMEN(S):

A. SENTINEL LYMPH NODE #1
B. SENTINEL LYMPH NODE #2 LEFT AXILLA
C. SENTINEL LYMPH NODE #3 LEFT AXILLA
D. SENTINEL LYMPH NODE #4 LEFT AXILLA
E. SENTINEL LYMPH NODE #5 LEFT AXILLA
F. WLE LEFT BREAST
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INTRAOPERATIVE CONSULTATION DIAGNOSIS:

TPA (microscopic): Lymph node, sentinel #1, biopsy: Negative for carcinoma. By called to Dr. at

TPB/C (microscopic): Lymph nodes, sentinels #2-3, biopsy: Negative for carcinoma. By Dr., called to Dr. at (B) and C).
TPD (microscopic): Lymph node, sentinel #4, biopsy: Positive for carcinoma. By Dr., called to Dr. at '. (D).
Gross Exam F Breast, left, wide local excision: Tumor mass is 0.6 cm from the anterior/inferior margins. By Dr, called to Dr

GROSS DESCRIPTION:

A. SENTINEL LYMPH NODE #1
Received fresh is a tan-pink fragment of fibrofatty tissue 3.5 x 2.4 x 0.8 cm. Dissection reveals one presumptive lymph node 1.0 x 0.7 x 0.4 cm. The specimen is serially sectioned and touch preps are taken. The specimen is submitted entirely in cassette A1.
B. SENTINEL LYMPH NODE #2 LEFT AXILLA
Received fresh is a tan-pink lymph node 1.0 x 1.0 x 0.7 cm. The specimen is serially sectioned. Touch preps are taken and the specimen is submitted entirely in cassette B1.
C. SENTINEL LYMPH NODE #3 LEFT AXILLA
Received fresh is a tan-pink lymph node 1.0 x 1.0 x 0.7 cm. The specimen is serially sectioned. Touch preps are taken and the specimen is submitted entirely in cassette C1.
D. SENTINEL LYMPH NODE #4 LEFT AXILLA
Received fresh is a tan-pink lymph node 1.5 x 1.0 x 0.7 cm. The specimen is serially sectioned and touch preps are taken. The specimen is submitted in toto in D1.
E. SENTINEL LYMPH NODE #5 LEFT AXILLA
Received in formalin is a tan-pink lymph node 2.0 x 1.0 x 1.0 cm. The specimen is serially sectioned and submitted in toto in cassette E1.

F. WIDE LOCAL EXCISION LEFT BREAST
Received fresh is an oriented 57 gram wide local excision breast specimen measuring 8 x 6 x 4 cm. The specimen is inked as follows: anterior-blue, posterior-black, superior-red, inferior-orange, medial-green, lateral-yellow. The specimen is serially sectioned from lateral to medial into six slices, slice 1 being most lateral and slice 6 being most medial, to reveal a gray-white, firm stellate mass measuring 2.2 x 2 x 2 cm located 0.6 cm from the closest anterior/inferior margin in slice 3, 4, 5 and 6. The remainder of the cut surfaces reveal predominantly yellow lobulated adipose tissue interdispersed with gray-white fibrous tissue. A portion of the specimen is submitted for tissue procurement.
Representative sections are submitted as follows:

A1:	perpendicular sections of the lateral margin from superior to inferior, slice 1
A2:	anterior margins and area immediately adjacent to mass, slice 2
A3:	anterior margin, slice 3
A4:	inferior margin, slice 3

A5: deep margin, slice 3
A6: superior margin, slice 3
A7: mass with anterior and superior margins, slice 4
A8: mass with anterior and inferior margins, slice 4
A9-A10: mass with superior and deep margins bisected
A11: mass with inferior and deep margins
A12: mass with anterior margin, slice 5
A13: mass with inferior margin, slice 5
A14-A15: perpendicular sections of the mass with the medial margin from superior to inferior, slice 6 as per attached diagram

G. LEFT AXILLARY CONTENTS
Received in formalin are multiple tan-pink fragments of fibrofatty tissue aggregating to 9 x 6 x 3 cm. Dissection reveals nine possible lymph nodes ranging from 0.1 x 0.1 x 0.1 cm to 1.1 x 1.0 x 0.9 cm.
Section code:
G1: three possible lymph nodes
G2: three possible lymph nodes
G3: two possible lymph nodes
G4: one lymph node trisected
G5: one lymph node trisected

DIAGNOSIS:

