WHAT IS PATHOLOGY

Pathology (from Greek pathos, feeling, pain or suffering; and -ology signifies 'study of') is the study and diagnosis of disease through examination of organs, tissues, cells and bodily fluids. The term encompasses both the medical specialty which uses tissues and body fluids to obtain clinically useful information, as well as the related scientific study of disease processes.

HISTORY

The histories 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 also 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
- Cytology
- Dermatopathology
- Forensic pathology
- Histopathology
- Neuropathology
- Pulmonary and renal pathology
- Surgical pathology
- Clinical pathology
- Radiation pathology
- Immunopathology
- Molecular pathology
- Hematopathology
- Oral and maxillary pathology
Zacharias Jansen and the first compound microscope

In 1590 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.
SURGICAL PATHOLOGIST

• 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:

- Gross examination
- Frozen section
- Fixation & Embedding
- Histopathologic examination
- Ancillary testing
- The surgical pathology report
- Direct consultation

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)
  • 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…
• 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/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 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.

ULTRASOUND CORE BX SUPPLIES

• 18/25Ga Hypodermic needle
• 10 ml Syringe
• Alcohol
• Betadine
• Sterile Drape
• Sterile gloves
• 14/16/18Ga Core needle

• Sterile gauze
• 1% lidocaine without epinephrine
• Sodium bicarbonate
• Container for the specimen

U/S CORE BX SET-UP
U/S CORE BX PROCEDURE
10 Ga Core Needle with VAD

U/S CORE BX PROCEDURE
18 Ga Core Needle

U/S CORE BX SPECIMEN
From an 18Ga 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**

- Indications
  - Pt has a suspicious mammogram/ultrasound/MRI documenting a mass or asymmetry.
  - Pt has a palpable lesion

**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.
LUMPECTOMY/SEGMENTAL MASTECTOMY

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

- 6 different kinds 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

**TREATMENT OPTION**

**SURGICAL OPTIONS**

- 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 patient 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
TREATMENT OPTION
SURGICAL OPTIONS

• 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. These 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 breast looks. 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.

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:
FOCUS OF INVASIVE DUCTAL CARCINOMA, NOTTINGHAM HISTOLOGIC GRADE 2 (MODERATELY DIFFERENTIATED).
EXTENSIVE DUCTAL CARCINOMA IN SITU (DCIS), LOW TO INTERMEDIATE TO HIGH-GRADE, CRIBRIFORM, PAPILLARY, MICRONODULAR, 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 MARGIN.

No lymphovascular invasion identified.

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

NIPPLE, INFLTRATING 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).
(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.

**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.

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(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 anector 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 margin.

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(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**

T04050, M85003

*Some tests reported here may have been developed and performance characteristics determined by UT MD Anderson 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: Constance Albarracin MD* 10650 Nov 21, 2013

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**Surgical Pathology Report**

**File under:** Pathology

and 2.8 cm from the skin. X-rays were requested confirming the lesion on slice 4 with a metal clip associated within the lesion on slice 4 and adjacent areas of interest on slices 3 (most lateral) and 5. X-rays also reveal suspicious calcifications on central of slice 6. No other gross or radiological abnormalities were revealed. Remaining breast parenchyma was approximately 60% adipose tissue and 30% fibrous changes. Twenty-one possible lymph nodes were dissected from the axillary tail ranging from 0.2 to 3.5 cm in greatest dimension.

**INK CODE:** Blue – superior; orange – inferior; black – deep

**SECTION CODE:** E1, base of the nipple; E2, rest of the nipple from slice 5; E3, upper outer quadrant on slice 3; E4–E6, lateral to lesion, slice 3; E7, superior margin to the lesion on slice 4; E8, skin anterior to the lesion, slice 4; E9-E16, lesion on slice 4 (E9 correspond to metal clip site and E10, mirror to E9); E15, deep margin to the lesion, slice 4; E16, inferior margin to the lesion, slice 4; E17, area below the nipple on slice 5; E18-E21, medial to the lesion, slice 5, submitted from anterior to deep; E22, suspicious calcification with skin on slice 6; E23, suspicious calcification on slice 6; E25, adjacent to suspicious calcification most medial on slice 7; E26, upper inner quadrant on slice 7; E27, upper quadrant on slice 9: lymph

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**Entire report and diagnosis completed by:** Constance Albarracin MD 10650 Nov 21, 2013

**Surgical Pathology Report**

**Department of Pathology, Box 85**

Tel: 713-792-3205 Fax: 713-794-4630

1007898


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

(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 extranodal 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 necrosis.
- 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.

