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**California Tumor Tissue Registry's  
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September, 2015  
ENT and Salivary Disorders**

**Case #1**

A 54 y/o woman had a rapidly enlarging mass in the region of the right parotid gland. A curetting/biopsy of the parotid included multiple fragments of tan tissue with an aggregate of 10 mm.

**Diagnoses submitted in decreasing order of frequency:**

High-grade adenocarcinoma ex pleomorphic adenoma, parotid gland  
Adenocarcinoma, Carcinoma NOS  
Pleomorphic adenoma  
Basal cell adenocarcinoma  
Polymorphous low grade adenocarcinoma  
Acinic cell carcinoma  
Ganglioneuroblastoma

**Diagnosis: CARCINOMA EX PLEOMORPHIC ADENOMA, HIGH GRADE, Parotid**

**References:**

Carcinoma ex benign pleomorphic adenoma of the parotid gland. Plast Reconstr Surg 2005 Oct;116(5): p1206-13  
Nouraei SA; Hope KL, et al.

Cyclin A expression and its diagnostic value in pleomorphic adenoma and carcinoma expleomorphic adenoma of the parotid gland. Histopathology 2007 Jul;51(1): p21-5 Patel RS; Hughes CW, et al.

Transformation of pleomorphic adenoma to carcinoma ex pleomorphic adenoma of the parotid gland is independent of p53 mutations. J Surg Oncol 2010 Feb 1;101(2): p127-30 Gedlicka C; Item CB, et al.

Fine needle aspiration cytology of oncocytic myoepithelial carcinoma ex pleomorphic adenoma. Acta Cytol 2010 Sep-Oct;54(5 Suppl): p1051-6  
Wong CF; Lee HY, et al.

Adenocarcinoma ex pleomorphic adenoma of the head and neck: Report of five cases. Auris Nasus Larynx 2006 Mar;33(1): p43-6 Kariya S; Kosaka M, et al.

Epithelial myoepithelial carcinoma of the parotid gland with malignant ductal and myoepithelial components arising in a pleomorphic adenoma: a case report with cytologic, histologic and immunohistochemical correlation. Acta Cytol 2007 Sep-Oct;51(5): p807-13 Daneshbod Y; Negahban S, et al.

Salivary gland myoepithelial neoplasms: a clinical and cytopathologic study of 15 cases and review of the literature. Acta Cytol 2010 Nov-Dec;54(6): p1111-7

**Case #2**

A 55 y/o woman presented with a firm nodule below the right ear which had been present for about one month. The mass was palpated in the deep lobe of the right parotid gland, and was confirmed by CT scan. The resected mass was 2.5 x 1.8 x 1.6 cm, and encapsulated.

**Diagnoses submitted in decreasing order of frequency:**

Basal cell adenoma ( with membraneous features)  
Monomorphic adenoma  
Pleomorphic adenoma

Canalicular adenoma, Trabecular adenoma  
Cylindroma  
Adenoid cystic carcinoma

**Diagnosis: BASAL CELL ADENOMA, Parotid**

**References:**

Fine-needle aspiration cytology of basal cell adenoma of the parotid gland: characteristic cytological features and diagnostic pitfalls. *Diagn Cytopathol* 2007 Feb;35(2): p85-90 Kawahara A; Harada H, et al.

Basal cell adenoma of the parotid gland: dynamic CT and MRI findings. *Br J Radiol* 2005 Jul;78(931): p642-5 Yerli H; Teksam M, et al.

Parotid mass in a woman with multiple cutaneous cylindromas. *Head Neck* 2010 May;32(5): p684-7 Scott AR; Faquin WC; Deschler DG

Bilateral parotid basal cell adenoma: an unusual case report and review of the literature. *J Oral Maxillofac Surg* 2010 Jan;68(1): p179-82 Junquera L; Gallego L, et al.

Basal cell adenoma with extensive squamous metaplasia and cellular atypia: a case report with cytohistopathological correlation and review of the literature. *Diagn Cytopathol* 2012 Jan;40(1): p48-55 Paker I; Yilmazer D, et al.

**Case #3**

A 74 y/o man had a mass in the left parotid gland for 2 years. A FNA was performed, which showed only "reactive" lymphoid elements. A 4.0 cm mass was identified by CT. A superficial parotidectomy was performed. The cut surface was cheesy with gummy material.

**Diagnoses submitted in decreasing order of frequency:**

Sebaceous lymphadenoma  
Cystadenoma  
Mucoepidermoid carcinoma  
Lymphoepithelial carcinoma  
Hashimoto thyroiditis

**Diagnosis: SEBACEOUS LYMPHADENOMA, Parotid**

**References:**

Cystic sebaceous lymphadenoma of the parotid gland: case report and review of the literature. *Pathologica* 2011 Apr;103(2): p32-9 Squillaci S; Marchione R; Piccolomini M

Sebaceous lymphadenoma of the parotid gland in a 13-year-old girl: a case report. *Head Neck Pathol* 2010 Jun;4(2): p144-7 Rawlinson NJ; Almarzooqi S; Nicol K

Sebaceous lymphadenoma of parotid gland in a child. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009 Feb;107(2): p253-5 Sun G; Hu Q, et al.

Nonsebaceous lymphadenoma of the parotid gland: cytopathologic findings and differential diagnosis. *Diagn Cytopathol* 2010 Feb;38(2): p137-40 Castelino-Prabhu S; Li QK; Ali SZ

Lymphadenoma of parotid gland: Two additional cases and a literature review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008 Apr;105(4): p491-4 Dardick I; Thomas MJ

Lymphadenoma of the parotid gland: cytological findings, tissue correlation and differential diagnosis. *Cytopathology* 2011 Dec;22(6): p418-20 De Las Casas LE, et al.

**Case #4**

A 70 y/o woman developed nodules at the 8-9 o'clock and at the 10-12 o'clock region of the right side of the face. A wide local excision measured 12 x 7.5 x 5.8 cm and in the center was a protruding dark, brown-tan spherical mass. It had an irregular surface outline and was 5.5 x 5.0 x 4.0 cm. There was no previous tumor history. Tumor was 35 mm thick. The tumor was HMB-45 negative, S100 positive, Melan A positive.

**Diagnoses submitted in decreasing order of frequency:**

Malignant melanoma (nodular)  
Metastatic melanoma  
Teratoma

**Diagnosis: NODULAR MELANOMA, Parotid****References:**

Melanoma in a carcinoma ex pleomorphic adenoma of the parotid gland: a case report and putative histogenesis. Hum Pathol 2011 Sep;42(9): p1355-8 Karpowicz MK; Shalmon B, et al.

Cytomorphologic pitfall of primary malignant melanoma of the parotid gland: a case report. Acta Cytol 2009 Jul-Aug;53(4): p435-6 Bangerter M

Primary amelanotic malignant melanoma of the parotid gland: a case report. J Int Med Res 2008 Nov-Dec;36(6): p1435-9 Gao N; Li LJ, et al.

Metastasis of amelanotic melanoma of unknown origin in the parotid gland. Br J Oral Maxillofac Surg 2009 Oct;47(7): p569-71 Mesa M; Quesada JL; Pinas J

Suspected case of primary malignant melanoma of the parotid gland. Scand J Plast Reconstr Surg Hand Surg 2008;42(2): p105-7 Tsutsumida A; Yamamoto Y, et al.

**Case #5**

A 53 year old man experienced nasal discharge and sinusitis for the past three months. It was unresponsive to antibiotic therapy. Biopsies were obtained.

**Diagnoses submitted in decreasing order of frequency:**

Schneiderian inverted papilloma  
Sinonasal papilloma, Papillomatosis  
Transitional cell carcinoma  
Goiter

**Diagnosis: SCHNEIDERIAN PAPILLOMA (INVERTED), Nasal Sinus****References:**

Inverted papilloma (Schneiderian papilloma) with involvement of the oral cavity: report of an unusual case. An Bras Dermatol 2011 Jul-Aug;86(4): p779-83 Piva MR; Santos Tde S, et al.

The role of the human papillomavirus in the pathogenesis of Schneiderian inverted papillomas: an analytic overview of the evidence. Head Neck Pathol 2008 Jun;2(2): p49-59 Lawson W; Schlecht NF, et al.

Intracranial extension of Schneiderian inverted papilloma: a case report and literature review. Ger Med Sci 2012;10:Doc12 Pitak-Arnop P; Bertolini J, et al.

Schneiderian papillomas and carcinomas: a retrospective study with special reference to p53 and

p16 tumor suppressor gene expression and association with HPV. Ear Nose Throat J 2010 Oct;89(10): pE5-E12 Cheung FM; Lau TW, et al.

Squamous cell carcinoma arising in an inverted papilloma. Ear Nose Throat J 2010 May;89(5): pE21-2 Visaya JM; Wu JM, et al.

#### **Case #6**

A 62 year old man presented with a 4 month history of nasal obstruction, recently associated with epistaxis. Physical examination showed an occluded mass in the nasal cavity, centered around the middle turbinate. Imaging studies showed pressure remodeling of the adjacent bone

#### **Diagnoses submitted in decreasing order of frequency:**

Glomangiopericytoma  
Sinonasal hemangiopericytoma  
Spindle cell neoplasm, Fibrosarcoma, Low grade sinonasal sarcoma  
Olfactory neuroblastoma, Pimitive neuroectodermal tumor  
Papillary carcinoma  
Meningothelial meningioma  
Angiosarcoma

**Diagnosis: GLOMANGIOPERICYTOMA/SINONASAL HPC, Occluded mass**

#### **References:**

Inverted papilloma (Schneiderian papilloma) with involvement of the oral cavity: report of an unusual case. An Bras Dermatol 2011 Jul-Aug;86(4): p779-83 Piva MR; Santos Tde S, et al.

The role of the human papillomavirus in the pathogenesis of Schneiderian inverted papillomas: an analytic overview of the evidence. Head Neck Pathol 2008 Jun;2(2): p49-59 Lawson W; Schlecht NF, et al.

Intracranial extension of Schneiderian inverted papilloma: a case report and literature review. Ger Med Sci 2012;10:Doc12 Pitak-Arnnop P; Bertolini J, et al.

Schneiderian papillomas and carcinomas: a retrospective study with special reference to p53 and p16 tumor suppressor gene expression and association with HPV. Ear Nose Throat J 2010 Oct;89(10): pE5-E12 Cheung FM; Lau TW, et al.

Squamous cell carcinoma arising in an inverted papilloma. Ear Nose Throat J 2010 May;89(5): pE21-2 Visaya JM; Wu JM, et al.

#### **Case #7**

A 34 y/o woman developed a lump under the right side of the mandible over a period of 11 years. It was "hard" and nodular and measured 4.0 cm in greatest diameter

#### **Diagnoses submitted in decreasing order of frequency:**

Adenoid cystic carcinoma  
Mucoepidermoid carcinoma  
Cylindroma  
Follicular carcinoma with minimal invasion

**Diagnosis: ADENOID CYSTIC CARCINOMA, Submaxillary Gland**

#### **References:**

Multiple malignant salivary gland neoplasms: mucoepidermoid carcinoma of palate and adenoid cystic carcinoma of floor of mouth. Head Neck Pathol 2008 Mar;2(1): p41-8 Whitt JC; Schafer DR; Callihan MD

An update on grading of salivary gland carcinomas. Head Neck Pathol 2009 Mar;3(1): p69-77 Seethala RR

Adenoid cystic carcinoma of the head and neck: Incidence and survival trends based on 1973- 2007 Surveillance, Epidemiology, and End Results data. Cancer 2012 Sep 15;118(18): p4444-51 Ellington CL; Goodman M; Kono SA; Grist W; Wadsworth T; Chen AY; Owonikoko T; Ramalingam S, et al.

Hepatic metastasis as an initial manifestation of salivary adenoid cystic carcinoma: Cytologic diagnosis. Diagn Cytopathol 2009 Jan;37(1): p45-7 Deshpande AH; Kelkar AA

The sclerosing variant of adenoid cystic carcinoma: a previously unrecognized neoplasm of major salivary glands. Ann Diagn Pathol 2006 Feb;10(1): p1-7 Albores-Saavedra J; Wu J; Uribe-Uribe N

Adenoid cystic carcinoma with high-grade transformation: a report of 11 cases and a review of the literature. Am J Surg Pathol 2007 Nov;31(11): p1683-94 Seethala RR; Hunt JL; Livolsi VA; Leon Barnes E

Adenoid cystic carcinoma of the salivary glands: a 20-year review with long-term follow-up. Ear Nose Throat J 2005 Oct;84(10): p662, 664-7 Khafif A; Anavi Y, et al.

#### **Case #8**

A 62-year-old man presented with a mass involving the region of his right tonsil. A local excision and radical neck dissection were performed.

#### **Diagnoses submitted in decreasing order of frequency:**

Intestinal-type adenocarcinoma, Adenocarcinoma  
Nasopharyngeal papillary adenocarcinoma  
Polymorphous low grade carcinoma  
Follicular Hurthle cell carcinoma

#### **Diagnosis: INTESTINAL-TYPE ADENOCARCINOMA OF THE SINONASAL REGION, Right Tonsil**

#### **References:**

Expression pattern of CK7, CK20, CDX-2, and villin in intestinal-type sinonasal adenocarcinoma. J Clin Pathol 2004 Sep;57(9): p932-7 Kennedy MT; Jordan RC, et al.

