BREAST CANCER PATHOLOGY REPORTS

WHAT IS PATHOLOGY

• Pathology (from Greek pathos, feeling, pain, or suffering and 'ology signifies the study of) is the study and diagnosis of a disease through examination of organs, tissue cells, and bodily fluids.

• The term encompasses both the medical specialty which uses tissues and bodily fluids to obtain clinically useful information, as well as scientific study of the disease process.

HISTORY OF PATHOLOGY

• The history of both experimental and medical pathology can be traced to the earliest application of the scientific method to the field of medicine, a development which occurred in Western Europe during the Italian Renaissance.

• Most early pathologists were practicing physicians or surgeons. Like other medical fields, pathology has become more specialized with time, and most pathologists today do not practice in other areas of medicine.

EARLY FAMOUS PATHOLOGIST

• No true documentation of autopsies performed before the renaissance age. (1325-1600)

• Antonio Benivieni (1443-1502) was the first physician to do anatomic dissection to determine the cause of death. He was Italian.

• Most famous gross pathologist.

HOW MUCH EDUCATION IS NEEDED TO BECOME A PATHOLOGIST

• Pathologists are physicians who diagnose and study diseases. They have significant educational requirements that include completing medical school, residencies and possibly fellowships, along with earning a license. Medical programs require both classroom coursework and hands-on training. Pathologists must be precise, knowledgeable in science and able to work under pressure.

• 4 years of college to get a bachelor’s degree.

• 4 years of medical school to get the doctor of medicine (MD) degree.

• 4 or 5 years of residency (4 for anatomic pathology only or 5 for combined anatomic/clinical pathology; the latter track being recommended) to become eligible to take the Board exams in pathology. Average income 2016 is $177,000.

HOW MANY DIFFERENT PATHOLOGY SPECIALTIES ARE THERE?

• Anatomical pathology

• Cytopathology

• Dermatopathology

• Forensic pathology

• Histopathology

• Neuropathology

• Pulmonary and renal pathology

• Surgical pathology

• Clinical pathology

• Radiation pathology

• Immunopathology

• Mucocutaneous pathology

• Hemopathology

• Oral and maxillary pathology
In 1590, Zacharias Janssen was a Dutch spectacle-maker from Middelburg associated with the invention of the first optical telescope. Janssen is sometimes also credited for inventing the first truly compound microscope.

British researchers from the University of Manchester helped develop the instrument which has broken all records for magnifying small objects using ordinary white light. The microsphere nanoscope is capable of examining objects as small as 50 nanometers across - 20 times smaller than the present limit for optical microscopes. Nanometer is one millionth of a millimeter. Human hair is one tenth of a millimeter.

Surgical pathology is the most significant and time-consuming area of practice for most anatomical pathologists. Surgical pathology involves the gross and microscopic examination of surgical specimens, as well as biopsies submitted by non-surgeons such as general internists, medical subspecialists, dermatologists, and interventional radiologists. Generally recognized subspecialties of surgical pathology include the following:
SURGICAL PATHOLOGIST

- The practice of surgical pathology allows for definitive diagnosis of disease (or lack thereof) in any case where tissue is surgically removed from a patient. This is usually performed by a combination of gross (i.e., macroscopic) and histologic (i.e., microscopic) examination of the tissue, and may involve evaluations of molecular properties of the tissue by immunohistochemistry or other laboratory tests.
- http://www.consumersresearchcncl.org

TYPES OF BREAST PATHOLOGY REPORTS

- Pathologist can read outside slides for patients who are requesting a second opinion
- Pathologist can read specimen slides taken from FNA's
- Pathologist can read specimen's taken by core biopsies
- Pathologist can read specimen's taken from segmental mastectomies
- Pathologist can read specimen's taken from mastectomies

WHY NOTTINGHAM?