Let us not become weary in doing good, for at the proper time we will reap a harvest if we do not give up. 
Galatians 6:9
(A) LEFT PELVIC SOFT TISSUE, CORE NEEDLE BIOPSY: METASTATIC OSTEOCHONDROMATOUS MALIGNANCY, HIGH GRADE (SEE COMMENT)

COMMENT

Immunohistochemical stains performed at MDACC 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.
Metaplastic breast cancer (MBC) is a malignancy characterized by the histologic presence of two or more cellular types, commonly a mixture of epithelial and mesenchymal components. MBC is rare relative to invasive ductal carcinoma (IDC), representing less than 1% of all breast cancers.

**METAPLASTIC BREAST CANCER**

**STEREOTACTIC PATHOLOGY REPORT**

- At 9 O’Clock Stereotactic Core Biopsy:
  - Ductal Carcinoma in Situ, High Grade, Micropapillary, Solid and Cribiform types, with comedonecrosis and associated microcalcifications.
  - Sclerosed atypical intraductal papilloma with associated microcalcifications.
  - Florid usual ductal hyperplasia.

**GROSS DESCRIPTION**

- At 9 O’Clock – Consists of six fibrofatty cores, ranging from 1.5 to 2.4, four of the cores are received in a pink cassette.

**BIOMARKER TESTING**

- Tumor Block: A1

**CLINICAL HISTORY**

- None given.

**SNOMED CODES**

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

*Some tests reported here may have been developed and performance characteristics determined by UT MD Anderson Pathology and Laboratory Medicine.*
PATHOLOGY REPORT SEGMENTAL

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. Immunohistchem. Mol. Morph 2003; 11: 253-258.
**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:
VAILABLE 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 MIDSPECIMEN TO MEDIAL 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.

(C) BREAST, LEFT 6 O’CLOCK, ADDITIONAL SUPERIOR MARGIN:
INVASIVE CARCINOMA PRESENT.
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.
Negative for carcinoma.

(E) BREAST, LEFT 6 O’CLOCK, ADDITIONAL POSTERIOR MARGIN:
Benign breast tissue.
Negative for carcinoma.

(F) LYMPH NODE, LEFT AXILLA, SENTINEL LYMPH NODE #1:
One lymph node, negative for carcinoma (0/1).

(G) BREAST, LEFT 10 O’CLOCK, ADDITIONAL ANTERIOR AND INFERIOR MARGIN:
Predominantly fibrofatty tissue.
Negative for carcinoma.

**PATHOLOGIC STAGE BASED ON PATHOLOGY MATERIAL REVIEWED IN THIS ACCESSION**

Primary tumor: y pT2
Regional lymph nodes: an y pN0
Received: 04/09/2013 17:06 Case type: Surgical Case

**COMMENT**
Prognostic evaluation of residual cancer burden (RCB) is calculated using the RCB index of Symmans et al. (W. Fraser Symmans, Florentia Peintinger, Christos Hatzis, Radhika Rajan, Henry Kuerer, Vicente Valero, Lina Assaad, Anna Ponsseka, Bryan Hennessy, Marjorie Green, Aman U. Buzdar, S. Eva Singletary, Gabriel N. Hortobagyi, and Lajos Pusztai, “Measurement of Residual Breast Cancer Burden to Predict Survival After Neoadjuvant Chemotherapy”, 2007, J Clin Oncol 25:4414-4422). This patient's RCB index is 2.134, corresponding to an RCB-II prognosis category and based on tumor bed dimensions of 35 by 26 mm, tumor cellularity is 40%, estimated 1% of residual tumor burden is due to ductal carcinoma in situ, and no
Specimen Type: Excision with wire-guided localization
Laterality: Left
Tumor Site: 6 o'clock
Size of Invasive Component: 3.5 cm
Histologic Type: Invasive Ductal Carcinoma
Histologic Grade : III
Tubule Formation Score: 3
Nuclear Pleomorphism Score: 3 (cannot exclude treatment effect)
Mitotic Score: 3
Total Nottingham Score: 9
DCIS: Present
Pathologic Staging (pTNM) see above
Margins: Final Margins Negative
Extent of Margin 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
Number Of Non-Sentinel Lymph Nodes Sampled: 0
Number Of Lymph Nodes with Macrometastases 0
Number Of Lymph Nodes with Micrometastases 0
Number Of Lymph Nodes with Isolated Tumor Cells 0
Prognostic marker studies were previously reported (see S12-65931)
Received: 04/09/2013 17:06 Case type: Surgical Case