Sinonasal intestinal-type adenocarcinoma involvement of the paranasal sinuses. AJNR Am J Neuroradiol 2003 Jun-Jul;24(6): p1152-5 Sklar EM; Pizarro JA

Immunohistochemical distinction of intestinal-type sinonasal adenocarcinoma from metastatic adenocarcinoma of intestinal origin. Ann Otol Rhinol Laryngol 2006 Jan;115(1): p59-64 Resto VA; Krane JF, et al.

Immunophenotypic differences between intestinal-type and low-grade papillary sinonasal adenocarcinomas: an immunohistochemical study of 22 cases utilizing CDX2 and MUC2. Am J Surg Pathol 2004 Aug;28(8): p1026-32 Cathro HP; Mills SE

Sinonasal tubulopapillary low-grade adenocarcinoma. Histopathological, Immunohistochemical and ultrastructural features of poorly recognised entity. Virchows Arch 2003 Aug;443(2): p152-8 Skalova A; Cardesa A, et al.

Synchronous adenocarcinomas of intestinal type of the inner nose and the colon. Hum Pathol 2007 Feb;38(2): p373-7 Donhuijsen K; Hannig H, et al.

#### **Case #9**

A 13 y/o young man developed a 2 year nodule in the posterior aspect of his left maxilla which he could palpate with his tongue. The excised specimen was lobular, oval, and dark red to pink-gray. It measured 2 x 2 x 1.5 cm

**Diagnoses submitted in decreasing order of frequency:**

Mucoepidermoid carcinoma  
Ectomesenchymal chondroid tumor  
Oncocytic schneiderian papilloma  
Well differentiated carcinoma  
Medullary carcinoma

**Diagnosis: MUCOEPIDERMOID CARCINOMA, Gingiva**

**References:**

Sclerosing mucoepidermoid carcinoma of the salivary glands. Ann Diagn Pathol 2007 Dec;11(6): p407-12  
Veras EF; Sturgis E; Luna MA

Mucoepidermoid carcinoma on the upper lip vermillion: a clinical report. J Craniofac Surg 2007 Mar;18(2): p445-8  
Hwang K; Lee SI

Salivary mucoepidermoid carcinoma: revisited. Adv Anat Pathol 2006 Nov;13(6): p293-307 Luna MA

Prognostic factors in mucoepidermoid carcinoma of the salivary glands. Cancer 2012 Aug 15;118(16): p3928-36  
McHugh CH; Roberts DB, et al.

Human cytomegalovirus and mucoepidermoid carcinoma of salivary glands: cell-specific localization of active viral and oncogenic signaling proteins is confirmatory of a causal relationship. Exp Mol Pathol 2012 Feb;92(1): p118-25 Melnick M; Sedghizadeh PP, et al.

Primacy of surgery in the management of mucoepidermoid carcinoma in children. Head Neck 2011 Dec;33(12): p1769-73 Ryan JT; El-Naggar AK, et al.

Mucoepidermoid carcinoma of the base of tongue. J Pak Med Assoc 2011 Sep;61(9): p945-7 Sobani ZU; Junaid M, et al.

**Case #10**

A 47 year old woman presented with epistaxis for a number of weeks. During evaluation, a right-sided nasal mass was identified. Imaging studies showed a mass high in the nasal vault.

**Diagnoses submitted in decreasing order of frequency:**

Olfactory neuroblastoma  
Small cell carcinoma  
Sinonasal Undifferentiated Carcinoma, Anaplastic  
Lymphoma

**Diagnosis: OLFACTORY NEUROBLASTOMA, Nasal Mass**

**References:**

Olfactory neuroblastoma: a review and update. Adv Anat Pathol 2009 Sep;16(5): p322-31 Faragalla H; Weinreb I

p63 Expression in olfactory neuroblastoma and other small cell tumors of the sinonasal tract. Am J Clin Pathol 2008 Aug;130(2): p213-8 Bourne TD; Bellizzi AM, et al.

The cytologic features of sinonasal undifferentiated carcinoma and olfactory neuroblastoma. Am J Clin Pathol 2008 Mar;129(3): p367-76 Bellizzi AM; Bourne TD; Mills SE, et al.

Esthesioneuroblastoma (Olfactory Neuroblastoma) with Ectopic ACTH Syndrome: a multidisciplinary case presentation from the Joan Karnell cancer center of Pennsylvania Hospital. *Oncologist* 2010;15(1): p51-8 Mintzer DM; Zheng S, et al.

Calretinin staining facilitates differentiation of olfactory neuroblastoma from other small round blue cell tumors in the sinonasal tract. *Am J Surg Pathol* 2011 Dec;35(12): p1786-93 Wooff JC; Weinreb I, et al.

Cushing's Syndrome: An Unusual Presentation of Olfactory Neuroblastoma. *Skull Base* 2008 Jan;18(1): p73-6 Josephs L; Jones L, et al.



**California Tumor Tissue Registry's  
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Breast Pathology**

**Case #1**

A 48 y/o woman had total mastectomy for invasive ductal carcinoma 8 months ago with placement of a tissue expander at time of mastectomy. After completion of chemotherapy, the expander was exchanged with a breast implant. This capsule surrounded the explanted tissue expander.

**Diagnoses submitted in decreasing order of frequency:**

Capsular synovial metaplasia  
Implant capsule with fibromatosis

**Diagnosis: BREAST CAPSULE METAPLASIA, Breast**

**References:**

Long-term follow-up of breast capsule contracture rates in cosmetic and reconstructive cases. *Plast Reconstr Surg* 2010 Sep;126(3): p769-78 Marques M; Brown SA, et al.

Myofibroblasts and capsular tissue tension in breast capsular contracture. *Aesthetic Plast Surg* 2010 Dec;34(6): p716-21 Hwang K; Sim HB, et al.

Pathogenesis of radiation-induced capsular contracture in tissue expander and implant breast reconstruction. *Plast Reconstr Surg* 2010 Feb;125(2): p437-45 Lipa JE; Qiu W, et al.

Clinical and morphological conditions in capsular contracture formed around silicone breast implants. *Plast Reconstr Surg* 2007 Jul;120(1): p275-84 Prantl L; Schreml S, et al.

**Case #2**

A 15 y/o woman noted a moveable, non-tender mass in the right breast for two months. The mass varied in size with her menstrual periods. A solitary 2.0 cm hard irregular mass was noted in the 9 o'clock position of the breast. The cut surfaces revealed well demarcated, yellow, gritty ovoid nodules with a glistening focally gelatinous semitransparent stroma. The patient was alive and well after 2 years.

**Diagnoses submitted in decreasing order of frequency:**

Juvenile papillomatosis, peripheral  
Florid papillomatosis and hyperplasia  
Intraductal papilloma  
Ductal carcinoma in situ

**Diagnosis: JUVENILE PAPILLOMATOSIS, Breast**

**References:**

Juvenile papillomatosis (JP) of the female breast (Swiss Cheese Disease) -- role of breast ultrasonography. *Ultraschall Med* 2005 Feb;26(1): p42-5 Ohlinger R; Schwesinger G, et al.

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

Florid papillomatosis of the male nipple. *Am J Surg* 2010 Sep;200(3): pe39-40 Tuveri M; Calo PG, et al.

Multiple intraductal papillomas of breast clinically masquerading as malignancy. Indian J Pathol Microbiol 2010 Jan-Mar;53(1): p112-4 Singh P; Misra V, et al.

### **Case #3**

During the 2nd half of her 2nd pregnancy, this 27 y/o woman felt an enlarging mass in her left breast. It was up to 1.5 cm during the pregnancy, but continued to enlarge to 3 cm post-partum. The mass was freely movable. Upon sectioning, the cut surface was lobulated, fleshy, and shiny. There were poorly outlined pale grayish tan foci with streaky areas of recent hemorrhage. She was free of tumor approximately 1 year later.

### **Diagnoses submitted in decreasing order of frequency:**

Lactating adenoma, lactating fibroadenoma  
Tubular adenoma  
Focal lactational hyperplasia

### **Diagnosis: LACTATING FIBROADENOMA, Breast**

### **References:**

Vulvar fibroadenoma with lactational changes in ectopic breast tissue. Case Rep Obstet Gynecol 2013;2013:924902 Lev-Cohain N; Kapur P; Pedrosa I

Cytomorphology of secretory hyperplastic (lactational) nodule breast. Cytopathology 2006 Jun;17(3): p156-8 Niveditha SR; Kusuma V, et al.

### **Case #4**

A 36-year-old woman had an irregular mass in her breast. A 4.0 x 3.0 x 2.0 cm area of firm tissue was removed that contained two cysts measuring less than 1 cm in diameter

### **Diagnoses submitted in decreasing order of frequency:**

Lobular carcinoma in situ (florid, with ductal involvement)  
Pleomorphic lobular carcinoma in situ

### **Diagnosis: LOBULAR CARCINOMA IN-SITU, Breast**

### **References:**

Follow-up surgical excision is indicated when breast core needle biopsies show atypical lobular hyperplasia or lobular carcinoma in situ. Am J Surg Pathol 2005 Dec;29(12): p1684-5; author reply 1685-6 Crisi GM; Ricci A

Cancer upgrades at excisional biopsy after diagnosis of atypical lobular hyperplasia or lobular carcinoma in situ at core-needle biopsy: some reasons why. Radiology 2004 Jun;231(3): p617-21 Cohen MA

In situ and invasive lobular neoplasia of the breast. Histopathology 2008 Jan;52(1): p58-66 Hanby AM; Hughes TA

Lobular neoplasia: is surgical excision warranted? Am Surg 2008 Feb;74(2): p172-7 Sohn VY; Arthurs ZM, et al.

Lobular neoplasia of the breast revisited with emphasis on the role of E-cadherin immunohistochemistry. Am J Surg Pathol 2013 Jul;37(7): p1-11 Dabbs DJ; Schnitt SJ, et al.

Classic lobular carcinoma in situ and atypical lobular hyperplasia at percutaneous breast core biopsy: outcomes of prospective excision. Cancer 2013 Mar 1;119(5): p1073-9 Murray MP; Luedtke C, et al.

**Case #5**

A mass was found by mammography in the left breast of a 61 y/o woman

**Diagnoses submitted in decreasing order of frequency:**

Clear cell / Glycogen rich carcinoma  
Lipid rich mammary carcinoma  
Invasive carcinoma with clear cell features  
Histiocytoid breast carcinoma

**Diagnosis: CLEAR CELL / GLYCOGEN RICH CARCINOMA, Breast****References:**

Cutaneous metastatic breast carcinoma with clear cell features. J Cutan Pathol 2013 Aug;40(8): p753-7  
Shinohara MM; Tozbikian G, et al.

Breast metastasis from clear cell renal cell carcinoma. J Ultrasound 2013 Jul 5;16(3): p127-30  
Botticelli A; De Francesco GP; Di Stefano D

Fine needle aspiration cytology of glycogen-rich clear cell carcinoma of the breast: review of 37 cases with histologic correlation. Acta Cytol 2008 Jan-Feb;52(1): p65-71 Akbulut M; Zekioglu O, et al.

Glycogen-rich clear cell carcinoma of the breast: a chameleon? Acta Cytol 2005 Jul-Aug;49(4): p467-8  
Ferrara G; Dalena AM, et al.

**Case #6**

59 y/o woman had a breast mass measuring 15 x 10 x 2 cm. It was excised and found to be solid, gray and well demarcated from the surrounding fatty breast tissue. The central portion was softened and fell apart easily.

**Diagnoses submitted in decreasing order of frequency:**

Medullary carcinoma, Invasive carcinoma with medullary features  
Invasive poorly differentiated mammary carcinoma  
Invasive lobular carcinoma (pleomorphic, alveolar, solid variants)  
Myeloid sarcoma, granulocytic sarcoma  
Invasive mammary carcinoma with apocrine features  
Plasmacytoma  
Carcinoma with neuroendocrine features

**Diagnosis: MEDULLARY CARCINOMA, Breast****References:**

Fine-needle aspiration cytology of medullary breast carcinoma: report of two cases and review of the literature with emphasis on differential diagnosis. Diagn Cytopathol 2007 Jun;35(6): p313-8 Racz MM; Pommier RF; Troxell ML

Typical medullary breast carcinomas have a basal/myoepithelial phenotype. J Pathol 2005 Nov;207(3): p260-8  
Jacquemier J; Padovani L, et al.

Clinicopathologic characteristics at diagnosis and the survival of patients with medullary breast carcinoma in China: a comparison with infiltrating ductal carcinoma-not otherwise specified. World J Surg Oncol 2013;11:91 Cao AY; He M, et al.

Comparison of the characteristics of medullary breast carcinoma and invasive ductal carcinoma. J Breast Cancer (Korea 2013 Dec;16(4): p417-25 Park I; Kim J, et al.

Measurement of tumour size with mammography, sonography and magnetic resonance imaging as compared to histological tumour size in primary breast cancer. BMC Cancer 2013;13:328 Gruber IV; Rueckert M, et al.

Medullary breast carcinoma: a case report with cytological features and histological confirmation. Diagn Cytopathol 2006 Oct;34(10): p701-3 Aouni NE; Athanasiou A, et al.