- There are different "scoring systems" available for determining the grade of a breast cancer.
  One of these systems is the Nottingham Histologic Score system (the Elston-Ellis modification of Scarff-Bloom-Richardson grading system). In this scoring system, there are three factors that the pathologists take into consideration:
  - the amount of gland formation ("differentiation" or how well the tumor cells try to recreate normal glands) (differentiation is change/un-differentiation cells are not specialized)
  - the nuclear features ("pleomorphism" or how "ugly" the tumor cells look)
  - the mitotic activity (how much the tumor cells are dividing)

PATHOLOGY REPORT REPORTED BY PATHOLOGIST

- Presents a picture from the inside to better serve the case...
- Reports must state the following
  - Specimen
  - Clinical History
  - Clinical Diagnosis
  - Gross Description
  - Microscopic Description
  - Special tests or markers
  - Summary or final Diagnosis

FNA BIOPSY PATHOLOGY READING

- Fine Needle Aspiration
**FNA SET-UP**

**U/S ROOM**

**FNA PROCEDURE**

**FNA SPECIMEN**

**FINE NEEDLE ASPIRATION**

- **FNA**
  - Samples can be obtained in under a minute.
  - Full procedure times run approximately 10-15 minutes.
  - If there is an on-site lab, preliminary results are available within 15 minutes, otherwise, full results take 3-5 business days. Some facilities only take one day depending on patient load.

**FINE NEEDLE ASPIRATION**

- **FNA**
  - Indications
    - Confirming a benign looking lesion.
    - Determining malignancy of a node.
    - When staging a known breast cancer and there are satellite lesions an FNA should be done to not get malignant cells in a large core bx, so FNA is more direct.
FINE NEEDLE ASPIRATION

- FNA
  - Contraindications
    - Suspected malignant lesion
    - Suspected invasive lobular carcinoma
    - Some large fibroadenoma’s/why?

FINE NEEDLE ASPIRATION

- Ultrasound Core Biopsy
  - A lesion is identified and targeted with the use of ultrasound.
  - A large needle is then advanced to the site, where the needle is fired and the specimen is retrieved.
  - This process is repeated until the physician is satisfied that the area has been properly sampled. Usually this requires 3-6 cores.
  - Or a needle with VAD is used, where the needle remains in place while the cores are acquired.

ULTRASOUND CORE BIOPSY

- Ultrasound Core Bx
  - The goal is identical to stereotactic biopsies, to obtain a tissue sample for the pathologist to determine histology and tumor markers.
  - Ultrasound capabilities focus more on masses and distortion. Calcifications are hard to see, especially the micro size. Course calcs are easier seen.

U/S CORE BX SET-UP

10 Ga Core Needle with VAD

U/S CORE BX SET-UP

18 Ga Core Needle
U/S CORE BX SPECIMEN
From an 18G core needle

ULTRASOUND CORE BIOPSY

• Ultrasound Core Bx
  – Allotted room time is 30 minutes.
  – Obtaining the cores takes, on average, 5 minutes. With remainder time spent positioning and localizing the lesion.
  – Results are available in 3-5 business days.

ULTRASOUND CORE BIOPSY

• Ultrasound Core Biopsy
  – Contraindications
    • Pt is taking heart medication (procedure is post-poned)
    • Pt has already been diagnosed with breast ca in the same breast.
    • Pt is unable to withstand the procedure due to high anxiety or refusal of biopsy due to maybe denial.

STEREOTACTIC BX SPECIMEN
LUMPECTOMY/SEGMENTAL MASTECTOMY

- Partial breast surgery removing the cancer cells and claiming clean margins
MASTECTOMIES

- 6 different kind of mastectomies

TREATMENT OPTION

SURGICAL OPTIONS

- Six types of mastectomies are:
  - Simple/total mastectomies
  - Modified radical mastectomies
  - Radical mastectomies
  - Partial mastectomies
  - Subcutaneous/nipple sparing mastectomies
  - Skin-sparing mastectomies

- Women who choose mastectomies have many reasons:
  - Peace of mind
  - Avoid radiation
  - If tumor is larger than 4cm
  - If breast is too small to have a lumpectomy
  - If pt had prior radiation therapy to the same breast
  - Presence of connective tissue diseases such as scleroderma, vasculitis, lupus
  - If patient is pregnant
  - Pt cannot commit to 5-7 weeks of radiation

To establish a standard for lumpectomy margins, the American Society for Radiation Oncology (ASTRO) and the Society of Surgical Oncology (SSO) reviewed a number of studies. The groups issued new guidelines saying that clear margins, no matter how small as long as there was no ink on the cancer tumor, should be the standard for lumpectomy surgery. The guidelines also say that wider margins don't lower the risk of recurrence any more than narrower margins.
TREATMENT OPTION
SURGICAL OPTIONS

• The more breast tissue removed, the more likely it is there will be a change in the shape of the breast afterward. If the breasts look very different after surgery, you might be able to have some type of surgery to improve the way the breasts look. Sometimes surgery is done on the other breast so the breasts look more alike. You should talk with your doctor before surgery to get an idea of how your breasts are likely to look afterward and to learn what your options might be.

