

**California Tumor Tissue Registry's
Subscription "C" - Vol 3(8)
May, 2010**

"Breast Pathology"

Case 1

A 31 y/o woman with a hx of intraductal breast CA was treated with conservative surgery (lumpectomy) and 4800 rads to the breast with a boost of 1400 rads to the biopsy area. Seven months later she developed a 1.5 cm nodule within the radiation field.

Dx: Breast showing treatment effects (irradiation)

Woodland Hills - Fibrosis consistent with radiation therapy
Alabama (Norwood Clinic) - Post radiation fibrosis
Alabama, Birmingham - Pseudoangiomatous stromal hyperplasia
Arkansas (The Laboratory of Pathology) - Radiation fibrosis
Georgia, Atlanta - Radiation changes
Kansas (Peterson Laboratory Services) - Radiation induced change
Massachusetts, Peabody - Radiation fibrosis, breast
North Carolina (TriPath Oncology) - Radiation treatment effect
Texas, Victoria - Radiation fibrosis
Washington, Bothell - PASH
Hong Kong (Hong Kong Baptist Hospital) - Pseudoangiomatous stromal hyperplasia
The Netherlands, Amstelveen - Atrophic breast tissue after radiotherapy

Dystrophic calcinosis cutis following chest wall and breast irradiation. Lee HW; Oh SH; Chang SE; Lee MW; Choi JH; Moon KC; Koh JK. J Dermatol 2005 Dec;32(12): p1055-7.

Cutaneous angiosarcoma as a delayed complication of radiation therapy for carcinoma of the breast. Rao J; Dekoven JG; Beatty JD; Jones G. J Am Acad Dermatol 2003 Sep;49(3): p532-8.

Skin toxicity during breast irradiation: pathophysiology and management. Harper JL; Franklin LE; Jenrette JM; Aguero EG. South Med J 2004 Oct;97(10): p989-93.

Radiation-induced sarcomas after radiotherapy for breast carcinoma: a large-scale single-institution review. Kirova YM; Vilcoq JR; Asselain B; Sastre-Garau X; Fourquet A. Cancer 2005 Aug 15;104(4): p856-63.

Fine needle aspiration cytology of seromas of the breast from irradiated lumpectomy sites. Gupta RK; Gaskell D; Dowle C; Naran S; Lallu S; Fauck R. Acta Cytol 2004 Jul-Aug;48(4): p478-80.

Case 2

A 72 y/o woman had this well-delineated mobile 2 cm nodule in the right breast.

Dx: Papillomatosis of breast

Woodland Hills - Florid proliferative fibrocystic changes
Alabama (Norwood Clinic) - Fibrocystic changes/proliferative breast disease
Alabama, Birmingham - Fibrocystic changes with focal atypical ductal hyperplasia
Arkansas (The Laboratory of Pathology) - Fibrocystic change
Georgia, Atlanta - Fibrocystic changes
Kansas (Peterson Laboratory Services) - Fibrocystic change with non-atypical intraductal hyperplasia
Massachusetts, Peabody - Fibrocystic disease
North Carolina (TriPath Oncology) - Nodular fibrocystic changes with galactocele-like duct ectasia, florid ductal hyperplasia and apocrine metaplasia
Texas, Victoria - ADH, rad scar; rule out focal IDC
Washington, Bothell - FCD with DCIS
Hong Kong (Hong Kong Baptist Hospital) - Cystic hypersecretory hyperplasia
The Netherlands, Amstelveen - Ductal hyperplasia adenosis, duct ectasia

Fine-needle aspiration cytodiagnosis of nipple adenoma (papillomatosis) in a man and woman. Gupta RK; Dowle CS; Naran S; Lallu S. Diagn Cytopathol 2004 Dec;31(6): p432-3.

Are solitary breast papillomas entirely benign? Gutman H; Schachter J; Wasserberg N; Shechtman I; Greiff F. Arch Surg 2003 Dec;138(12): p1330-3.

Mammary lesions diagnosed as "papillary" by aspiration biopsy: 70 cases with follow-up. Simsir A; Waisman J; Thorner K; Cangiarella J. Cancer 2003 Jun 25;99(3): p156-65.