Medullary breast carcinoma. Exp Oncol 2008 Jun;30(2): p96-101 Malyuchik SS; Kiyamova RG

#### **Case #7**

A 50 y/o woman had a 3 cm breast needle aspirated and read as a "benign cyst". It was excised and grossly described as having numerous "small micro focal cystic areas".

#### **Diagnoses submitted in decreasing order of frequency:**

Apocrine carcinoma, (in situ, focally invasive carcinoma with apocrine features)  
High grade ductal carcinoma (in situ) with micropapillary features  
Clinging ductal carcinoma in situ (rule out invasion)  
Flat atypical hyperplasia

#### **Diagnosis: APOCRINE CARCINOMA, Breast**

#### **References:**

Fine-needle aspiration cytologic features of four special types of breast cancers: mucinous, medullary, apocrine, and papillary. Diagn Cytopathol 2007 Jul;35(7): p408-16 Haji BE; Das DK, et al.

A large, fungating breast mass. Secretory carcinoma with apocrine differentiation. Arch Pathol Lab Med 2006 Apr;130(4): pe50-2 Anderson P; Albarracin CT; Resetskova E

Apocrine carcinoma of the breast diagnosed on fine needle aspiration cytology. Acta Cytol 2007 Jul-Aug;51(4): p664-7 Jayaram G; Yaccob RB; Yip CH

Immunohistochemically defined subtypes and outcome of apocrine breast cancer. Clin Breast Cancer 2013 Apr;13(2): p95-102 Dellapasqua S; Maisonneuve P, et al.

Apocrine adenocarcinoma of the vulva. Rare Tumors 2013;5(3): pe40 Kajal B; Talati H, et al.

#### **Case #8**

This 85 y/o woman was seen by her doctor for a mass in her right breast. It was 2.5 cm in diameter and was located in the upper outer quadrant. The cut surface was firm, unencapsulated, granular and mucinous. The nipple and remaining breast parenchyma were otherwise unremarkable.

#### **Diagnoses submitted in decreasing order of frequency:**

Mucinous / Colloid carcinoma

#### **Diagnosis: MUCINOUS (COLLOID) CARCINOMA, Breast**

#### **References:**

Precursor lesions of mucinous carcinoma of the breast: analysis of 130 cases. Am J Surg Pathol 2013 Jul;37(7): p1076-84 Kryvenko ON; Chitale DA, et al.

Sonographic and pathologic image analysis of pure mucinous carcinoma of the breast. Ultrasound Med Biol 2013 Jul;39(7): p1158-67 Kaoku S; Konishi E, et al.

Mucinous micropapillary carcinoma of the breast: an aggressive counterpart to conventional pure mucinous tumors. Hum Pathol 2013 Aug;44(8): p1577-85 Barbashina V; Corben AD, et al.

Distinguishing benign dissecting mucin (stromal mucin pools) from invasive mucinous carcinoma. Adv Anat Pathol 2008 Jan;15(1): p1-17 Molavi D; Argani P

Mucinous breast lesions: diagnostic challenges. J Clin Pathol 2008 Jan;61(1): p11-9 Tan PH; Tse GM; Bay BH

Pure mucinous carcinoma of the breast with extensive psammomatous calcification. Histopathology 2008 Apr;52(5): p650-2 Rao P; Lyons B

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

#### **Case #9**

A 29-year-old woman had a breast mass removed in 1982. No further therapy was carried out at that time, and she was admitted in 1987 with another mass in the same area. This mass had increased rapidly in size during the previous three months, and it now measured approximately 7.0 cm in size. It was excised.

#### **Diagnoses submitted in decreasing order of frequency:**

Phylloides tumor, high grade (malignant, with sarcomatous overgrowth)  
Benign phyllodes tumor  
Phylloides tumor, borderline

#### **Diagnosis: PHYLLODES TUMOR, HIGH GRADE, Breast**

#### **References:**

Giant phyllodes tumour of the breast. J Plast Reconstr Aesthet Surg 2008 Oct;61(10): pe9-11 Walravens C; De Greef C

Phyllodes tumour of the breast: clinical follow-up of 33 cases of this rare disease. Eur J Obstet Gynecol Reprod Biol 2008 Jun;138(2): p217-21 Lenhard MS; Kahlert S, et al.

Clinicopathologic features and long-term outcomes of 293 phyllodes tumors of the breast. Ann Surg Oncol 2007 Oct;14(10): p2961-70 Barrio AV; Clark BD, et al.

Prognostic factors of phyllodes tumor of the breast. Pathol Int 2006 Jun;56(6): p309-14 Roa JC; Tapia O, et al.

Cytogenetic findings in phyllodes tumor and fibroadenomas of the breast. Cancer Genet Cytogenet 2004 Oct 15;154(2): p156-9 Barbosa ML; Ribeiro EM, et al.

Phyllodes tumor with pseudoangiomatous stroma hyperplasia. Breast J 2005 Jul-Aug;11(4): p285-7 Khoury T; Hurd T; Tan D

#### **Case #10**

This 21 y/o woman presented with a lesion in the right breast. She had recently been pregnant. The mass was 5.0 x 3.0 x 2.0 cm, well-circumscribed gray-tan and hemorrhagic.

#### **Diagnoses submitted in decreasing order of frequency:**

Metastatic choriocarcinoma , Trophoblastic tumor  
Metaplastic carcinoma  
Angiosarcoma

#### **Diagnosis: CHORIOCARCINOMA, Breast**

**References:**

Fine needle aspiration cytology of mammary carcinoma with choriocarcinomatous features: a report of 2 cases. Acta Cytol 2008 Jan-Feb;52(1): p99-104 Akbulut M; Zekioglu O, et al.

Breast carcinoma with choriocarcinomatous features. Ann Diagn Pathol 2004 Apr;8(2): p74-9 Resetkova E; Sahin A, et al.

A regressing and metastasizing tumor--the choriocarcinoma. J Oral Maxillofac Surg 2013 Jan;71(1): p214-9 Bakyalakshmi K; Bharathi R; Ponniah I

Fine-needle aspiration biopsy of a case of breast carcinoma with choriocarcinomatous features. Diagn Cytopathol 2006 Oct;34(10): p694-7 Siddiqui NH; Cabay RJ; Salem F

Metastatic choriocarcinoma to the breast: appearance on mammography and Doppler sonography. AJR Am J Roentgenol 2005 Mar;184(3 Suppl): pS53-5 Kalra N; Ojili V, et al.

Fine needle aspiration cytology of metastatic choriocarcinoma presenting as a breast lump. A case report. Acta Cytol 2004 Jan-Feb;48(1): p91-4 Choi HJ; Park IA

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

Breast Carciomas with Choriocarcinomatous Features: Case Reports & Review of the Literature. Breast Journal 2002 8(4): 244-248. Erhan Y; Ozdemir N; et al.

**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(3)  
November, 2015  
Bone and Cartilage**

**Case #1**

A 76 y/o man had a 4.2 cm slow growing firm mass involving the plantar portion of the left foot between the 1st and 2nd metatarsal heads.

**Diagnoses submitted in decreasing order of frequency:**

Chondroma  
Chondromatosis  
Enchondroma  
Chondromyxoid fibroma  
Fibromatosis  
Osteoma  
Calcifying aponeurotic fibroma

**Diagnosis: CHONDROMA OF SOFT PARTS, Foot**

**References:**

Extraskeletal chondroma of the foot.  
Joint Bone Spine 2007 May;74(3): p285-8  
Papagelopoulos PJ; Savvidou OD, et al.  
Cytomorphologic features of chondroid neoplasms: a comparative study.  
Acta Cytol 2010 Nov-Dec;54(6): p1101-10  
Chhabra S; Chopra R, et al.  
Predominant cartilaginous hamartoma: an unusual variant of chondromatous hamartoma.  
South Med J 2010 Feb;103(2): p169-71  
Seda G; Amundson D; Lin MY  
Subungual extraosseous chondroma in a finger.  
Am J Orthop (Belle Mead NJ 2008 Nov;37(11): pE187-90  
Rottgers SA; Rao G; Wollstein R  
Imaging and pathological correlation of soft-tissue chondroma: a serial five-case study and literature review.  
Clin Imaging 2006 Jan-Feb;30(1): p32-6  
Hondar Wu HT; Chen W, et al.  
Extraskeletal chondroma of the hand--a case report.  
Indian J Pathol Microbiol 2005 Apr;48(2): p206-8  
Singh P; Mathur SK, et al.

**Case #2**

A 15 y/o man sought removal of a progressively enlarging "upper" right distal femur mass which had been present for many years. The excised specimen was a mushroom-shaped growth measuring 5.5 x 5.0 x 4.6 cm. It was lined by gray-white, partially semi-translucent, irregularly shaped cartilaginous cap which was over a spiculated, portion of unremarkable bone.

**Diagnoses submitted in decreasing order of frequency:**

Osteochondroma  
Osteochondroma with proliferating cartilage cap

**Diagnosis: OSTEOCHONDROMA, Femur**

**References:**

Radiology-pathology conference: osteosarcoma in a cartilaginous exostosis of the femur. Clin Imaging 2006 May-Jun;30(3): p206-9 Meissner SA; Vieth V, et al.

Endoscopic resection of symptomatic osteochondroma of the distal femur. Clin Orthop Relat Res 2007 Jun;459:150-3 Ayerza MA; Abalo E, et al.

Lower limb ischaemia caused by fractured osteochondroma of the femur. Br J Radiol 2007 Apr;80(952): pe78-80 Tanigawa N; Kariya S, et al.

Posttraumatic popliteal pseudoaneurysm caused by a femoral osteochondroma. J Pediatr Orthop B 2010 Jul;19(4): p341-3 Rupprecht M; Mladenov K; Stucker R

Intrabursal vein abrasion and thrombosis. An unusual complication of femoral osteochondroma. Saudi Med J 2009 Dec;30(12): p1604-6 Mahmoodi SM; Bahirwani RK, et al.

Operative treatment of femoral neck osteochondroma through a digastric approach in a pediatric patient: a case report and review of the literature. J Pediatr Orthop B 2012 May;21(3): p230-4 Li M; Luettringhaus T, et al.

**Case #3**

A 14-year-old girl had a nonunion of a left mid-humeral fracture. X-rays showed it to probably be related to a cyst. Biopsy material contained 8 cc's of red-brown bone.

**Diagnoses submitted in decreasing order of frequency:**

Hemangioma  
Monostotic fibrous dysplasia  
Aneurysmal bone cyst, Unicameral bone cyst  
Rule out organizing thrombus  
Metastatic angiosarcoma  
Ochronosis  
Fracture callus  
Simple cyst  
Intra-osseous ganglion

**Diagnosis: HEMANGIOMA, Humerus****References:**

Epithelioid hemangioma of bone revisited: a study of 50 cases. Am J Surg Pathol 2009 Feb;33(2): p270-7 Nielsen GP; Srivastava A; Kattapuram S, et al.

Haemangioma: clinical course, complications and management. Br J Dermatol 2013 Jul;169(1): p20-30 Luu M; Frieden IJ

Approach to the patient with an infantile hemangioma. Dermatol Clin 2013 Apr;31(2): p289-301 Holland KE; Drolet BA

Infantile hemangiomas: an update on pathogenesis and therapy. Pediatrics 2013 Jan;131(1): p99-108 Chen TS; Eichenfield LF; Friedlander SF

Evolution of hemangioma endothelium. Exp Mol Pathol 2012 Oct;93(2): p264-72 Kleiman A; Keats EC, et al.



**Case #4**

A 62-year-old man had a mass in his left wrist of several years duration. It was painless and had probably enlarged slightly over that time. There was no evidence of malignancy in one biopsy

**Diagnoses submitted in decreasing order of frequency:**

Synovial chondromatosis  
Low grade chondrosarcoma  
Enchondroma, Chondroma

**Diagnosis: SYNOVIAL CHONDROMATOSIS, Wrist****References:**

Articular synovial chondromatosis. J Bone Joint Surg: 77-86. Murphy FP, Cahlin DC, et al.

Synovial chondromatosis of the temporomandibular joint. J Oral Surg 36a;13-19 Ronald JB, Keller EE:

Extra- and intra-articular synovial chondromatosis and malignant transformation to chondrosarcoma. Vet Comp Orthop Traumatol 2010;23(4): p277-83 Diaz-Bertrana C; Durall I, et al.

Synovial chondromatosis of the metacarpophalangeal joint of the ring finger. Acta Orthop Traumatol Turc 2010;44(4): p337-9 Ozcelik IB; Kuvat SV, et al.

**Case #5**

A 22-year-old man had pain in the left part of his face for about two weeks. An X-ray showed opacification of the left antrum. CT-scans demonstrated destruction of the anterior wall of the antral bone.

**Diagnoses submitted in decreasing order of frequency:**

Aneurysmal bone cyst  
Giant cell reparative granuloma  
Giant cell tumor

**Diagnosis: ANEURYSMAL BONE CYST, Facial Bones****References:**

Aneurysmal bone cyst of the petrous bone: case presentation and review of the literature. Pediatr Neurosurg 2010;46(4): p308-12 Sayama CM; MacDonald JD

Aneurysmal bone cysts of the jaws: analysis of 17 cases.

J Oral Maxillofac Surg 2010 Sep;68(9): p2122-8

Sun ZJ; Zhao YF, et al.

[Aneurysmal bone cyst in children]

Ark Patol (Russia 2010 Jul-Aug;72(4): p55-8

Semenova LA; Malakhov OA; Zherdev KV

Histology can be predictive of the clinical course of a primary aneurysmal bone cyst.