WHAT DOES THIS MEAN?

• FDA REQUIRED DISCLAIMER: The immunohistochemical, immunofluorescence, or in-situ hybridization tests included in report were developed and their performance characteristics determined by either proPath laboratory, North Texas Pathology Laboratories, Lakeway Pkwy, or Nacogdoches Medical Center. These tests have not been cleared or approved by the US Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary. These tests are used for clinical purposes, and should not be regarded as investigational or for research. Results should be interpreted with caution given the possibility of false negative results. Propath is certified under the clinical laboratory improvement amendments of 1988 as qualified to perform high complexity clinical laboratory testing.
• The information contained in this e-mail message may be privileged, confidential, and/or protected from disclosure. This e-mail message may contain protected health information (PHI); dissemination of PHI should comply with applicable federal and state laws. If you are not the intended recipient, or an authorized representative of the intended recipient, any further review, disclosure, use, dissemination, distribution, or copying of this message or any attachment (or the information contained therein) is strictly prohibited. If you think that you have received this e-mail message in error, please notify the sender by return e-mail and delete all references to it and its contents from your systems.

OLD DAYS....

• No malignant cells identified. Benign ductal epithelial cells present. 11/02/98

Screened screened by: NPC Verified by: , M.D. #754 (Electronic Signature)

• COMMENT: Not applicable
• SPECIMEN: Breast, Left Upper Inner Quadrant, Ultrasound-guided FNA
• GROSS DESCRIPTION: 0.7 cm. nodule, 11 o'clock position, 8 cm. from nipple

SNOMED CODES:
M-00110 P-0000A T-04050 Division of Pathology and Laboratory Medicine

OLD DAYS.....

• (A) LEFT BREAST SUPERIOR MEDIAL MARGIN: Breast parenchyma, no tumor present.
• (B) REEXCISION OF BREAST SCAR AND TUMOR BED: Breast parenchyma with focal ductal epithelial hyperplasia and fibroadenomatoid changes. Fibrosis, foreign body giant cell reaction, granulation tissue, necrosis consistent with previous biopsy site. No residual tumor present. Skin with suture granuloma.
• (C) DEEP MARGIN AND LEFT BREAST: Skeletal muscle, no tumor present.
• 10/1998

FNA'S

• A) LEFT BREAST SUPERIOR MARGINS: Breast parenchyma, no tumor present.
• B) REEXCISION OF BREAST SCAR AND TUMOR BED: Breast parenchyma with focal ductal epithelial hyperplasia and fibroadenomatoid changes. Fibrosis, foreign body giant cell reaction, granulation tissue, necrosis consistent with previous biopsy site. No residual tumor present. Skin with suture granuloma.
• C) DEEP MARGIN AND LEFT BREAST: Skeletal muscle, no tumor present.
• 10/1998
Preprocedure Diagnosis:
- History of breast carcinoma

Postprocedure Diagnosis:
- Unchanged

Indication:
Aspiration of a recurrent left breast seroma is requested for symptomatic relief.

Title of Procedure:
Percutaneous Image-Guided Seroma Aspiration

IMPRESSION:
Operative Findings:
Successful percutaneous image-guided aspiration of approximately 80 mL of fluid from the left breast seroma.

Consent:
The procedure, risks, indications and alternatives were explained. All questions were answered and informed consent was obtained.

I have reviewed the History and Physical dictated by the Mid-Level Practitioner/Fellow.

Sedation/Anesthesia:
None.

Procedure in Detail:
A time out was performed prior to the start of the procedure and the correct patient, procedure, presence of consent, site, and side were confirmed with all members of the team.

The patient was placed supine on the examination table and limited ultrasound performed of the left breast. This demonstrated a large seroma, consistent with the diagnostic ultrasound. The area was then prepped and draped in a sterile manner. Local anesthesia was administered with 1% lidocaine.