Myoepithelial cell staining patterns of papillary breast lesions: from intraductal papillomas to invasive papillary carcinomas. Hill CB; Yeh IT. Am J Clin Pathol 2005 Jan;123(1): p36-44.

Papillary lesions of the breast: selected diagnostic and management issues. Collins LC; Schnitt SJ. Histopathology 2008 Jan;52(1): p20-9.

Differential expression of cyclin D1 in breast papillary carcinomas and benign papillomas: an immunohistochemical study. Saddik M; Lai R; Medeiros LJ; McCourty A; Brynes RK. Arch Pathol Lab Med 1999 Feb;123(2): p152-6.

Case 3

This is a two cm nodule which was palpable in the breast of a 35 y/o woman.

Dx: Microglandular adenosis/nodular adenosis of breast

Woodland Hills - Tubular adenoma
Alabama (Norwood Clinic) - Adenosis
Alabama, Birmingham - Benign glandular adenosis
Arkansas (The Laboratory of Pathology) - Tubular adenoma
Georgia, Atlanta - Micoglandular adenosis
Kansas (Peterson Laboratory Services) - Hamartoma
Massachusetts, Peabody - Microglandular adenosis
North Carolina (TriPath Oncology) - Microglandular adenosis
Texas, Victoria - Adenosis with focal proliferative, FCC
Washington, Bothell - Tubular adenoma

Hong Kong (Hong Kong Baptist Hospital) - Microglandular hyperplasia
The Netherlands, Amstelveen - Microglandular adenosis

Fine needle aspiration cytology of sclerosing adenosis of the breast. Acta Cytol 2001 May-Jun;45(3): p353-9. Cho EY; Oh YL.

Cytologic findings of atypical adenosis of the breast. A case report. Kaufman D; Sanchez M; Mizrachy B; Jaffer S. Acta Cytol 2002 Mar-Apr;46(2): p369-72.

Risk factors for benign proliferative breast disease. Friedenreich C; Bryant H; Alexander F; Hugh J; Danyluk J; Page D. Int J Epidemiol 2000 Aug;29(4): p637-44.

Adenosis tumor of the breast: cytological and radiological features of a case confirmed by histology. El Aouni N; Balleyguier C; Mansouri D; Mathieu MC; Suci V; Delaloe S; Vielh P. Diagn Cytopathol 2008 Jul;36(7): p496-8.

Clinical, histopathologic, and immunohistochemical features of microglandular adenosis and transition into in situ and invasive carcinoma. Khalifeh IM; Albarracin C; Diaz LK; Symmans FW; Edgerton ME; Hwang RF; Sneige N. Am J Surg Pathol 2008 Apr;32(4): p544-52.

Invasive ductal carcinoma of the breast with a microglandular adenosis pattern. Shen SS; Sahin AA. Ann Diagn Pathol 2004 Feb;8(1): p39-42.

Adenosis tumor of the breast. Markopoulos C; Kouskos E; Phillipidis T; Floros D. Breast J 2003 May-Jun;9(3): p255-6.

Case 4

A 12 y/o girl noted a mass in the lower portion of the right breast for one month. A 642 gram, 9.5 cm mass was removed. It was gray-pink with hemorrhagic stippling.

Dx: Juvenile fibroadenoma of breast

Woodland Hills - Giant fibroadenoma
Alabama (Norwood Clinic) - Lactating adenoma
Alabama, Birmingham - Juvenile fibroadenoma
Arkansas (The Laboratory of Pathology) - Fibroadenoma
Georgia, Atlanta - Juvenile hypertrophy
Kansas (Peterson Laboratory Services) - Fibroadenoma
Massachusetts, Peabody - Juvenile fibroadenoma
North Carolina (TriPath Oncology) - Mammary hamartoma
Texas, Victoria - Sclerosing lob. Hyperplasia, pubertal macromastia
Washington, Bothell - Phyllodes tumor, benign
Hong Kong (Hong Kong Baptist Hospital) - Juvenile fibroadenoma
The Netherlands, Amstelveen - Breast tissue without acini

Fibroadenoma of the breast in an 11-year-old girl. Stehr KG; Lebeau A; Stehr M; Grantzow R. Eur J Pediatr Surg 2004 Feb;14(1): p56-9.