Arch Orthop Trauma Surg 2010 Apr;130(4): p481-7

Docquier PL; Delloye C; Galant C

Aneurysmal bone cysts.

JAAPA 2013 Aug;26(8): p56-7

Whitmore A

Giant aneurysmal bone cyst of the mandible: A case report and review of literature.

Natl J Maxillofac Surg 2013 Jan;4(1): p107-10

Bharadwaj G; Singh N, et al.

**Case #6**

An 18 y/o young man with tibial pain was biopsied. The mass, in the left proximal tibia, consisted of fragments which formed a 5.5 x 5.0 x 2.5 cm aggregate. Most of the resected tissue demonstrated glistening, cartilaginous tissue.

**Diagnoses submitted in decreasing order of frequency:**

Chondromyxoid fibroma  
Chondroma  
Chondrosarcoma  
Chondroblastoma

**Diagnosis: CHONDROMYXOID FIBROMA, Tibia**

**References:**

Chondromyxoid fibroma: a rarely encountered and puzzling tumor.  
Clin Orthop Relat Res 2005 Oct;439:171-5  
Lersundi A; Mankin HJ, et al.  
Epiphyseal chondromyxoid fibroma with prominent adipose tissue: an unusual radiologic and histologic presentation.  
Am J Orthop (Belle Mead NJ 2013 Apr;42(4): p175-8  
Kragel C; Siegal GP; Wei S  
Huge chondromyxoid fibroma of proximal third tibia masquerading as an aneurysmal bone cyst: A rare case report.  
South Asian J Cancer 2013 Jan;2(1): p13  
Dulani R; Dwidmuthe SC, et al.  
Chondroblastoma and chondromyxoid fibroma.  
J Am Acad Orthop Surg 2013 Apr;21(4): p225-33  
De Mattos CB; Angsanuntsukh C, et al.  
Periosteal chondromyxoid fibroma: a case study using imprint cytology.  
Diagn Cytopathol 2005 Dec;33(6): p402-6  
Estrada-Villasenor E; Cedillo ED, et al.  
Juxtacortical chondromyxoid fibroma of bone: a unique variant: a case study of 20 patients.  
Am J Surg Pathol 2007 Nov;31(11): p1662-8  
Baker AC; Rezeanu L, et al.

**Case #7**

A 28 year-old woman presented with a rapidly growing nodule on the right thumb. Radiographs taken prior to surgery demonstrated an ill-defined soft tissue mass without apparent calcification or periosteal reaction (Case published in CTTR COTM vol 11:3, December, 2008 [available at the CTTR])

**Diagnoses submitted in decreasing order of frequency:**

Fibro-osseous pseudotumor  
Proliferative fasciitis, Nodular fasciitis  
Benign myofibroblastic tumor  
Bizarre Parosteal osteochondromatous proliferation / Nora lesion

Soft tissue osteogenic sarcoma  
Myxofibroma  
Low grade fibromyxoid sarcoma  
Synovial sarcoma

**Diagnosis: FIBROOSSEOUS PSEUDOTUMOR, Thumb**

**References:**

Fibroosseous [corrected] pseudotumor of the digit: a clinicopathologic study of 43 new cases.  
Ann Diagn Pathol 2008 Feb;12(1): p21-8  
Moosavi CA; Al-Nahar LA, et al.  
Fibro-osseous pseudotumour of the digit in a patient with rheumatoid arthritis.  
Rheumatology (Oxford 2013 May;52(5): p779  
Cornec D; Le Nen D; Saraux A

**Case #8**

A 14-year-old girl complained of pain in her neck and right arm of long duration. Radiographs showed collapse of the sixth cervical vertebral body, possibly due to neoplasm. A biopsy was performed, leading to a diagnosis of fibrous dysplasia. This was followed by curettage and bone grafting. She did well for 10 years, and then developed recurrent symptoms of pain and numbness in the neck and arm, with difficulty swallowing and a "bony hard" neck mass. Radiographs demonstrated a "honeycomb" bony mass to the right of the midline of C6-C7, in the region of the prior cervical fusion. A second local resection with vertebral fusion was performed, and the patient has apparently been disease free for the subsequent 24 years.

**Diagnoses submitted in decreasing order of frequency:**

Osteoblastoma  
Ossifying fibroma  
Cementoblastoma  
Osteoma  
Chondroblastoma  
Fibrous dysplasia

**Diagnosis: OSTEOLASTOMA, RECURRENT, Paraspinal**

**References:**

Osteoid osteoma and osteoblastoma: novel histological and immunohistochemical observations as evidence for a single entity.  
J Clin Pathol 2013 Sep;66(9): p768-74  
Barlow E; Davies AM, et al.  
Fronto-parietal osteoblastoma with secondary aneurysmal bone cyst: a case report.  
J Plast Reconstr Aesthet Surg 2013 Feb;66(2): p270-3  
Kubota Y; Mitsukawa N, et al.  
Recurrent osteoblastoma of the maxilla.  
Dentomaxillofac Radiol 2013;42(5): p20100263  
Shah S; Kim JE, et al.  
Benign osteoid-producing bone lesions: update on imaging and treatment.  
Semin Musculoskelet Radiol 2013 Apr;17(2): p116-22  
Trotta B; Fox MG  
Osteoblastoma of the rib: A rare benign tumor with an unusual location.  
Int J Surg Case Rep 2013;4(2): p146-8  
Katsenos S; Archondakis S; Sakellaris T

**Case #9**

A 32 y/o man presented with enlargement of the proximal femur, and pain, with difficulty to sleep.

**Diagnoses submitted in decreasing order of frequency:**

Giant cell tumor (malignant)  
Adamantinoma

**Diagnosis: GIANT CELL TUMOR, Proximal Femur**

**References:**

Osteoid osteoma and osteoblastoma: novel histological and immunohistochemical observations as evidence for a single entity.  
J Clin Pathol 2013 Sep;66(9): p768-74  
Barlow E; Davies AM, et al.  
Fronto-parietal osteoblastoma with secondary aneurysmal bone cyst: a case report.  
J Plast Reconstr Aesthet Surg 2013 Feb;66(2): p270-3  
Kubota Y; Mitsukawa N, et al.  
Recurrent osteoblastoma of the maxilla.  
Dentomaxillofac Radiol 2013;42(5): p20100263  
Shah S; Kim JE, et al.  
Benign osteoid-producing bone lesions: update on imaging and treatment.  
Semin Musculoskelet Radiol 2013 Apr;17(2): p116-22  
Trotta B; Fox MG  
Osteoblastoma of the rib: A rare benign tumor with an unusual location.  
Int J Surg Case Rep 2013;4(2): p146-8  
Katsenos S; Archondakis S; Sakellaridis T

**Case #10**

This 72 y/o woman presented with a 3 cm mass in the left mandible

**Diagnoses submitted in decreasing order of frequency:**

Ameloblastoma (follicular type)  
Ameloblastic fibroma  
Adamantinoma

**Diagnosis: AMELOBLASTOMA, FOLLICULAR TYPE, Mandible**

**References:**

CD10 expression in stromal cells of ameloblastoma variants.  
Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2008 Feb;105(2): p206-9  
Iezzi G; Piattelli A, et al.  
Long-term follow up on recurrence of 305 ameloblastoma cases.  
Int J Oral Maxillofac Surg 2007 Apr;36(4): p283-8  
Hong J; Yun PY, et al.  
Clinical and radiologic behaviour of ameloblastoma in 4 cases.  
J Can Dent Assoc 2005 Jul-Aug;71(7): p481-4  
Gumgum S; Hosgoren B  
Mandibular ameloblastoma. A review of the literature and presentation of six cases.  
Med Oral Patol Oral Cir Bucal 2005 May-Jul;10(3): p231-8  
Torres-Lagares D; Infante-Cossio P, et al.  
Role of fine needle aspiration cytology in the preoperative presumptive diagnosis of ameloblastoma.  
Acta Cytol 2005 Jan-Feb;49(1): p38-42  
Ucok O; Dogan N, et al.  
Ameloblastomas of the jaws: clinico-pathological review of 11 patients.  
Eur J Surg Oncol 2004 Nov;30(9): p998-1002

Rapidis AD; Andressakis DD, et al.  
Fine-needle aspiration cytology of ameloblastoma and malignant  
ameloblastoma: a study of 12 cases.  
Diagn Cytopathol 2013 Mar;41(3): p206-11  
Klapsinou E; Stavros A, et al.  
Fine-needle aspiration cytology of ameloblastoma and malignant  
ameloblastoma: a study of 12 cases.  
Diagn Cytopathol 2013 Mar;41(3): p206-11  
Klapsinou E; Stavros A, et al.

**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(4)  
January, 2016  
Neural Tumors - CNS**

**Case #1**

This 52 y/o man was admitted for having constant headaches for one year and progressing especially on the right side of the head. CT scan revealed a tumor in the right trigone of the lateral ventricle by the right temporal horn.

Diagnoses submitted in decreasing order of frequency:

Transitional meningioma

Meningioma (fibrous, with focal clear cell features)

Anaplastic astrocytoma

**DIAGNOSIS: INTRAVENTRICULAR TRANSITIONAL MENINGIOMA, Right Trigone**

**References:**

Meningiomas of the lateral ventricles. A review of 10 cases.

Neurocirugia (Astur 2008 Oct;19(5): p427-33

Gelabert-Gonzalez M; Garcia-Allut A, et al.

Anterior third ventricle meningiomas. Report of two cases.

Neurocirugia (Astur 2008 Aug;19(4): p356-60

Uygur ER; Deniz B; Zafer K

Intraventricular cystic meningioma.

J Cancer Res Ther 2010 Apr-Jun;6(2): p218-20

Deb P; Sahani H, et al.

Intracranial hypertension caused by a meningioma compressing the transverse sinus.

J Clin Neurosci 2010 Dec;17(12): p1589-92

Chausson N; Bocquet J, et al.

New pathology classification, imagery techniques and prospective trials for meningiomas: the future looks bright.

Curr Opin Neurol 2010 Dec;23(6): p563-70

Weber DC; Lovblad KO; Rogers L

A meningioma exclusively located inside the superior sagittal sinus responsible for intracranial hypertension.

AJNR Am J Neuroradiol 2010 Jun;31(6): pE57-8

Szitkar B

**Case #2**

A fourth ventricular mass was resected on this 21 y/o woman.

**Diagnoses submitted in decreasing order of frequency:**

Choroid plexus papilloma

Papilloma

Papillary ependymoma

**Diagnosis: CHOROID PLEXUS PAPILLOMA WHO I, Ventricular Mass**

**References:**

Choroid plexus papilloma with neuropil-like islands.

Am J Surg Pathol 2008 Jan;32(1): p162-6  
 Hasselblatt M; Jeibmann A, et al.  
 Concomitant choroid plexus papillomas involving the third and fourth ventricles: A case report and review of the literature.  
 Clin Neurol Neurosurg 2006 Sep;108(6): p586-9  
 Karim A; Fowler M, et al.  
 Ossified choroid plexus papilloma of the fourth ventricle: elucidation of the mechanism of osteogenesis in benign brain tumors.  
 J Neurosurg Pediatr 2013 Jul;12(1): p13-20  
 Manjila S; Miller E, et al.  
 Choroid plexus papillomas: advances in molecular biology and understanding of tumorigenesis.  
 Neuro Oncol 2013 Mar;15(3): p255-67  
 Safaei M; Oh MC, et al.  
 Extraventricular choroid plexus papilloma in the brainstem.  
 J Neurosurg Pediatr 2013 Sep;12(3): p247-50  
 Xiao A; Xu J, et al.

### **Case #3**

This 33 y/o man with a diagnosis of neurofibromatosis (type 1) developed this tumor in the right parietal lobe. It was GFAP - and S100 +.

### **Diagnoses submitted in decreasing order of frequency:**

Schwannoma with degenerative nuclear atypia  
 Neurofibroma  
 Malignant peripheral nerve sheath tumor  
 Glioblastoma (WHO grade IV, high grade, multiforme, giant cell)  
 Malignant triton tumor  
 Pleomorphic xanthoastrocytoma

### **Diagnosis: NEUROFIBROMATOSIS, Right Parietal lobe**

### **References:**

Risk of benign tumours of nervous system, and of malignant neoplasms, in people with neurofibromatosis: population-based record-linkage study.  
 Br J Cancer 2013 Jan 15;108(1): p193-8  
 Seminog OO; Goldacre MJ  
 Soft tissue management of orbitotemporal neurofibromatosis.  
 J Craniofac Surg 2013 Jan;24(1): p269-72  
 Singhal D; Chen YC  
 Gliomas in neurofibromatosis type 1: a clinicopathologic study of 100 patients.  
 J Neuropathol Exp Neurol 2008 Mar;67(3): p240-9  
 Rodriguez FJ; Perry A et al.  
 Neurosurgical implications of neurofibromatosis Type I in children.  
 Neurosurg Focus 2006;20(1): pE2  
 Al-Otibi M; Rutka JT  
 Multiple meningiomas in brain and lung due to acquired mutation of the NF2 gene.  
 Neurology 2004 May 25;62(10): p1904-5  
 Eckstein O; Stemmer-Rachamimov A, et al.  
 High-grade primary diffuse leptomeningeal gliomatosis in a child with neurofibromatosis Type 1.  
 J Neurosurg Pediatr 2008 Dec;2(6): p402-5  
 King JA; Halliday W; Drake JM

### **Case #4**

A 61 y/o woman presented with an autoimmune disease and headaches. This tissue was from the right frontal lobe of the brain.