An 18-gauge Chiba needle was then advanced under ultrasound guidance into the seroma. Approximately 80 mL of serous fluid was aspirated with no significant residual. The needle was then removed and hemostasis achieved.

Additional Comments:
None.

Estimated Blood Loss: Minimal.

Specimens Removed: Palliative only

Immediate Complications: None.

MASTECTOMY PATHOLOGY READING

Surgical Pathology Report
File under: Pathology

**MODIFIED REPORT - REVIEW ADDENDUM SECTION *******

**DIAGNOSIS**
(A) RIGHT AXILLARY SENTINEL LYMPH NODE #1, EXCISIONAL BIOPSY:
MICROMETASTASIS PRESENT IN ONE OF ONE LYMPH NODE (0/1).
IMMUNOHISTOCHEMICAL STAIN FOR PANCYTOKERATIN HIGHLIGHTS TUMOR.
TUMOR FOCUS MEASURES 0.3 CM IN GREATEST SINGLE SLIDE DIMENSION. (SEE COMMENT 1)

(B) RIGHT AXILLARY NONSENTINEL LYMPH NODE #1, EXCISIONAL BIOPSY:
One lymph node, no tumor present (0/1).

(C) RIGHT AXILLARY SENTINEL LYMPH NODE #2, EXCISIONAL BIOPSY:
Two lymph nodes, no tumor present (0/2).

(D) RIGHT AXILLARY SENTINEL LYMPH NODE #3, EXCISIONAL BIOPSY:
One lymph node, no tumor present (0/1).

(E) RIGHT BREAST, TOTAL MASTECTOMY:
FOCI OF INVASIVE DUCTAL CARCINOMA, NOTTINGHAM HISTOLOGIC GRADE 2 (MODERATELY DIFFERENTIATED).

EXTENSIVE DUCTAL CARCINOMA IN SITU (DCIS), LOW TO INTERMEDIATE TO HIGH- GRADE, CRIBRIFORM, PAPILLARY, MICROPAPILLARY, SOLID PATTERNS WITH ASSOCIATED COMEDONECROSIS AND MICROCALCIFICATIONS. (SEE COMMENT 2)
FOCI OF INVASIVE CARCINOMA MEASURES FROM 0.1 CM TO 1.2 CM IN LARGEST SINGLE SLIDE DIMENSION.
MARGINS ARE WIDELY FREE, INVASIVE AND IN SITU CARCINOMA ARE PRESENT AT LEAST 1.0 CM FROM MARGINS.

No lymphovascular invasion identified.

Biopsy site changes present adjacent to invasive and in situ carcinoma.

NIPPLE INFILTRATING CARCINOMA PRESENT PREDOMINANTLY IN THE DERMIS AND FOCALLY IN THE EPIDERMIS.

NIPPLE, DCIS INVOLVING DUCTS.
Skin, no tumor present.
Skeletal muscle, no tumor present.
Nine lymph nodes, no tumor present (0/9).

(F) RIGHT AXILLARY SENTINEL LYMPH NODE #4, EXCISIONAL BIOPSY:
One lymph node, no tumor present (0/1).

Immunohistochemical stain for pancytokeratin is negative for metastatic carcinoma.

COMMENT:
1) In specimen A, a minute focus of tumor is present in the H&E stained slide. Deeper levels are submitted for immunohistochemical stain and highlight a 0.3 mm focus of tumor. The tumor is not evident in the frozen section slides.
2) In specimen E, the DCIS is extensive and is present in the lower outer quadrant and lower importation of the specimen, an area measuring at least 4.5 x 4.0 x 3.0 cm.

Received: 11/15/2013 11:27 Case type: Surgical Case

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Surgical Pathology Report
File under: Pathology

There is a spectrum of DCIS ranging from low grade micropapillary to higher grade solid and cribriform patterns with comedonecrosis.
PATHOLOGIC STAGE BASED ON PATHOLOGY MATERIAL REVIEWED IN THIS ACCESSION

Primary tumor: pT1a but focal involvement of epidermis
Regional lymph nodes: pN1mi
Distant metastases: pMx

(A) RIGHT AXILLARY SLN #1, COUNT 3400 – A 2.1 x 1.6 x 0.7 cm possible lymph node, serially sectioned. Submitted entirely.