Juvenile fibroadenoma in 13-month-old female child. Jung YS; Lee KJ; Yoon TI; Kim MW; Yim HE; Kim YB; Park HB; Hong J. J Paediatr Child Health 2005 Jan-Feb;41(1-2): p78-9.

Breast asymmetry: presentation of a giant fibroadenoma. Park CA; David LR; Argenta LC. Breast J 2006 Sep-Oct;12(5): p451-61.

Juvenile fibroadenoma of the breast. Wechselberger G; Schoeller T; Piza-Katzer H. Surgery 2002 Jul;132(1): p106-7.

Can phyllodes tumours of the breast be distinguished from fibroadenomas using fine needle aspiration cytology? Scolyer RA; McKenzie PR; Achmed D; Lee CS. Pathology 2001 Nov;33(4): p437-43.

Case 5

This non-palpable lesion was discovered during screening mammography of a 45 y/o woman. Grossly, an irregular firm, 0.9 cm grey-white area was observed.

Dx: Ductal carcinoma in situ (DCIS)

Woodland Hills - High grade DCIS with micropapillary and apocrine features

Alabama (Norwood Clinic) - Apocrine metaplasia

Alabama, Birmingham - DCIS

Arkansas (The Laboratory of Pathology) - Atypical ductal hyperplasia

Georgia, Atlanta - Ductal carcinoma in-situ, micropapillary pattern

Kansas (Peterson Laboratory Services) - Ductal carcinoma in-situ, intermediate grade

Massachusetts, Peabody - Fibrocystic disease

North Carolina (TriPath Oncology) - Atypical apocrine metaplasia, possibly low grade apocrine DCIS

Texas, Victoria - ADH vs. micropap IDC (apocrine type)

Washington, Bothell - Papillary DCIS

Hong Kong (Hong Kong Baptist Hospital) - Micropapillary ductal carcinoma in-situ

The Netherlands, Amstelveen - DCIS, grade 2

Standard for the management of ductal carcinoma in situ of the breast (DCIS). Morrow M; Strom EA; Bassett LW; Dershaw DD; Fowble B; Harris JR; O'Malley F; Schnitt SJ; Singletary SE; Winchester DP. CA Cancer J Clin 2002 Sep-Oct;52(5): p256-76.

The molecular journey from ductal carcinoma in situ to invasive breast cancer. Wiechmann L; Kuerer HM. Cancer 2008 May 15;112(10): p2130-42.

Ductal carcinoma in situ of the breast: histological classification and genetic alterations. van de Vijver MJ. Recent Results Cancer Res 1998;152:123-34.

The impact of large sections on the study of in situ and invasive duct carcinoma of the breast. Foschini MP; Flamminio F; Miglio R; Calo DG; Cucchi MC; Masetti R; Eusebi V. Hum Pathol 2007 Dec;38(12): p1736-43.

Lobular neoplasia in breast core needle biopsy specimens is associated with a low risk of ductal carcinoma in situ or invasive carcinoma on subsequent excision. Am J Clin Pathol 2006 Aug;126(2): p310-3.

Do breast columnar cell lesions with atypia need to be excised? Datrice N; Narula N; Maggard M; Butler J; Hsiang D; Baick C; Lane K. Am Surg 2007 Oct;73(10): p984-6.

HER2 status in pure ductal carcinoma in situ and in the intraductal and invasive components of invasive ductal carcinoma determined by fluorescence in situ hybridization and immunohistochemistry. Park K; Han S; Kim HJ; Kim J; Shin E. Histopathology 2006 May;48(6): p702-7.

Is there an indication for sentinel node biopsy in patients with ductal carcinoma in situ of the breast? A review. van Deurzen CH; Hobbelink MG; van Hillegersberg R; van Diest PJ. Eur J Cancer 2007 Apr;43(6): p993-1001.

The theory of the sick breast lobe and the possible consequences. Tot T. Int J Surg Pathol 2007 Oct;15(4): p369-75.

High frequency of coexistence of columnar cell lesions, lobular neoplasia, and low grade ductal carcinoma in situ with invasive tubular carcinoma and invasive lobular carcinoma. Abdel-Fatah TM; Powe DG; Hodi Z; Lee AH; Reis-Filho JS; Ellis IO. Am J Surg Pathol 2007 Mar;31(3): p417-26.