**Diagnoses submitted in decreasing order of frequency:**

Neurosarcoidosis

Intracranial xanthrogranuloma / Erdheim Chester disease

Granulomatous inflammation (rule out/favor fungal, Wegener's granulomatosis)

**Diagnosis: SARCOID NODULES FRONTAL LOBE, Brain**

**References:**

Sarcoidosis of the nervous system. Pract Neurol 2007 Aug;7(4): p234-44 Joseph FG; Scolding NJ

Neurosarcoidosis. Curr Neurol Neurosci Rep 2004 Nov;4(6): p441-7 Gullapalli D; Phillips LH

Common variable immunodeficiency with coexisting central nervous system sarcoidosis: case report and literature review with implications for diagnosis and pathogenesis. Ideggyogy Sz 2011 Nov 30;64(11-12): p405-8 Dziadzio M; Hortobagyi T, et al.

Cluster-like headache and a cystic hypothalamic tumour as first presentation of sarcoidosis. Cephalalgia 2013 Apr;33(6): p421-4 van der Vlist SH; Hummelink BJ, et al.

An intracerebral mass: tuberculosis or sarcoidosis? BMJ Case Rep 2013;2013 p Tuna T; Ozkaya S, et al.

A case of isolated neurosarcoidosis associated with psychosis. Neurosciences (Riyadh 2013 Jan;18(1): p70-3 Celebi A; Deveci S, et al.

**Case #5**

A 24 y/o woman was found to have an irregular 2.5 cm mass in the cerebrum.

**Diagnoses submitted in decreasing order of frequency:**

Gemistocytic astrocytoma

Gemistocytic oligodendroglioma

Astrocytoma

Glioblastoma multiforme

Rhabdoid tumor

**Diagnosis: GEMISTOCYTIC ASTROCYTOMA, Cerebrum**

**References:**

Low-grade astrocytomas: the prognostic value of fibrillary, gemistocytic, and protoplasmic tumor histology. J Neurosurg 2013 Aug;119(2): p434-41 Babu R; Bagley JH, et al.

Immunohistochemical features of a feline spinal cord gemistocytic astrocytoma. J Vet Diagn Invest 2008 Nov;20(6): p836-8 Aloisio F; Levine JM; Edwards JF

Cytologic characteristics of subependymal giant cell astrocytoma in squash smears: morphometric comparisons with gemistocytic astrocytoma and giant cell glioblastoma. Acta Cytol 2007 May-Jun;51(3): p375-9 Kim SH; Lee KG; Kim TS

November 2003: neonatal female with congenital brain tumor. Congenital gemistocytic astrocytoma. Brain Pathol 2004 Apr;14(2): p227-8 Bleggi-Torres LF; Pope LZ, et al.



**Case #6**

A 14 y/o boy presented with seizures, and was found to have a 5 cm right temporal lobe tumor. It was positive for GFAP, patchy positive for p53, and essentially negative for NFP. A Ki-67 labeling index was 38.4.

**Diagnoses submitted in decreasing order of frequency:**

Anaplastic ependymoma  
 Ependymoma (grade II)  
 Anaplastic astrocytoma  
 Central neurocytoma  
 Primitive neuroectodermal tumor, Neuroblastoma

**Diagnosis: ANAPLASTIC EPENDYMOMA WITH FOCAL PAPILLARY FEATURES BRAIN, Right Temporal Lobe****References:**

Extraneural metastases in anaplastic ependymoma. J Cancer Res Ther 2007 Apr-Jun;3(2): p102-4 Kumar P; Rastogi N. et al.

Anaplastic ependymoma with cartilaginous and osseous metaplasia: report of a rare case and review of literature. J Neurooncol 2007 Mar;82(1): p75-80 Mridha AR; Sharma MC, et al.

Anaplastic ependymoma with ependymoblastic multilayered rosettes. Hum Pathol 2013 Nov;44(11): p2597-602 Nobusawa S; Suzuki A, et al.

Cortical anaplastic ependymoma with significant desmoplasia: a case report and literature review. Case Rep Oncol Med 2013;2013:354873 Elsharkawy AE; Abuamona R, et al.

Emerging insights into the ependymoma epigenome. Brain Pathol 2013 Mar;23(2): p206-9 Mack SC; Witt H, et al.

**Case #7**

A 2 y/o girl was found to have a posterior fossa brain tumor (no other hx).

**Diagnoses submitted in decreasing order of frequency:**

Pilomyxoid astrocytoma (WHO grade II)  
 Diffuse astrocytoma grade II  
 Oligodendroglioma  
 Gangliocytoma  
 Medulloblastoma  
 Hemangioblastoma

**Diagnosis: LOW GRADE GLIOMA, PILOCYTIC ASTROCYTOMA, Posterior Fossa Brain Tumor****References:**

Pilocytic astrocytoma with leptomeningeal dissemination. Childs Nerv Syst 2013 Mar;29(3): p441-50 Bian SX; McAleer MF, et al.

Pilocytic astrocytoma: a disease with evolving molecular heterogeneity. J Child Neurol 2013 May;28(5): p625-32 Sadighi Z; Slopis J

Somatic neurofibromatosis type 1 (NF1) inactivation characterizes NF1-associated pilocytic astrocytoma. Genome Res 2013 Mar;23(3): p431-9 Gutmann DH; McLellan MD, et al.

Disseminated pilocytic astrocytoma involving brain stem and diencephalon: a history of atypical eating disorder and diagnostic delay. J Neurooncol 2006 Sep;79(2): p197-201 Distelmaier F; Janssen G, et al.

Calcified pilocytic astrocytoma of the medulla mimicking a brainstem "stone" Pathologica 2008 Oct;100(5): p408-10  
Berhouma M; Jemel H; Kchir N

Cytologic features of pilocytic astrocytoma in cerebrospinal fluid specimens. Acta Cytol 2004 Jan-Feb;48(1): p3-8  
Browne TJ; Goumnerova LC, et al.

Juvenile pilocytic astrocytomas do not undergo spontaneous malignant transformation: grounds for designation as hamartomas. Br J Ophthalmol 2008 Jan;92(1): p40-6 Parsa CF; Givrad S

#### **Case #8**

A 2 y/o boy was found to have a 4 cm mass in the posterior fossa.

#### **Diagnoses submitted in decreasing order of frequency:**

Medulloblastoma (Desmoplastic/nodular)  
Neurocytoma  
Pineocytoma  
Neuroblastoma

#### **Diagnosis: MEDULLOBLASTOMA Posterior Fossa**

#### **References:**

Medulloblastoma. Clin Oncol (R Coll Radiol 2013 Jan;25(1): p36-45 Bartlett F; Kortmann R; Saran F

Histologic features and prognosis in pediatric medulloblastoma. Pediatr Dev Pathol 2008 Sep-Oct;11(5): p337-43  
Verma S; Tavaré CJ; Gilles FH

Progress and challenges in childhood brain tumors. J Neurooncol 2005 Dec;75(3): p239-42  
Packer RJ

[WHO classification of tumours of the CNS: revised edition of 2007 with critical comments on the typing und grading of common-type diffuse gliomas] Pathologie 2008 Nov;29(6): p411-21 Feiden S; Feiden W

Cytology of desmoplastic medulloblastoma in imprint smears: a report of 2 cases. Acta Cytol 2006 Jan-Feb;50(1): p97-100 Riazmontazer N; Daneshbod Y

Characterization of distinct immunophenotypes across pediatric brain tumor types. J Immunol 2013 Nov 1;191(9): p4880-8 Griesinger AM; Birks DK, et al.

#### **Case #9**

A 74 y/o woman had a left frontal excision of a 6.0 cm tumor.

#### **Positive:**

vimentin  
p53 (weak)  
Cam 5.2 and CK7 in viable cells along the periphery of necrosis  
Desmin rarely positive  
Alcian-blue and Mucicarmine highlight mucinous components

#### **Negative:**

GFAP  
Melanoma cocktail  
NFP, NeuN, synaptophysin, chromogranin  
EMA  
CK20  
CK 5-6  
SMA  
CD31

ER  
TTF-1

**Diagnoses submitted in decreasing order of frequency:**

Gliosarcoma  
Glioblastoma (multiforme, WHO grade IV)  
Metastatic malignant neoplasm (adenocarcinoma, mammary, pulmonary, leiomyosarcoma)  
Sarcoma  
Large cell malignant neoplasm  
Gemistocytic astrocytoma  
High grade neoplasm

**Diagnosis: GLIOBLASTOMA MULTIFORME WITH FOCAL SARCOMA, Left Frontal**

**References:**

Predictors of long-term survival in patients with glioblastoma multiforme: advancements from the last quarter century. Cancer Invest 2013 Jun;31(5): p287-308 Chaudhry NS; Shah AH, et al.

Demystifying the molecular signature of glioblastoma multiforme arising in its rare morphologic variants--reply. Hum Pathol 2013 May;44(5): p935 Joo M; Park SH

Astrocytoma grade IV (glioblastoma multiforme) displays 3 subtypes with unique expression profiles of intermediate filament proteins. Hum Pathol 2013 Oct;44(10): p2081-8 Skalli O; Wilhelmsson U, et al.

Large cystic glioblastoma multiforme. Clin Neuroradiol 2013 Jun;23(2): p145-7 Choi CY; Yee GT, et al.

Socioeconomic and educational factors interference in the prognosis for glioblastoma multiforme. Br J Neurosurg 2013 Feb;27(1): p80-3 Lynch JC; Welling L, et al.

**Case #10**

A 19 y/o woman presenting with headache was found to have an intraventricular brain tumor. It was GFAP positive, Ki-67 had a low proliferation index (2%), and had a few intralesional axons positive for NFP.

**Diagnoses submitted in decreasing order of frequency:**

Pilocytic astrocytoma (WHO grade I)  
Astrocytoma  
Dysembryonic neuroepithelial tumor

**Diagnosis: PILOCYTIC ASTROCYTOMA, Brain**

**References:**

See references for case 7

**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(5)  
February, 2016  
Dermatopathology**

**Case #1**

This is from a 2 cm right neck nodule which had slowly grown over a 5 year period. It was freely moveable and pain free. It was from the executive director of the CTTR, aged 61 y/o.

**Diagnoses submitted in decreasing order of frequency:**

Epidermal inclusion cyst  
Steatocytoma

**Diagnosis: EPIDERMAL INCLUSION CYST, Neck**

**References:**

Granulation tissue associated with a ruptured epidermal inclusion cyst: a potential pitfall in fine needle aspirates of neck masses. Diagn Cytopathol 2013 Apr;41(4): p344-7 Peltola JC; Samad A; Pambuccian SE

Melanoma arising from an epidermal inclusion cyst. J Am Acad Dermatol 2013 Jan;68(1): pe6-7 Bajoghli A; Agarwal S, et al.

Cytological diagnosis of epidermal inclusion cyst of breast: A rare benign lesion. J Nat Sci Biol Med 2014 Jul;5(2): p460-2 Phukan JP; Sinha A, et al.

**Case #2**

A 26 y/o woman of color developed this dermal nodule in the right nares.

**Diagnoses submitted in decreasing order of frequency:**

Keloid  
Nodular fibroma with elastosis  
Dermatofibroma

**Diagnosis: KELOID, Site of Nose Ring Piercing**

**References:**

Earlobe keloids: a pilot study of the efficacy of keloidectomy with core fillet flap and adjuvant intralesional corticosteroids. Dermatol Surg 2013 Oct;39(10): p1514-9

Al Aradi IK; Alawadhi SA; Alkhawaja FA Combined treatment of earlobe keloids with shaving, cryosurgery, and intralesional steroid injection: a 1-year follow-up. Dermatol Surg 2013 May;39(5): p734-8 Careta MF; Fortes AC, et al.

Keloids: an update on medical and surgical treatments. J Drugs Dermatol 2013 Apr;12(4): p403-9  
Love PB; Kundu RV

Keloid: A case report and review of pathophysiology and differences between keloid and hypertrophic scars. J Oral Maxillofac Pathol 2013 Jan;17(1): p116-20 Hunasgi S; Koneru A, et al.

**Case #3**

A 74 y/o woman with had this pigmented conjunctival nodule in right eye. The surgeon thought it was a pterygium.

**Diagnoses submitted in decreasing order of frequency:**

Benign compound pigmented nevus, conjunctiva  
Intradermal nevus  
Atypical nevus

**Diagnosis: PIGMENTED COMPOUND NEVUS, Conjunctiva**

**References:**

Immunohistochemical studies of conjunctival nevi and melanomas. Arch Ophthalmol 2010 Feb;128(2): p174-83  
Jakobiec FA; Bhat P; Colby KA

Melanocytic lesions of the conjunctiva. Arch Pathol Lab Med 2010 Dec;134(12): p1785-92 Zembowicz A; Mandal RV; Choopong P

Distinction of conjunctival melanocytic nevi from melanomas by fluorescence in situ hybridization. J Cutan Pathol 2010 Feb;37(2): p196-203 Busam KJ; Fang Y, et al.