SECTION CODE: A1-A3, one possible lymph node, serially sectioned, submitted for frozen section diagnosis as well as permanent evaluation. SJ/tlc
*FS/DX: NO TUMOR PRESENT. CTA/elk

(B) RIGHT AXILLARY NON-SENTINEL LYMPH NODE #1 – Received fresh is a yellow-tan single lymph node (1 x 1 x 0.5 cm).
The specimen is bisected and entirely submitted in cassette B. ML/tlc

(C) RIGHT AXILLARY SLN #2, COUNT 600 – Two possible lymph nodes, 0.6 x 0.5 x 0.5 cm and 0.8 x 0.4 x 0.4 cm. The specimen is submitted entirely.

SECTION CODE: C1, one possible lymph node, bisected, submitted for frozen section diagnosis as well as permanent evaluation; C2, one possible lymph node bisected and submitted for frozen section diagnosis as well as permanent evaluation. SJ/tlc

(D) RIGHT AXILLARY SENTINEL LYMPH NODE, COUNTS 330 – Received fresh is a yellow-tan lymph node (2 x 1 x 0.8 cm). The specimen is serially sectioned and entirely submitted in cassette D. ML/tlc.

(E) RIGHT TOTAL MASTECTOMY PLUS NODES, SS- SUPERIOR, LS – LATERAL – A mastectomy specimen (35 x 21 x 6.5 cm) oriented by the surgeon with a short stitch marking superior and a long stitch marking lateral. The specimen is surfaced by an oval-shaped portion of unremarkable, light tan skin (34 x 30 cm). The areolar is 3.5 cm in greatest diameter and the nipple is 1.6 cm in greatest diameter revealing a light gray, crusty nodule (0.3 cm in greatest diameter). The specimen was inked and serially sectioned from lateral to medial into eleven slices (nipple present on slice 5). On inferior of slice 4, an ill-defined, light gray and tan lesion (2.2 x 1.5 x 1.1 cm) surrounded by extensive areas of fibrotic appearance. The lesion is located at 16 cm from superior, 3.4 cm from deep, 4.3 cm from the inferior resection margins.

Collected: 11/15/2013
Pathologist: Accession: S-13-090519

(D) RIGHT AXILLARY SLN #2, COUNT 600 – Two possible lymph nodes, 0.8 x 0.5 x 0.5 cm and 0.6 x 0.4 x 0.4 cm. The specimen is submitted entirely.

SECTION CODE: C1, one possible lymph node, bisected, submitted for frozen section diagnosis as well as permanent evaluation; C2, one possible lymph node bisected and submitted for frozen section diagnosis as well as permanent evaluation. SJ/tlc

(F) RIGHT AXILLARY SENTINEL LYMPH NODE #4, COUNTS 220 – Received fresh is a yellow-tan single lymph node (0.4 x 0.4 x 0.2 cm). The specimen is bisected and entirely submitted in cassette F. ML/tlc.

BIOMARKER TESTING

CLINICAL HISTORY
None given.

SNOMED CODES
T-D04050, M-85003

"Some tests reported here may have been developed and performance characteristics determined by Pathology and Laboratory Medicine.
These tests have not been specifically cleared or approved by the U.S. Food and Drug Administration."

Entire report and diagnosis completed by: MD 10650 Nov 21, 2013
Surgical Pathology
Report
Department of Pathology, Box 85
Tel: 713-792-3205 Fax: 713-794-4630

Collected: 11/15/2013
Pathologist: Accession: S-13-090519
Received: 11/15/2013
Case type: Surgical Case

DIFFERENT TYPE OF MASTECTOMY
(A) LEFT AXILLA, SENTINEL LYMPH NODE #1, EXCISION:
- Micrometastasis in one out of three lymph nodes.
- The largest tumor deposit measuring 1.5 mm in diameter.
- No extracapsular extension present.

(B) LEFT BREAST, LOW AXILLARY LYMPH NODES, NIPPLE SPARING MASTECTOMY:
- Invasive ductal carcinoma, intermediate nuclear grade, Nottingham histologic grade 2 (moderately differentiated), two foci in close distance measuring 3.2 cm and 0.5 cm in maximum dimensions, respectively, associated with biopsy site changes.
- Associated ductal carcinoma in situ (DCIS), intermediate nuclear grade, papillary, micropapillary, and cribriform patterns, without microcalcifications.
- No lymphovascular invasion identified.
- Invasive carcinoma seen at the shaved areolar nipple complex margins at 12 o'clock and 6 o'clock regions and 1 mm away from the closest anterior tissue edge in the outer upper breast (see comment).
- The remaining resection margins free of invasive carcinoma or DCIS.
- Mild fibrocystic changes present, including fibroadenomatoid changes and fibrosis.
- Seven lower axillary lymph nodes, no tumor present (0/7).