Does histopathological examination of breast reduction specimens affect patient management and clinical follow up? Cook IS; Fuller CE. J Clin Pathol 2004 Mar;57(3): p286-9.

[Prognostic factors in ductal carcinoma in situ] [Prognostische Faktoren beim duktaalen Carcinoma in situ.]. Lebeau A. Pathologie 2006 Sep;27(5): p326-36.

Invasive breast cancer following ductal and lobular carcinoma in situ of the breast. Levi F; Randimbison L; Te VC; La Vecchia C. Int J Cancer 2005 Sep 20;116(5): p820-3.

Case 6

A 33 y/o woman had a rubbery firm nodule in the upper outer quadrant of the right breast. A 2 cm discrete tumor was excised.

Dx: Medullary carcinoma of breast

Woodland Hills - Poorly differentiated invasive ductal carcinoma, not medullary carcinoma, not lymphoepithelioma-like carcinoma

Alabama (Norwood Clinic) - Medullary carcinoma

Alabama, Birmingham - Medullary breast carcinoma

Arkansas (The Laboratory of Pathology) - Medullary carcinoma

Georgia, Atlanta - Invasive ductal carcinoma, medullary pattern

Kansas (Peterson Laboratory Services) - Atypical medullary carcinoma

Massachusetts, Peabody - Medullary carcinoma

North Carolina (TriPath Oncology) - Medullary carcinoma

Texas, Victoria - DC with medullary features

Washington, Bothell - Medullary carcinoma

Hong Kong (Hong Kong Baptist Hospital) - Atypical medullary carcinoma

The Netherlands, Amstelveen - Medullary carcinoma

Medullary carcinoma, provocative now as then. Eichhorn JH. Semin Diagn Pathol 2004 Feb;21(1): p65-73.

Gene expression profiling shows medullary breast cancer is a subgroup of basal breast cancers. Bertucci F; Finetti P; Cervera N; Charafe-Jauffret E; Mamessier E; Adelaide J; Debono S; Houvenaeghel G; Maraninchi D; Viens P; Charpin C; Jacquemier J; Birnbaum D. Cancer Res 2006 May 1;66(9): p4636-44.

Lymphoepithelioma-like carcinoma of the breast. Report of a case with the first electron microscopic study and review of the literature. Kurose A; Ichinohasama R; Kanno H; Kobayashi T; Ishida M; Nishinari N; Sawai T. Virchows Arch 2005 Sep;447(3): p653-9.

Typical medullary breast carcinomas have a basal/myoepithelial phenotype. Jacquemier J; Padovani L; Rabayrol L; Lakhani SR; Penault-Llorca F; Denoux Y; Fiche M; Figueiro P; Maisongrosse V; Ledoussal V; Martinez Penuela J; Udvarhely N; El Makdissi G; Ginestier C; Geneix J; Charafe-Jauffret E; Xerri L; Eisinger F; Birnbaum D; Sobol H. J Pathol 2005 Nov;207(3): p260-8.

Special types of invasive breast cancer, with clinical implications. Page DL. Am J Surg Pathol 2003 Jun;27(6): p832-5.

Case 7

This 9 cm mass was palpable in the breast of a 51 y/o woman. It was rapidly growing.

Dx: Metaplastic/sarcomatoid carcinoma of breast

Woodland Hills - Metaplastic carcinoma
Alabama (Norwood Clinic) - Metaplastic carcinoma
Alabama, Birmingham - Metaplastic carcinoma
Arkansas (The Laboratory of Pathology) - Metaplastic carcinoma
Georgia, Atlanta - Metaplastic carcinoma
Kansas (Peterson Laboratory Services) - Carcinomasarcoma
Massachusetts, Peabody - Metaplastic carcinoma
North Carolina (TriPath Oncology) - Metaplastic carcinoma
Texas, Victoria - Metaplastic carcinoma
Washington, Bothell - Angiosarcoma
Hong Kong (Hong Kong Baptist Hospital) - Metaplastic carcinoma
The Netherlands, Amstelveen - Sarcomatoid carcinoma

Metaplastic carcinoma of the breast, an unusual disease with worse prognosis: the experience of the European Institute of Oncology and review of the literature. Luini A; Aguilar M; Gatti G; Fasani R; Botteri E; Brito JA; Maisonneuve P; Vento AR; Viale G. Breast Cancer Res Treat 2007 Mar;101(3): p349-53.