Conjunctival nevi: Clinical and histopathologic features in a Saudi population.

Ann Saudi Med 2010 Jul-Aug;30(4): p306-12

Alkatan HM; Al-Arfaj KM; Maktabi A

Conjunctival nevi clinical features and therapeutic outcomes.

Ophthalmology 2010 Jan;117(1): p35-40

Levecq L; De Potter P; Jamart J

**Case #4**

A 37 y/o man had a 2.3 x 2.3 cm papilla on his right shin that measured 0.8 cm in height. A 2.0 x 2.0 cm shave biopsy was taken. A CD34 stain was positive in the stroma.

**Diagnoses submitted in decreasing order of frequency:**

Pleomorphic fibroma

Sclerotic fibroma, Nodular fibroma

Solitary fibrous tumor

Dermatofibrosarcoma protuberans (DFSP, collagenous)

**Diagnosis: PLEOMORPHIC FIBROMA, Shin**

**References:**

Dome-shaped papule on the posterior shoulder--quiz case. Myxoid cutaneous pleomorphic fibroma.

Arch Dermatol 2010 Sep;146(9): p1037-42

McCoppin HH; Wieberg J, et al.

Pleomorphic fibroma and dermal atypical lipomatous tumor: are they related?

J Cutan Pathol 2013 Apr;40(4): p379-84

Al-Zaid T; Wang WL, et al.

Cytomorphology of pleomorphic fibroma of skin: A diagnostic enigma.

J Cytol 2013 Jan;30(1): p71-3

Yadav Y; Kushwaha R, et al.

Pathologic quiz case: a 38-year-old woman with a flesh-colored forehead nodule. Pleomorphic fibroma.

Arch Pathol Lab Med 2005 Jan;129(1): p21-2

Manucha V; Andrews CW

Solitary sclerotic fibroma of the skin: morphological characterization of the 'plywood-like pattern'.

J Cutan Pathol 2008 Oct;35 Suppl 1:74-9

Nakashima K; Yamada N, et al.

**Case #5**

This 33 y/o woman had a small nodule in the skin of the right thigh.

**Diagnoses submitted in decreasing order of frequency:**

Eccrine hidradenoma (nodular)  
 Hidrocystoma  
 Poroma  
 Monophasic synovial sarcoma

**Diagnosis: ECCRINE HIDRADENOMA, Thigh****References:**

A single lesion showing features of pigmented eccrine poroma and poroid hidradenoma.  
 J Cutan Pathol 2008 Sep;35(9): p861-5  
 Chiu HH; Lan CC, et al.  
 Cytomorphological features of nodular hidradenoma highlighting eccrine differentiation: a case report.  
 Indian J Pathol Microbiol 2006 Jul;49(3): p411-3  
 Agarwal S; Agarwal K, et al.  
 A study of histopathologic spectrum of nodular hidradenoma.  
 Am J Dermatopathol 2012 Jul;34(5): p461-70  
 Nandeesh BN; Rajalakshmi T  
 From hidroacanthoma simplex to poroid hidradenoma: clinicopathologic and immunohistochemic study of poroid neoplasms and reappraisal of their histogenesis.  
 Am J Dermatopathol 2010 Jul;32(5): p459-68  
 Battistella M; Langbein L, et al.

**Case #6**

68 y/o man presented with a pigmented skin lesion on the right lower leg. He had no hx of melanoma.

**Diagnoses submitted in decreasing order of frequency:**

Pigmented epithelial melanocytoma  
 Melanoma vs dysplastic nevus  
 Blue nevus (cellular, giant, spindle melanocytic lesion)

**Diagnosis: PIGMENTED EPITHELIAL MELANOCYTOMA, Leg****References:**

What is "pigmented epithelioid melanocytoma?"  
 Am J Surg Pathol 2005 Aug;29(8): p1118; author reply 1118-9  
 White S; Chen S  
 Pigmented epithelioid melanocytoma: a new concept encompassing animal-type melanoma and epithelioid blue nevus.  
 BMJ Case Rep 2013;2013 p  
 Gavriilidis P; Michalopoulou I, et al.  
 Pigmented epithelioid melanocytoma in a child: unusual clinical presentation.  
 Iran J Pediatr 2013 Jun;23(3): p369-70  
 Pusiol T; Dorian M, et al.  
 A case of animal-type melanoma (or pigmented epithelioid melanocytoma?): an open prognosis.  
 Dermatol Surg 2008 Jan;34(1): p105-9; discussion 110  
 Vezzoni GM; Martini L; Ricci C  
 Seen by Dr. MC Mihm. "This tumor has been previously called "animal-type melanoma" and "epithelioid blue nevus of Carney complex". Dr. Mihm designated it as pigmented epithelioid

melanocytoma. He presented a series of 41 cases. Median age 27 years. Extremities is the most common site. Tumors were deep dermal (with a mean Breslow's thickness of 3.3 mm). Mets to regional lymph occur in some cases (59%). No pts died of disease (mean 32 mo f/u). It appears to be a low grade melanoma which has an indolent course.

**Case #7**

6 y/o boy was found to have this nodule on the right cheek.

**Diagnoses submitted in decreasing order of frequency:**

Spitz Nevus (compound), Juvenile dermal nevus  
Intradermal nevus  
Nevus

**Diagnosis: SPITZ NEVUS, Right Cheek**

**References:**

Patient age in Spitz nevus and malignant melanoma: implication of Bayes rule for differential diagnosis.  
Am J Clin Pathol 2004 Jun;121(6): p872-7  
Vollmer RT  
Spitz nevus with rosette-like structures: a new histologic variant.  
J Cutan Pathol 2008 May;35(5): p510-2  
Kantrow S; Kalemieris GC; Prieto V  
Spitz nevus versus spitzoid melanoma: diagnostic difficulties, conceptual controversies.  
Adv Anat Pathol 2006 Jul;13(4): p147-56  
Mooi WJ; Krausz T  
Spitz nevi: beliefs, behaviors, and experiences of pediatric dermatologists.  
JAMA Dermatol 2013 Mar;149(3): p283-91  
Tloughan BE; Orlow SJ; Schaffer JV  
Epithelioid and fusiform blue nevus of chronically sun-damaged skin, an entity distinct from the epithelioid blue nevus of the Carney complex.  
Am J Surg Pathol 2013 Jan;37(1): p81-8  
Yazdan P; Haghighat Z, et al.  
Differentiation between malignant melanoma and Spitz tumour has improved over the past decade due to modern pathological techniques.  
N Z Med J 2013 Aug 30;126(1381): p87-91  
Ng D; McKerrow KJ, et al.

**Case #8**

A 71 y/o former lifeguard noticed a 3 cm mass on his left neck.

**Diagnoses submitted in decreasing order of frequency:**

Desmoplastic spindle cell malignant melanoma  
Spitzoid melanoma  
Angiosarcoma  
Giant cell fibroblastoma  
Pleomorphic dermal sarcoma

**Diagnosis: DESMOPLASTIC (“NEUROTROPIC” OR “SPINDLED”) MELANOMA, Neck**

**References:**

Desmoplastic melanoma: a review.  
J Am Acad Dermatol 2013 May;68(5): p825-33  
Chen LL; Jaimes N, et al.

Desmoplastic neurotropic melanoma: a clinicopathologic analysis of 128 cases.  
 Cancer 2008 Nov 15;113(10): p2770-8  
 Chen JY; Hruby G, et al.  
 Incidence of sentinel lymph node involvement in a modern, large series of desmoplastic melanoma.  
 J Am Coll Surg 2013 Jul;217(1): p37-44; discussion 44-5  
 Egger ME; Huber KM, et al.  
 Diagnostic challenges of metastatic spindle cell melanoma on fine-needle aspiration specimens.  
 Cancer 2008 Apr 25;114(2): p94-101  
 Piao Y; Guo M; Gong Y  
 Desmoplastic malignant melanoma: a clinicopathologic analysis of 113 cases.  
 Am J Dermatopathol 2008 Jun;30(3): p207-15  
 de Almeida LS; Requena L, et al.  
 Cytologic features of metastatic and recurrent melanoma in patients with primary cutaneous desmoplastic melanoma.  
 Am J Clin Pathol 2008 Nov;130(5): p715-23  
 Murali R; Loughman NT, et al.

#### **Case #9**

A 48 y/o woman had a scalp lesion and also had alopecia. A biopsy excised a 9 x 3.5 x 0.6 cm nodule. The tumor was Pancytokeratin and S-100 positive. Perineural invasion was present (but not on all slides).

#### **Diagnoses submitted in decreasing order of frequency:**

Microcystic adnexal carcinoma  
 Carcinoma, invasive  
 Malignant proliferating pilar tumor  
 Squamous Cell Carcinoma (spindle cell)  
 Synovial sarcoma

#### **Diagnosis: MICROCYSTIC ADNEXAL CARCINOMA, Scalp**

#### **References:**

Microcystic adnexal carcinoma: report of seven cases including one with lung metastasis.  
 Dermatology 2006;212(3): p221-8  
 Gabillot-Carre M; Weill F, et al.  
 Multiple microcystic adnexal carcinomas.  
 Cutis 2007 Apr;79(4): p299-303  
 Page RN; Hanggi MC, et al.  
 The immunohistochemical differential diagnosis of microcystic adnexal carcinoma, desmoplastic trichoepithelioma and morpheaform basal cell carcinoma using BerEP4 and stem cell markers.  
 J Cutan Pathol 2013 Apr;40(4): p363-70  
 Sellheyer K; Nelson P, et al.  
 Expression of p75 neurotrophin receptor in desmoplastic trichoepithelioma, infiltrative basal cell carcinoma, and microcystic adnexal carcinoma.  
 Am J Dermatopathol 2013 May;35(3): p308-15  
 Jedrych J; McNiff JM  
 Microcystic adnexal carcinoma versus desmoplastic trichoepithelioma: a comparative study.  
 Am J Dermatopathol 2013 Feb;35(1): p50-5  
 Tse JY; Nguyen AT, et al.

#### **Case #10**

This 66 y/o woman noticed a left axilla mass for the past 5-10 years. It fluctuated in size. Over the past several weeks she experienced numbness of the 4th and 5th fingers, with tingling in her left hand, also weakness of the grip of the left



hand. At surgery, there was an 8 cm mass of yellow to gray-white tissue. Some of it was cystic and filled with mucinous material

**Diagnoses submitted in decreasing order of frequency:**

Leiomyosarcoma (rule out metastasis)  
Sarcoma  
Malignant peripheral nerve sheath tumor  
Ancient schwannoma  
Fibroma  
Fibrosarcoma

**Diagnosis: CUTANEOUS LEIOMYOSARCOMA, R/O METASTASIS FROM UNKNOWN PRIMARY, Axilla**

**References:**

Cutaneous leiomyosarcoma: a tumor of the head and neck.  
Dermatol Surg 2007 May;33(5): p628-33  
Annest NM; Grekin SJ, et al.  
Cutaneous metastasis of leiomyosarcoma.  
Dermatol Surg 2007 May;33(5): p634-7  
Vandergriff T; Krathen RA; Orengo I  
Primary cutaneous leiomyosarcoma: a clinicopathological and immunohistochemical study of 7 cases.  
Int J Surg Pathol 2004 Jan;12(1): p39-44  
Bellezza G; Sidoni A, et al.  
Superficial cutaneous leiomyosarcoma: a rare, misleading tumor.  
Am J Clin Dermatol 2008;9(3): p185-7  
De Giorgi V; Sestini S, et al.  
Clinicopathological study of primary superficial leiomyosarcomas.  
J Med Assoc Thai 2013 Mar;96(3): p294-301  
Burusapat C; Satayasoonporn K; Nelson SD  
A case of cutaneous leiomyosarcoma with overexpression of KIT: do CD117 (KIT)-positive primary gastrointestinal stromal tumours of the skin exist?  
Br J Dermatol 2006 May;154(5): p1013-6  
Horie M; Hatamochi A, et al.

**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(6)  
March, 2016  
Gastrointestinal Pathology**

**Case #1**

This is a 1 cm white slightly elevated region in the left lateral tongue from an 80 y/o patient. No other history.

**Diagnoses submitted in decreasing order of frequency:**

Oral lichen planus with dysplasia  
Verrucoid dysplasia with condylomatous background  
Hyperkeratosis, with focal dysplasia  
Verrucous squamous cell carcinoma  
Microinvasive squamous cell carcinoma  
Irritation fibroma

**Diagnosis: ORAL LICHEN PLANUS WITH DYSPLASIA, Tongue**

**References:**

Pathogenesis of oral lichen planus--a review.  
J Oral Pathol Med 2010 Nov;39(10): p729-34  
Roopashree MR; Gondhalekar RV, et al.  
Oxidative stress and antioxidant defense in oral lichen planus and oral lichenoid reaction.  
Scand J Clin Lab Invest 2010 Jul;70(4): p225-8  
Upadhyay RB; Carnelio S, et al.  
Pathophysiology, etiologic factors, and clinical management of oral lichen planus, part I: facts and controversies.  
Clin Dermatol 2010 Jan-Feb;28(1): p100-8  
Farhi D; Dupin N  
Application of a motivation-behavioral skills protocol in gingival lichen planus: a short-term study.  
J Periodontol 2010 Oct;81(10): p1449-54  
Lopez-Jornet P; Camacho-Alonso F  
Aloe vera as cure for lichen planus.  
N Y State Dent J 2013 Aug-Sep;79(5): p65-8  
Patil BA; Bhaskar HP, et al.  
Oral lichen planus.  
Adv NPs PAs 2013 Jun;4(6): p23-6  
McGarey M  
Clinicopathological features and malignant transformation of oral lichen planus: a 12-years retrospective study.  
Acta Odontol Scand 2013 May-Jul;71(3-4): p834-40  
Bardellini E; Amadori F, et al.  
Oral lichen planus: a retrospective study of 633 patients from Bucharest, Romania.  
Med Oral Patol Oral Cir Bucal 2013 Mar;18(2): pe201-6  
Tovaru S; Parlatescu I, et al.