(C) LEFT BREAST, ADDITIONAL ANTERIOR MARGIN, EXCISION:
- Benign breast tissue, no tumor present.

(D) LEFT BREAST, TISSUE AT BASE OF NIPPLE, EXCISION:
- Benign breast tissue, no tumor present.

(E) LEFT BREAST, BASE OF NIPPLE MARGIN #2, EXCISION:
- Benign breast tissue, no tumor present.

(F) LEFT BREAST, ADDITIONAL LATERAL TISSUE, EXCISION:
- Predominantly benign fibroadipose tissue, no tumor present.

(G) LEFT BREAST, FINAL INFERIOR MARGIN, EXCISION:
- Benign breast tissue, no tumor present.

(H) LEFT BREAST, SKIN EDGE, EXCISION:
- Skin, no tumor present.

(A) RIGHT SOFT TISSUE, CORE NEEDLE BIOPSY:
- Metastatic osteochondromatous malignancy, high grade (see comment)

COMMENT
- Immunohistochemical stains performed at ----- show that the tumor cells are positive for SOX-9, SATB2 and pankeratin (rare cells) and are negative for GATA-3. Ki-67 highlights a proliferation index of 30%.
- Microscopically, the tumor has features of a high grade chondroblastic osteosarcoma but in view of the patient's history this most likely represents a metastasis from this patient's known metaplastic breast carcinoma with osteosarcomatous component.

STEREOTACTIC PATHOLOGY REPORT
### Specimens

**Footnote**

Breast specimens used for determining prognostic / predictive markers are fixed in formalin for at least 6 hours and generally less than 48 hours, but formalin fixation exceeds 48 hours on holidays and weekends. If the specimen has been fixed for longer than 72 hours, a negative Her 2 immunohistochemical (IHC) result may theoretically represent a false negative, although studies have shown that specimens can be fixed for as long as 2 weeks without affecting IHC staining results. Therefore, a negative result should be verified by additional tests on alternative samples if appropriate. Reference Arber et al. Appl. Immunohistochem. Mol Morph 2005; 13: 283-296.

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### Pathology Report Segmental

**With Addendum**

- **(A) Breast, Left, Segmental Mastectomy at 10 O'clock**:
  - Sclerosed fibroadenoma with stromal calcifications.
  - Predominantly fibrofatty tissue.
  - Additional deeper sections pending to investigate second, smaller site of calcifications in slice #5 will be reported as an addendum.

- **(B) Breast, Left, Segmental Mastectomy at 6 O'clock**:
  - Viable residual invasive carcinoma present in treated tumor bed (see comment).
  - Tumor bed measures 3.5 x 2.6 cm.
  - Tumor cellularity is 40%.
  - Ductal carcinoma in situ is minimally present (1%).
  - Residual invasive carcinoma measures 3.5 cm in greatest extent.
  - Invasive carcinoma is LESS THAN 0.1 CM TO SUPERIOR AND POSTERIOR MARGINS FROM MISSED SPECIMEN TO MEDIOLATERAL MARGIN.
  - Ductal carcinoma in situ is present 0.2 cm to inferior margin at medial aspect.
  - Invasive carcinoma is 0.5 cm to anterior margin.
  - Lymphovascular invasion identified.

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- **(C) Breast, Left 6 O'clock, Additional Superior Margin**:
  - Invasive carcinoma is 0.7 cm to new superior margin.
  - Ductal hyperplasia without atypia.

- **(D) Breast, Left 6 O'clock, Additional Medial Margin**:
  - Benign breast tissue.

- **(E) Breast, Left 6 O'clock, Additional Posterior Margin**:
  - Benign breast tissue.

- **(F) Lymph Node, Left Axilla, Sentinel Lymph Node #1**:
  - Negative for carcinoma.

- **(G) Breast, Left 10 O'clock, Additional Anterior and Inferior Margin**:
  - Benign breast tissue.