Metaplastic carcinoma of the breast: a clinicopathological review. Tse GM; Tan PH; Putti TC; Lui PC; Chaiwun B; Law BK. J Clin Pathol 2006 Oct;59(10): p1079-83.

Cytomorphology of rare malignant tumors of the breast. Khalbuss WE. Clin Lab Med 2005 Dec;25(4): p761-75, vii.

p63 expression in breast cancer: a highly sensitive and specific marker of metaplastic carcinoma. Koker MM; Kleer CG. Am J Surg Pathol 2004 Nov;28(11): p1506-12.

Metaplastic sarcomatoid carcinoma of the breast with absent or minimal overt invasive carcinomatous component: a misnomer. Davis WG; Hennessy B; Babiera G; Hunt K; Valero V; Buchholz TA; Sneige N; Gilcrease MZ. Comment: Am J Surg Pathol. 2006 Aug; 30(8):1052-3. author reply 1053-5. Am J Surg Pathol 2005 Nov;29(11): p1456-63.

Use of immunohistochemistry in diagnosis of breast epithelial lesions. Bhargava R; Dabbs DJ. Adv Anat Pathol 2007 Mar;14(2): p93-107.

Case 8

A 60-year-old female presented with a lump in her right breast, identified during a monthly breast exam. There was accompanying pain and tenderness in the breast. The pain also extended to the front of the chest and radiated into the left arm. Bilateral mammograms revealed an 8.0 cm mass within the right breast. The nearly 11 cm excisional biopsy contained a gray-tan lobulated tumor measuring 7.0 x 7.0 cm and contiguous with smaller nodules. At least one nodule extended to the margins of resection.

Dx: Phyllodes tumor (Case reviewed by Dr. Tavassoli, CTTR seminar June 5, 2005)

Woodland Hills - Phyllodes tumor

Alabama (Norwood Clinic) - Malignant phyllodes tumor

Alabama, Birmingham - Malignant phyllodes tumor

Arkansas (The Laboratory of Pathology) - Phyllodes tumor

Georgia, Atlanta - Low grade phyllodes tumor

Kansas (Peterson Laboratory Services) - Periductal stromal sarcoma

Massachusetts, Peabody - Malignant phyllodes tumor

North Carolina (TriPath Oncology) - Malignant phyllodes

Texas, Victoria - Stromal sarcoma (malignant phyllodes)

Washington, Bothell - Mucinous/phyllodes

Hong Kong (Hong Kong Baptist Hospital) - Periductal stromal sarcoma

The Netherlands, Amstelveen - Sarcoma/ malignant phyllodes tumor

"Missed" diagnoses of phyllodes tumor on breast biopsy: pathologic clues to its recognition. Yohe S; Yeh IT. Int J Surg Pathol 2008 Apr;16(2): p137-42.

Benign phyllodes tumor of the breast with intracytoplasmic inclusion bodies identical to infantile digital fibromatosis. Dey D; Nicol A; Singer S. Breast J 2008 Mar-Apr;14(2): p198-9.

Recent developments in the histological diagnosis of spindle cell carcinoma, fibromatosis and phyllodes tumour of the breast. Lee AH. Histopathology 2008 Jan;52(1): p45-57.

Malignant phyllodes tumors: a review of 752 cases. Grabowski J; Salzstein SL; Sadler GR; Blair SL. Am Surg 2007 Oct;73(10): p967-9.

Histological features useful in the distinction of phyllodes tumour and fibroadenoma on needle core biopsy of the breast. Lee AH; Hodi Z; Ellis IO; Elston CW. Histopathology 2007 Sep;51(3): p336-44.

Case 9

An 84 y/o woman presented with back pain and was found to have a 13.0 x 11.0 x 8.0 cm lobulated mass involving the left breast. This mass had grown slowly for over four years.