**Case #2**

A 41 y/o woman complained of difficulty swallowing. A 5.5 cm mass was found in the gastric antrum obstructing the pylorus. She underwent partial gastric resection.

**Diagnoses submitted in decreasing order of frequency:**

Inflammatory fibroid polyp (with ulceration)  
Inflammatory myofibroblastic tumor (IMT)

**Diagnosis: INFLAMMATORY FIBROID POLYP, Stomach**

**References:**

Do Not Be Fooled by Fancy Mutations: Inflammatory Fibroid Polyps Can Harbor Mutations Similar to Those Found in GIST.

Case Rep Med 2013;2013:845801

Bjerkehagen B; Aaberg K; Steigen SE

Inflammatory fibroid polyps of the gastrointestinal tract: spectrum of clinical, morphologic, and immunohistochemistry features.

Am J Surg Pathol 2013 Apr;37(4): p586-92

Liu TC; Lin MT; Montgomery EA; Singhi AD

[Inflammatory fibroid polyp of the stomach]

Rev Esp Enferm Dig 2006 Jun;98(6): p482-3

Guerra Bautista JA; Ibanez Delgado F, et al.

Atypical EUS features of gastric inflammatory fibroid polyps.

Gastrointest Endosc 2005 Apr;61(4): p637-8; author reply 638

Matsushita M; Okazaki K

Inflammatory fibroid polyps are not inflammatory myofibroblastic tumors.

Diagn Cytopathol 2004 Aug;31(2): p131

Pantanowitz L; Antonioli DA; Odze RD

Distinguishing gastrointestinal stromal tumors from their mimics: an update.

Adv Anat Pathol 2007 May;14(3): p178-88

Abraham SC

**Case #3**

This 24 y/o white woman was hospitalized for massive rectal bleeding and nausea. She also had light headedness, dizziness and lung congestion for the past 2 days.

**Diagnoses submitted in decreasing order of frequency:**

Pancreatic heterotopia

**Diagnosis: HETEROTOPIC PANCREAS, Gastric Fundus**

**References:**

Heterotopic pancreas presenting as gastric submucosal cyst on endoscopic sonography.

J Clin Ultrasound 2006 May;34(4): p203-6

Yen HH; Soon MS; Soon A

Cystic lesion mimicking intraductal papillary mucinous tumor arising in heterotopic pancreas of the stomach and synchronous intraductal papillary mucinous adenocarcinoma of the pancreas.

Int J Surg Pathol 2008 Jul;16(3): p324-8

Park HS; Jang KY, et al.

Cystic dystrophy of heterotopic pancreas in stomach: radiologic and pathologic correlation.

Abdom Imaging 2008 Jul-Aug;33(4): p391-4

Lopez-Pelaez MS; Hoyos FB, et al.

Adenocarcinoma arising in association with gastric heterotopic pancreas: A case report and review of the literature.

J Surg Oncol 2004 Jul 15;87(1): p53-7

Emerson L; Layfield LJ, et al.

Pancreatic intraepithelial neoplasia in heterotopic pancreas: evidence for the progression model of pancreatic ductal adenocarcinoma.

Am J Surg Pathol 2007 Aug;31(8): p1191-5

Zhang L; Sanderson So, et al.

Pancreatic heterotopia in the gastric antrum.

Arch Pathol Lab Med 2004 Jan;128(1): p111-2

Chandan VS; Wang W

**Case #4**

A 47 y/o woman presented with abdominal pain and a palpable abdominal mass.

**Diagnoses submitted in decreasing order of frequency:**

Solid pseudopapillary tumor  
Micropapillary carcinoma  
Carcinoid

**Diagnosis: SOLID PSEUDOPAPILLARY TUMOR, Pancreas****References:**

The clear cell variant of solid pseudopapillary tumor of the pancreas: a previously unrecognized pancreatic neoplasm.  
Am J Surg Pathol 2006 Oct;30(10): p1237-42  
Albores-Saavedra J; Simpson KW; Bilello SJ  
Solid pseudopapillary tumor of the pancreas: a review of salient clinical and pathologic features.  
Adv Anat Pathol 2008 Jan;15(1): p39-45  
Adams AL; Siegal GP; Jhala NC  
Solid pseudopapillary neoplasms of the pancreas: an updated experience.  
J Surg Oncol 2007 Jun 15;95(8): p640-4  
Goh BK; Tan YM, et al.  
Solid-pseudopapillary tumor of the pancreas: clinical experience and literature review.  
World J Gastroenterol 2005 Mar 7;11(9): p1403-9  
Huang HL; Shih SC, et al.  
Solid and pseudopapillary tumor of the pancreas--review and new insights into pathogenesis.  
Am J Surg Pathol 2006 Oct;30(10): p1243-9  
Geers C; Moulin P, et al.

**Case #5**

A 14 m/o girl was found to have hepatomegaly. The liver margin was palpable 5 cm below the mid-clavicular line. Alk phosphatase was 146, LDH 378, SGOT 14, SGT 1.0. An emergency laparotomy showed diffuse hepatic involvement. The patient died. The liver was enlarged, weighing 1,015 grams. There was an 8 x 4 cm tumor between the left and right lobes.

**Diagnoses submitted in decreasing order of frequency:**

Hepatoblastoma, mixed type (teratoid, with heterologous elements)  
Hepatoma

**Diagnosis: HEPATOBLASTOMA, MIXED TYPE, Liver****References:**

Mixed hepatoblastoma with teratoid features in an adult.  
Pathology 2007 Aug;39(4): p453-6  
Zhang SH; Xu AM, et al.  
Protocol for the examination of specimens from pediatric patients with hepatoblastoma.  
Arch Pathol Lab Med 2007 Apr;131(4): p520-9  
Finegold MJ; Lopez-Terrada DH, et al.  
Successful liver transplant for unresectable hepatoblastoma.  
J Pediatr Surg 2007 Jan;42(1): p184-7  
Casas-Melley AT; Malatack J, et al.  
Outcomes for patients with congenital hepatoblastoma.  
Pediatr Blood Cancer 2013 Nov;60(11): p1817-25  
Trobaugh-Lotrario AD; Chaiyachati BH, et al.  
Hepatoblastoma--an attempt of histological subtyping on fine-needle aspiration material.  
Diagn Cytopathol 2013 Feb;41(2): p95-101

Barwad A; Gupta N, et al.

Mixed hepatocellular carcinoma and hepatoblastoma: cytohistopathologic findings and differential diagnosis.

Acta Cytol 2013;57(1): p91-5

Canberk S; Uludokumaci A, et al.

Osteoid in cellblock sections of ascitic fluid: a clue for the diagnosis of hepatoblastoma.

Diagn Cytopathol 2013 Jun;41(6): p533-5

Hart MK; Conway AB, et al.

Case 6 (28040):

This 51 y/o man presented with bowel obstruction

#### **Case #6**

This 51 y/o man presented with bowel obstruction. A partial small bowel resection was performed.

#### **Diagnoses submitted in decreasing order of frequency:**

Intestinal ganglioneuromatosis, diffuse type

Neuromuscular and vascular hamartoma

Gastrointestinal stromal tumor (GIST)

Crohn's disease

#### **Diagnosis: INTESTINAL GANGLIONEUROMATOSIS, DIFFUSE TYPE, Small Bowel**

#### **References:**

Solitary ganglioneuromatosis of the descending colon, presenting as giant retroperitoneal tumour.

Chirurgia (Bucur 2013 Jul-Aug;108(4): p584-8

Mates I; Iosif C, et al.

Small intestinal ganglioneuromatosis in a dog.

J Comp Pathol 2013 May;148(4): p323-8

Paris JK; McCandlish IA, et al.

Intestinal ganglioneuromatosis: unusual presentation of Cowden syndrome resulting in delayed diagnosis.

Am J Med Genet A 2013 May;161A(5): p1085-90

Vinitsky A; Zaleski CA, et al.

Diffuse intestinal ganglioneuromatosis an uncommon manifestation of Cowden syndrome.

World J Gastrointest Oncol 2013 Feb 15;5(2): p34-7

Herranz Bachiller MT; Barrio Andres J, et al.

Hamartomatous polyps of the colon: ganglioneuromatous, stromal, and lipomatous.

Arch Pathol Lab Med 2006 Oct;130(10): p1561-6

Chan OT; Haghighi P

Diffuse intestinal ganglioneuromatosis mimicking Crohns disease.

JR Am J Roentgenol 2004 May;182(5): p1166-8

Charagundla SR; Levine MS, et al.

#### **Case #7**

This 21 y/o woman had a 2 year history of dizziness, malaise, fatigue, fainting spells and general inability to keep up with her daily work of raising a child. Two years earlier she had been found to have a hemoglobin value of 4, requiring 4 units of transfusion. For the next 9 months she had hemoglobins of 6 or less. A barium swallow was done that showed an intussusception either duodenal-jejunal or proximal jejunal-jejunal. At surgery, it was an intussusception enveloping a 3.4 cm polypoid mass.

#### **Diagnoses submitted in decreasing order of frequency:**

Peutz Jegher (hamartomatous) polyp

#### **Diagnosis: PEUTZ JEGHERS POLYP, Jejunum**

#### **References:**

Do sporadic Peutz-Jeghers polyps exist? Experience of a large teaching hospital.  
 Am J Surg Pathol 2007 Aug;31(8): p1209-14  
 Burkart AL; Sheridan T, et al.  
 Colo-colonic intussusception caused by a solitary Peutz-Jeghers polyp.  
 Br J Radiol 2005 Nov;78(935): p1047-9  
 Jaremkó JL; Rawat B  
 Mucosal prolapse in the pathogenesis of Peutz-Jeghers polyposis.  
 Gut 2006 Jan;55(1): p1-5  
 Jansen M; de Leng WW, et al.  
 The hamartomatous polyposis syndromes: a clinical and molecular review.  
 Am J Gastroenterol 2005 Feb;100(2): p476-90  
 Schreiber IR; Baker M, et al.  
 Gastrointestinal cancers in a peutz-jeghers syndrome family: a case report.  
 Clin Endosc (Korea) 2013 Sep;46(5): p572-5  
 Song SH; Kim KW  
 Peutz-Jeghers type hamartomatous polyp arising in inverted Meckel's diverticulum in a 29-year-old patient.  
 Am J Gastroenterol 2013 Jan;108(1): p151-2  
 Ye JX; Wang AY, et al.

#### **Case #8**

51 y/o male with a history of GI tubular adenomas underwent routine surveillance. In addition to finding another TA, this nodule was found.

#### **Diagnoses submitted in decreasing order of frequency:**

Leiomyoma  
 Schwannoma

#### **Diagnosis: LEIOMYOMA, Colon**

#### **References:**

[Leiomyoma of the small intestine as a cause of acute intestinal obstruction]  
 Eksp Klin Gastroenterol (Russia) 2013;(3): p69-71  
 Matronitskii RB; Chuprynin VD, et al.  
 Not every recurrent pelvic mass in a female is a leiomyoma.  
 Am J Med Sci 2013 Jan;345(1): p72-4  
 Ndzenge A; Mora M, et al.  
 Leiomyoma presenting as a massive calcified circumferential esophageal mass.  
 Ann Thorac Surg 2013 Nov;96(5): p1851-4  
 Walters DM; Vaughn NH, et al.  
 Congenital leiomyoma of the distal ileum associated with ileal atresia: a case report.  
 J Pediatr Surg 2013 Mar;48(3): p33-5  
 Ince E; Oguzkurt P, et al.  
 [Leiomyomatosis of the colon: case report and literature review]  
 Pathologie 2007 Mar;28(2): p161-5  
 Padberg BC; Emmermann A, et al.  
 Reclassification of small intestinal and cecal smooth muscle tumors in 72 dogs: clinical, histologic, and immunohistochemical evaluation.  
 Vet Surg 2007 Jun;36(4): p302-13  
 Maas CP; van der Gaag I; Kirpensteijn J

#### **Case #9**

A 62 y/o man presented with right upper quadrant pain. The gallbladder was removed and was found to have microcystic thickening of the fundus.