---

**Diagnosis**

- **(A) Breast, Left, Segmental Mastectomy at 10 O'clock**:
  - Sclerosed fibroadenoma with stromal calcifications.
  - Predominantly fibrofatty tissue.
  - Additional deeper sections pending to investigate second, smaller site of calcifications in slice #5 will be reported as an addendum.

- **(B) Breast, Left, Segmental Mastectomy at 6 O'clock**:
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  - Tumor bed measures 3.5 x 2.6 cm.
  - Tumor cellularity is 40%.
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  - Residual invasive carcinoma measures 3.5 cm in greatest extent.
  - Invasive carcinoma is LESS THAN 0.1 CM TO SUPERIOR AND POSTERIOR MARGINS FROM MISSED SPECIMEN TO MEDIOLATERAL MARGIN.
  - Ductal carcinoma in situ is present 0.2 cm to inferior margin at medial aspect.
  - Invasive carcinoma is 0.5 cm to anterior margin.
  - Lymphovascular invasion identified.

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**Snomed Codes**

- **T-04050, M-85002, M-80570**

- **Primary Tumor Block**: A1

- **Clinical History**
  - None given.

- **Biostatistics Testing**
  - **Primary Tumor Block**: A1

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**Clinical History**

- **DOB**: 4/2/1949
- **Age**: 67
- **Sex**: F
- **Physician**: B
- **Collected**: 5/6/2016
- **Pathologist**: Accession: S-16-026754
- **Received**: 05/06/2016 15:02
- **Case type**: Surgical Biopsy

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**Immunohistochemical staining is performed in our lab on a representative paraffin-embedded section.**

- **Estrogen Receptor**
  - Antibody clone: 6F11 (Novacastra)
  - Positive 10 - 100% Low Positive 1-9%
  - Estrogen Receptor Results: Positive
  - Estrogen Receptor Percent Staining: 100%
  - Estrogen Receptor Staining Intensity: Strong

- **Progesterone Receptor**
  - Antibody clone: PgR1294 (DAKO)
  - Positive 10 - 100% Low Positive 1-9%
  - Progesterone Receptor Results: Positive
  - Progesterone Receptor Percent Staining: 95%
  - Progesterone Receptor Staining Intensity: Strong

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**Footnote**

Breast specimens used for determining prognostic / predictive markers are fixed in formalin for at least 6 hours and generally less than 48 hours, but formalin fixation exceeds 48 hours on holidays and weekends. If the specimen has been fixed for longer than 72 hours, a negative Her 2 immunohistochemical (IHC) result may theoretically represent a false negative, although studies have shown that specimens can be fixed for as long as 2 weeks without affecting IHC staining results. Therefore, a negative result should be verified by additional tests on alternative samples if appropriate. Reference Arber et al. Appl. Immunohistochem. Mol Morph 2005; 13: 283-296.
Prognostic evaluation of residual cancer burden (RCB) is calculated using the RCB index of Symmans et al. (American Joint Committee on Cancer, 7th Edition, 2010).

Distant metastases: y pMx

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

Pathologic stage based on pathology material reviewed in this accession: I (is the definitive stage). This and no evidence of residual invasive carcinoma estimated as 40%, estimated 1% of residual tumor burden is due to ductal carcinoma in situ, and no evidence of residual invasive carcinoma estimated as 40%.

Total Nottingham Score: 9

Mitotic Score: 3

Nuclear Pleomorphism Score: 3 (cannot exclude treatment effect)

Tubule Formation Score: 3

Histologic Grade: III

Size of Invasive Component: 3.5 cm

Histologic Type: Invasive Ductal Carcinoma

Histologic Grade: III

Tumoral Formation Score: 3

Nuclear Pleomorphism Score: 3 (cannot exclude treatment effect)

Mitotic Score: 3

Total Nottingham Score: 9

DCIS: Present

Pathologic Sliding (pTVM) see above

Margins: Final Margins Negative

Extent of Marginal Involvement for Invasive Carcinoma: N/A

Extent of Margin Involvement for DCIS: N/A

Venous/Lymphatic (Large/Small Vessel) Invasion (V/L): Present

Lymph Node Sampling: Sentinel Lymph Node Number of Sentinel Lymph Nodes Sampled: 1