Surgical Pathology Report
File under: Pathology
A) LEFT BREAST 10 O'CLOCK CALCIFICATIONS, SHORT STITCH SUPERIOR, LONG STITCH LATERAL - An oriented left breast segmental mastectomy that has overall dimensions of 6.5 x 4.2 x 2.5 cm. The specimen is oriented with a double short stitch that marks the superior margin and double long stitch that marks the lateral margin. The specimen is serially sectioned medial to lateral in eight consecutive cross sections to reveal approximately 75% yellow adipose tissue and 25% gray-white fibrous tissue. Radiographs reveal microcalcifications present in slice 5 as well as slice 9. No definite mass is palpated or visualized. No lymph nodes are present.
INK CODE: Blue - superior margin; green - inferior margin; yellow - anterior margin; black - posterior margin; red - medial and lateral margins.
SECTION CODE: A1, medial margin, perpendicular section; A2, anterior inferior margin, perpendicular section, slice 4; A3, posterior inferior margin, perpendicular section, slice 4; A4, superior margin, perpendicular sections, slice 5; A5, mid section to include anterior and posterior margins, perpendicular section; A6, most inferior margin, perpendicular sections, slice 5; A7, superior one-half margin, perpendicular section, slice 6; A8, inferior one-half margin, perpendicular sections, slice 6; A7,
(A) LEFT BREAST, 6 O’CLOCK - A portion of fibrofatty tissue measuring 7.0 x 5.5 x 4.0 cm with a short stitch marking the superior aspect and a long stitch at lateral. There are two wires emanating from the specimen. The specimen is inked and subsequently sliced into seven slices from medial to lateral. Inking is as per the standard protocol which is blue - superior, green - inferior, medial and lateral, red - anterior, yellow and posterior black. Upon sectioning, the tumor is identified in slices 2 and 3 measuring 2.6 x 1.7 x 1.0 cm. It abuts the superior and posterior margins at the medial aspect. It grossly approaches the anterior margin at 5.0 mm. The inferior margin is greater than 1.0 cm. MEE/elk

SECTION CODE: B1, B2, medial margin, perpendicular section; B3- B5, entire slice 2, superior to inferior including margins, perpendicular section; B6-B9, entire slice 3 to include margins, perpendicular sections; B10-B15, entire slice 4 to include margins, superior to inferior in consecutive order; B16, B17, superior two thirds to include slice 5 to include margins, perpendicular section. DA/elk

*FS/DX: TUMOR ABUTS SUPERIOR/POSTERIOR MARGINS NEAR MEDIAL ASPECT. MEE/ct.

(B) LEFT BREAST, 6 O’CLOCK ADDITIONAL SUPERIOR MARGIN, CLIPS MARKS TRUE MARGIN - Fatty tissue (3.4 x 1.9 x 1.1 cm). There is a clip on one side. Serial sectioning of the specimen reveals a yellow lobulated fatty tissue. INK CODE: Black ink - true margin.

SECTION CODE: C1-C4, specimen serially sectioned and entirely submitted. ED/elk

(C) LEFT BREAST, 6 O’CLOCK, ADDITIONAL MEDIAL MARGIN, CLIPS MARKS TRUE - Fatty tissue (3.6 x 2.2 x 1.1 cm). There is a clip on one side of the specimen that designating the true margin. Serial sections of the specimen reveals lobulated yellow fatty tissue.

INK CODE: Black ink - true margin.

SECTION CODE: D1-D4, specimen serially sectioned and entirely submitted.

(D) LEFT BREAST, 6 O’CLOCK, ADDITIONAL POSTERIOR MARGIN, CLIP MARKS TRUE MARGIN - Fatty tissue (3.6 x 1.9 x 0.9 cm). There is a clip on one side designating true margin. Serial sectioning of the specimen reveals lobulated fatty yellow tissue.

INK CODE: Black ink - true margin.

(E) 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: F1-FS-F11FS, one serially sectioned fatty replaced lymph node in consecutive order. DA/ct.

Received: 04/09/2013 17:06 Case type: Surgical Case
Page 4 of 5
Surgical Pathology Report
Pre-order - Pathology
*FS/DX: ONE LYMPH NODE, NEGATIVE FOR CARCINOMA. MEE/ct.

(G) LEFT BREAST 10 O’CLOCK, ADDITIONAL ANTERIOR AND INFERIOR MARGIN, CLIPS MARKS TRUE ANTERIOR MARGIN - Fatty 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.
BIOMARKER TESTING
Primary
Tumor Block: B3

CLINICAL HISTORY
None given.

SNOMED CODES
"Some tests reported here may have been developed and performance characteristics determined by UT MD Anderson 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 E. Edgerton MD, PhD 11608
Apr 16, 2013
DOB: 1/4/1963 Age: 50 Sex: F
Physician: Henry
Received: 04/09/2013 17:06 Case type: Surgical Case

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