Dx: Mucinous carcinoma of breast

Woodland Hills - Mucinous carcinoma

Alabama (Norwood Clinic) - Colloid carcinoma

Alabama, Birmingham - Mucinous carcinoma of breast

Arkansas (The Laboratory of Pathology) - Mucinous adenocarcinoma

Georgia, Atlanta - Invasive ductal carcinoma with increased mucin

Kansas (Peterson Laboratory Services) - Mucinous carcinoma

Massachusetts, Peabody - Mucinous carcinoma

North Carolina (TriPath Oncology) - Mucinous carcinoma

Texas, Victoria - Mucinous carcinoma

Washington, Bothell - Colloid carcinoma

Hong Kong (Hong Kong Baptist Hospital) - Mucinous neuroendocrine carcinoma

The Netherlands, Amstelveen - Mucinous adenocarcinoma, type B

Expression of mucins (MUC1, MUC2, MUC5AC and MUC6) in mucinous carcinoma of the breast: comparison with invasive ductal carcinoma. Matsukita S; Nomoto M; Kitajima S; Tanaka S; Goto M; Irimura T; Kim YS; Sato E; Yonezawa S. Histopathology 2003 Jan;42(1): p26-36.

Mammary mucinous carcinoma with marked cytoplasmic hyalinization. A report of 2 cases with emphasis on fine needle aspiration cytologic findings. Ng WK. Acta Cytol 2003 Nov-Dec;47(6): p1045-9.

Can core biopsy reliably diagnose mucinous lesions of the breast? Wang J; Simsir A; Mercado C; Cangiarella J. Am J Clin Pathol 2007 Jan;127(1): p124-7.

Benign mucocoele-like lesion of the breast: how to differentiate from mucinous carcinoma before surgery. Cheng L; Lee WY; Chang TW. Cytopathology 2004 Apr;15(2): p104-8.

Fine needle aspiration cytology of seromas of the breast from irradiated lumpectomy sites. Gupta RK; Gaskell D; Dowle C; Naran S; Lallu S; Fauck R. Acta Cytol 2004 Jul-Aug;48(4): p478-80.

Case 10

This is a representative section from a biopsy of the left breast of a 31 y/o woman. The tumor was S100 and HMB45 positive.

Dx: Metastatic melanoma to the breast

Woodland Hills - Melanoma
Alabama (Norwood Clinic) - Metastatic melanoma
Alabama, Birmingham - Melanoma of soft parts
Arkansas (The Laboratory of Pathology) - Secretory carcinoma
Georgia, Atlanta - Balloon cell melanoma
Kansas (Peterson Laboratory Services) - Clear cell sarcoma
Massachusetts, Peabody - Melanoma, breast
North Carolina (TriPath Oncology) - Metastatic melanoma
Texas, Victoria - Melanoma
Washington, Bothell - Melanoma
Hong Kong (Hong Kong Baptist Hospital) - Balloon cell melanoma
The Netherlands, Amstelveen -

[Metastatic spread of extramammary malignant melanomas to the female breast and the clinical consequences]. Wierrani F; Kubista E; Czerwenka K. [Die Metastasierung von extramammar gelegenen malignen Melanomen in die weibliche Brustdruse und ihre klinischen Konsequenzen]. Zentralbl Gynakol 1988;110(18): p1174-8.

Pigmented breast carcinoma. A clinical and histopathologic simulator of malignant melanoma. Sau P; Solis J; Lupton GP; James WD. Arch Dermatol 1989 Apr;125(4): p536-9.

Diagnosis of extramammary malignancy metastatic to the breast by fine needle biopsy. Wood B; Sterrett G; Frost F; Swarbrick N. Pathology 2008 Jun;40(4): p345-51.

The histological diagnosis of metastases to the breast from extramammary malignancies. Lee AH. J Clin Pathol 2007 Dec;60(12): p1333-41.

Metastatic melanoma in the breast: a report of 27 cases. Ravdel L; Robinson WA; Lewis K; Gonzalez R. J Surg Oncol 2006 Aug 1;94(2): p101-4.

Breast metastases as the first sign of recurrence of a cutaneous melanoma. Sampedro Gimeno T; Moreno Anton F; Lopez-Tarruella Cobo S; Gonzalez Larriba JL; Furio Bacete V; Diaz-Rubio Garcia E. Clin Transl Oncol 2006 Jan;8(1): p57-9.