A. LYMPH NODE, SENTINEL #1, LEFT AXILLA, BIOPSY:
- ONE LYMPH NODE, NEGATIVE FOR METASTASES (0/1).

B. LYMPH NODE, SENTINEL #2, LEFT AXILLA, BIOPSY:
- ONE LYMPH NODE, NEGATIVE FOR METASTASES (0/1).

C. LYMPH NODE, SENTINEL #3, LEFT AXILLA, BIOPSY:
- ONE LYMPH NODE, NEGATIVE FOR METASTASES (0/1).

D. LYMPH NODE, SENTINEL #4, LEFT AXILLA, BIOPSY:
- METASTATIC CARCINOMA TO ONE OF ONE LYMPH NODE (1/1), MEASURING 0.6-CM WITH EXTERANODAL EXTENSION.

E. LYMPH NODE, SENTINEL #5, LEFT AXILLA, BIOPSY:
- ONE LYMPH NODE, NEGATIVE FOR METASTASES (0/1).

F. BREAST, LEFT, WIDE LOCAL EXCISION:
- INVASIVE, DUCTAL CARCINOMA, SBR GRADE-3, MEASURING 2.2-CM
- SURGICAL RESECTION MARGINS NEGATIVE FOR TUMOR
- INTERMEDIATE NUCLEAR GRADE, DUCTAL CARCINOMA IN SITU WITH CENTRAL NECROSIS, CRIBRIFORM AND SOLID TYPES
- SEE SYNOPTIC REPORT.

G. LYMPH NODES, LEFT AXILLARY CONTENTS, RESECTION:
- EIGHT LYMPH NODES, NEGATIVE FOR METASTASES (0/8).

SYNOPTIC REPORT - BREAST
Specimen Type: Excision
Needle Localization: No
Laterality: Left
Invasive tumor: Present
Multifocality: No
WHO CLASSIFICATION
Invasive ductal carcinoma, NOS 8500/3
Tumor size: 2.2cm
Tumor site: Not specified
Margins: Negative
Distance from closest margin: 0.5cm
anterior/medial

Tubular score: 2
Nuclear grade: 3
Mitotic score: 3
Modified Scarff Bloom Richardson Grade: 3
Necrosis: Absent
Vascular/Lymphatic Invasion: None identified
Lobular neoplasia: None
Lymph nodes: Sentinel lymph node and axillary dissection
Lymph node status: Positive 1 / 13 Extranodal extension

DCIS present
Margins uninvolved by DCIS:
DCIS Quantity: Estimate 5%
DCIS type: Solid
Cribriform
DCIS location: Associated with invasive tumor
Nuclear grade: Intermediate
Necrosis: Absent

ER/PR/HER2 Results
ER: Positive
PR: Positive
HER2: Negative by IHC

Pathological staging (pTN): pT 2 N 1a

SYNOPTIC REPORT - BREAST, ER/PR RESULTS
Specimen: Surgical Excision
Block Number: F12

ER: Positive Allred Score: 8 = Proportion score: 5 + Intensity Score 3
PR: Positive Allred Score: 6 = Proportion Score 3 + Intensity Score 3

COMMENT:
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,
Comment: 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 F
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

SYNOPTIC REPORT - BREAST HER-2 RESULTS
HER2 Status Results, Immunohistochemistry Evaluation
Specimen: Surgical Excision
Block Number: F12

Interpretation: NEGATIVE
Intensity: 1+
% Tumor Staining: 5%
Fish Ordered: No

METHODOLOGY

Methodology: Fixation Type and Length: Tissue was fixed in 10% neutral buffered formalin Inc.) 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

This assay can be used to select invasive breast cancer patients for Trastuzumab (Hereptin) therapy (1,2). Clinical Trials have shown that Trastuzumab substantially increases the likelihood for an objective response and overall survival for patients with metastatic HER2-positive breast cancer, regardless of whether HER2 tumor status was determined as IHC 3+ or FISH positive. Trastuzumab added to adjuvant chemotherapy substantially increase disease-free survival and decreases the risk of disease recurrence by about 50% for patients with early-stage HER2 protein over-expressed or gene amplified invasive breast cancer (3).

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 the 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.

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.

CLINICAL HISTORY:
None provided

PRE-OPERATIVE DIAGNOSIS:
Left breast cancer

Gross Dictation:., Pathologist,
Microscopic/Diagnostic Dictation: Pathologist,
Microscopic/Diagnostic Dictation: Pathologist,
Microscopic/Diagnostic Dictation:., Pathologist.
Final Review:., Pathologist.
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	Date Reviewed:	