Lymph Node Sampling: Non-Sentinel Lymph Nodes Number of Non-Sentinel Lymph Nodes Sampled: 0

Number Of Lymph Nodes with Macrometastases 0

Number Of Lymph Nodes with Isolated Tumor Cells 0

Number Of Lymph Nodes without Tumor Cells Identified 1

Number Of Non-Sentinel Lymph Nodes Sampled: 0

Number Of Lymph Nodes without Tumor Cells Identified 1

Prognostic marker studies were previously reported (see S12-05931)

Received: 04/08/2013 17:06 Case type: Surgical Case

COLLECTION CODE: S-13-028336

FILE UNDER: Pathology Surgical Pathology Report

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Received: 04/09/2013 17:06 Case type: Surgical Case


Regional lymph nodes: sn y pN0

Primary tumor: y pT2

Prognostic evaluation of residual cancer burden (RCB) is calculated using the RCB index of Symmans et al. (American Joint Committee on Cancer, 7th Edition, 2010).

Distant metastases: y pMx

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

PATHOLOGIC STAGE BASED ON PATHOLOGY MATERIAL REVIEWED IN THIS ACCESSION

Primary tumor: y pT2

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

Prognostic evaluation of residual cancer burden (RCB) is calculated using the RCB index of Symmans et al. (American Joint Committee on Cancer, 7th Edition, 2010).

Distant metastases: y pMx

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

PATHOLOGIC STAGE BASED ON PATHOLOGY MATERIAL REVIEWED IN THIS ACCESSION

Primary tumor: y pT2

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

Prognostic evaluation of residual cancer burden (RCB) is calculated using the RCB index of Symmans et al. (American Joint Committee on Cancer, 7th Edition, 2010).

Distant metastases: y pMx

Regional lymph nodes: sn y pN0

Primary tumor: y pT2

PATHOLOGIC STAGE BASED ON PATHOLOGY MATERIAL REVIEWED IN THIS ACCESSION
**F** LEFT AXILLARY SENTINEL LYMPH NODE #1, BLUE, IN VIVO; 11, EX VIVO 69 - A single irregular piece of fibrofatty tissue measuring 4.5 x 1.8 x 0.9 cm. GROSSLY, there appears to be a thin, pink-red rim of lymphoid tissue at the periphery and grossly is suggestive of a fatty replaced lymph node which will be entirely submitted in consecutive order.

**SECTION CODE:** F1FS-F11FS, one serially sectioned fatty replaced lymph node in consecutive order.

**DA/alc**

**Collected:** 4/9/2013 **Pathologist:** Accession: S-13-028336

**Received:** 04/09/2013 17:06 Case type: Surgical Case

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Surgical Pathology Report

File under: Pathology

**FS/DX:** ONE LYMPH NODE, NEGATIVE FOR CARCINOMA. MEE/tlc

**G** LEFT BREAST 10 O’CLOCK, ADDITIONAL ANTERIOR AND INFERIOR MARGIN, CLIPS MARKS TRUE ANTERIOR MARGIN - Fatty breast tissue (3.4 x 2.2 x 1.1 cm). There is a clip designating the true margin. Serial sectioning of the specimen reveals lobulated yellow fatty tissue.

**INK CODE:** Black ink - true margin.

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**ADDENDUM**

This modified report is being issued to report additional diagnostic information.

Deeper levels of Section A5 from the Left Breast Segmental Mastectomy at 10 o’clock were examined for calcifications in addition to those already reported (see above). None were identified and the diagnosis is unchanged.

Entire report and diagnosis completed by: Mary E. MD, PhD 11608 Apr 16, 2013

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**BIOMARKER TESTING**

**Primary**

Tumor Block: 83

**CLINICAL HISTORY**

None given.

**SNOMED CODES**

*Some tests reported here may have been developed and performance characteristics determined by Pathology and Laboratory Medicine. These tests have not been specifically cleared or approved by the U.S. Food and Drug Administration.*

Entire report and diagnosis completed by: Mary MD, PhD 11608 Apr 15, 2013

**DOB:** 1/4/1963 **Age:** 50 Sex: F

**Physician:** Henry

**Collected:** 4/9/2013 **Pathologist:** Accession: S-13-028336

**Received:** 04/09/2013 17:06 Case type: Surgical Case

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**HAVE A HAPPY NEW YEAR**