#### **Diagnoses submitted in decreasing order of frequency:**

Adenomyoma, Adenomyomatosis  
Adenomyomatous hyperplasia  
Cystadenoma

**Diagnosis: ADENOMYOMA, Gallbladder – fundus**

**References:**

Adenomyomatous hyperplasia of the gallbladder with perineural invasion: revisited.  
Am J Surg Pathol 2007 Oct;31(10): p1598-604  
Albores-Saavedra J; Keenportz B, et al.  
Adenomyomatosis of the gallbladder in childhood: report of a case and review of the literature.  
Pediatr Dev Pathol 2005 Sep-Oct;8(5): p577-80  
Zani A; Pacilli M, et al.  
Image of the month. Diffuse adenomyomatosis of the gallbladder.  
Arch Surg 2008 Nov;143(11): p1129, 1130  
Liu KL; Yang CY, et al.  
Stepwise approach and surgery for gallbladder adenomyomatosis: a mini-review.  
Hepatobiliary Pancreat Dis Int 2013 Apr;12(2): p136-42  
Pellino G; Sciaudone G, et al.  
Differentiation of adenomyomatosis of the gallbladder from early-stage, wall-thickening-type gallbladder cancer using high-resolution ultrasound.  
Eur Radiol 2013 Mar;23(3): p730-8  
Joo I; Lee JY, et al.

**Case #10**

A 56 y/o woman had a hx of diarrhea for three weeks, following a period of constipation that had lasted four months. She felt that there might be an obstruction. One week prior to admission had had blood in the stool. Vaginal exam showed a stenotic vaginal vault which would barely admit the small finger. At the poster wall of the vagina there was a hard mass measuring 2-3 cm.

**Diagnoses submitted in decreasing order of frequency:**

Basaloid squamous cell carcinoma, Cloacogenic carcinoma  
Transitional carcinoma with focal keratinizing squamous cell carcinoma changes  
Neuromuscular and vascular hamartoma

**Diagnosis: BASALOID CARCINOMA, Anus**

**References:**

Changing patterns of anal canal carcinoma in the United States.  
J Clin Oncol 2013 Apr 20;31(12): p1569-75  
Nelson RA; Levine AM, et al.  
Anal cytology as a predictor of anal intraepithelial neoplasia in HIV-positive men and women.  
Diagn Cytopathol 2013 Aug;41(8): p697-702  
Betancourt EM; Wahbah MM, et al.  
Basaloid squamous carcinoma of the anal canal with an adenoid cystic pattern: histologic and immunohistochemical reappraisal of an unusual variant.  
Am J Surg Pathol 2005 Dec;29(12): p1668-72  
Chetty R; Serra S; Hsieh E  
Signature patterns of human papillomavirus type 16 in invasive anal carcinoma.  
Hum Pathol 2013 Jun;44(6): p992-1002  
Valmary-Degano S; Jacquin E, et al.  
Diagnostic problems in anal pathology.  
Adv Anat Pathol 2008 Sep;15(5): p263-78

Longacre TA; Kong CS; Welton ML  
Squamous-cell carcinoma of the anal canal: predictors of treatment outcome.  
Dis Colon Rectum 2008 Feb;51(2): p147-53  
Roohipour R; Patil S, et al.



**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(7)  
April, 2016  
Genitourinary Pathology**

**Case #1**

This 68 y/o woman had a mass attached to the cortex of the right kidney

**Diagnoses submitted in decreasing order of frequency:**

Angiomyolipoma

Leiomyoma

**Diagnosis: ANGIOMYOLIPOMA, Kidney**

**References:**

Changing trends in presentation, diagnosis and management of renal angiomyolipoma: comparison of sporadic and tuberous sclerosis complex-associated forms.

Urology 2008 Nov;72(5): p1077-82

Seyam RM; Bissada NK

Hepatic angiomyolipoma.

Arch Pathol Lab Med 2008 Oct;132(10): p1679-82

Petrolla AA; Xin W

Minimal fat angiomyolipoma: a controversial subtype of classic angiomyolipoma.

AJR Am J Roentgenol 2013 Aug;201(2): pW359

Pusiol T; Pisciolli I; Scialpi M

The applicability of Ki-67 marker for renal epithelioid angiomyolipoma: experience of ten cases from a single center.

Neoplasma 2013;60(2): p209-14

Xu C; Jiang XZ, et al.

Differential diagnosis of renal tumors with clear cytoplasm: clinical relevance of renal tumor subclassification in the era of targeted therapies and personalized medicine.

Arch Pathol Lab Med 2013 Apr;137(4): p467-80

Goyal R; Gersbach E, et al.

**Case #2**

A nephrectomy was performed on this 42 y/o woman. It was 1200 grams, 21.0 x 13.0 x 8.0 cm, and was bosselated, with multiple cysts both on the surface, and inside. No mass was seen. Most of the cysts were filled with clear fluid.

**Diagnoses submitted in decreasing order of frequency:**

Adult polycystic kidney disease (autosomal dominant)

Cystic nephroma

Mixed epithelial and stromal tumor

Multicystic renal cell carcinoma

**Diagnosis: ADULT POLYCYSTIC, Kidney**

**References:**

Polycystic liver and kidney diseases.

Ann Med 2005;37(8): p546-55

Tahvanainen E; Tahvanainen P, et al.

Localized cystic disease of the kidney: distinction from cystic neoplasms and hereditary polycystic diseases.

Am J Surg Pathol 2013 Apr;37(4): p506-13

Ding Y; Chen L, et al.

Epidemiology of autosomal-dominant polycystic kidney disease: an in-depth clinical study for south-western Germany. Nephrol Dial Transplant 2013 Jun;28(6): p1472-87

Neumann HP; Jilg C, et al.

Urinary proteomic biomarkers for diagnosis and risk stratification of autosomal dominant polycystic kidney disease: a multicentric study.

PLoS One 2013;8(1): pe53016

Kistler AD; Serra AL, et al.

Autosomal-recessive polycystic kidney disease gets more complex.

Gastroenterology 2013 May;144(5): p1155-6

Bergmann C

Autosomal-recessive polycystic kidney disease.

Kidney Int 2005 Apr;67(4): p1638-48

Parfrey PS

### **Case #3**

This 65 y/o woman presented with a large left renal mass. At surgery it contained a 10.5 x 10.5 x 9.0 cm well-circumscribed rounded tumor involving the mid portion of the kidney. The tumor was white-to-tan, spongy, and diffusely cystic, with smooth-walled, amber fluid-filled cysts ranging up to 2.0 cm. No solid areas were present.

### **Diagnoses submitted in decreasing order of frequency:**

Cystic nephroma

Polycystic disease

Mixed epithelial and stromal tumor

Cystic clear cell renal cell carcinoma

Multicystic (multilocular) renal cell carcinoma

Mixed epithelial and stromal tumor (MEST)

Tubulocystic renal cell carcinoma

### **Diagnosis: CYSTIC NEPHROMA, Kidney**

### **References:**

Cystic nephroma and mixed epithelial and stromal tumor of kidney: a detailed clinicopathologic analysis of 34 cases and proposal for renal epithelial and stromal tumor (REST) as a unifying term.

Cytology of cystic nephroma: a case report.

Acta Cytol 2008 Jan-Feb;52(1): p91-3

Chen KT

Cystic nephroma (multilocular cyst) and mixed epithelial and stromal tumor of the kidney: a spectrum of the same entity?

Ann Diagn Pathol 2006 Apr;10(2): p77-82

Jevremovic D; Lager DJ; Lewin M

Cystic nephroma: a histologic and immunohistochemical study of 10 cases.

Arch Pathol Lab Med 2004 Dec;128(12): p1404-11

Mukhopadhyay S; Valente AL; de la Roza G

Cystic nephroma and localized renal cystic disease in children: diagnostic clues and management.

J Pediatr Surg 2008 Nov;43(11): p1985-9

Boybeyi O; Karnak I, et al.

### **Case #4**

This 43 y/o man came to the ER with severe back pain. A CT/KUB was obtained and there was neither a renal stone nor hydronephrosis. CTU confirmed a 6.0 cm renal mass.

### **Diagnoses submitted in decreasing order of frequency:**

Renal oncocytoma

**Diagnosis: ONCOCYTOMA, Kidney****References:**

Cytogenetic analysis of a series of 13 renal oncocytomas.  
J Urol 2004 Feb;171(2 Pt 1): p602-4  
Lindgren V; Paner GP, et al.  
Vimentin reactivity in renal oncocytoma: immunohistochemical study of 234 cases.  
Arch Pathol Lab Med 2007 Dec;131(12): p1782-8  
Hes O; Michal M, et al.  
Useful markers for differential diagnosis of oncocytoma, chromophobe renal cell carcinoma and conventional renal cell carcinoma.  
Indian J Pathol Microbiol 2008 Apr-Jun;51(2): p167-71  
Geramizadeh B; Ravanshad M; Rahsaz M  
Renal oncocytoma, yet another tumour that does not fit in the dualistic benign/malignant paradigm?  
J Clin Pathol 2007 Jun;60(6): p585-6  
Van der Kwast T; Perez-Ordóñez B  
Diagnostic value of cytokeratin 7 and parvalbumin in differentiating chromophobe renal cell carcinoma from renal oncocytoma.  
Anal Quant Cytol Histol 2006 Aug;28(4): p228-36  
Adley BP; Papavero V, et al.  
C-kit expression in renal oncocytomas and chromophobe renal cell carcinomas.  
Hum Pathol 2005 Mar;36(3): p262-8  
Huo L; Sugimura J, et al.

**Case #5****Diagnoses submitted in decreasing order of frequency:**

A 35 y/o woman presented with hematuria and abdominal discomfort. A CT scan showed a 3.5 cm mass in the left kidney

Papillary renal cell carcinoma  
Collecting duct carcinoma  
Xp11 renal cell carcinoma

**Diagnosis: PAPILLARY CARCINOMA, Kidney****References:**

Renal papillary adenoma--a putative precursor of papillary renal cell carcinoma.  
Hum Pathol 2007 Feb;38(2): p239-46  
Wang KL; Weinrach DM  
What does the urologist expect from the pathologist (and what can the pathologists give) in reporting on adult kidney tumour specimens?  
Eur Urol 2007 May;51(5): p1194-201  
Kirkali Z; Algaba F, et al.  
Clear cell papillary renal cell carcinoma: a distinct histopathologic and molecular genetic entity.  
Am J Surg Pathol 2008 Aug;32(8): p1239-45  
Gobbo S; Eble JN, et al.  
Clear cell papillary renal cell carcinoma: differential diagnosis and extended immunohistochemical profile.  
Mod Pathol 2013 May;26(5): p697-708  
Williamson SR; Eble JN, et al.  
The International Society of Urological Pathology (ISUP) grading system for renal cell carcinoma and other prognostic parameters.  
Am J Surg Pathol 2013 Oct;37(10): p1490-504  
Delahunt B; Cheville JC, et al.

A novel grading system for clear cell renal cell carcinoma incorporating tumor necrosis.  
Am J Surg Pathol 2013 Mar;37(3): p311-22  
Delahunt B; McKenney JK, et al.

#### **Case #6**

A 67 y/o woman noticed a mass in the vaginal introitus. A 4 cm firm, tender mobile mass arising by a wide pedicle was found in the posterior aspect of the urethra. It was hemorrhagic, 3.5 cm in greatest diameter, and was multi-nodular. The tumor recurred one year later and she died from pneumonia. No autopsy.

#### **Diagnoses submitted in decreasing order of frequency:**

Malignant melanoma  
Poorly differentiated carcinoma suggestive of neuroendocrine carcinoma  
Lymphoma  
Malignant neoplasm, Small round blue cell tumor  
Rhabdomyosarcoma

#### **Diagnosis: MELANOMA, Urethral**

#### **References:**

Melanoma of the female urethra.  
Med Oncol 2013 Mar;30(1): p329  
Papes D; Altarac S  
[Primary malignant melanoma of the male urethra: a case report]  
Hinyokika Kyo 2008 Apr;54(4): p305-8  
Inoue M; Ishioka J, et al.  
Outcome of surgical treatment for primary malignant melanoma of the female urethra.  
J Urol 2004 Feb;171(2 Pt 1): p765-7  
Di Marco DS; Di Marco CS, et al.  
Melanoma of the penis, scrotum and male urethra: a 40-year single institution experience. R. Sanchez-Ortiz, S. F. Huang,  
P. Tamboli, V. C. Prieto, G. Hester and C. A. Pettaway.  
J Urol 2006 Apr;175(4): p1574-5; author reply 1575-6  
Hankins CL; Weston P  
Occult primary melanoma of the urethra: a long-term survival case.  
Plast Reconstr Surg 2004 Aug;114(2): p618-9  
Piedimonte A; Aquinati A, et al.

#### **Case #7**

A 50 y/o woman presented with an abdominal mass. A 3.6 cm renal mass was found. A PAS stain was positive in a small portion of the tumor cells.

#### **Diagnoses submitted in decreasing order of frequency:**

Collecting duct carcinoma  
Medullary carcinoma  
High grade carcinoma  
Sarcomatoid RCC

#### **Diagnosis: COLLECTING DUCT CARCINOMA, Kidney**

#### **References:**

Low-grade renal collecting duct carcinoma. A case report with histochemical, immunohistochemical, and ultrastructural study.  
Ann Diagn Pathol 2005 Feb;9(1): p46-8

Farah R; Ben-Izhak O, et al.

Collecting duct carcinoma of the kidney: an immunohistochemical evaluation of the use of antibodies for differential diagnosis.

Hum Pathol 2008 Sep;39(9): p1350-9

Kobayashi N; Matsuzaki O, et al.

Collecting duct (Bellini duct) renal cell carcinoma: a nationwide survey in Japan.

J Urol 2006 Jul;176(1): p40-3; discussion 43

Tokuda N; Naito S, et al.

Fine needle aspiration cytology of collecting duct carcinoma of the kidney: report of a case with distinctive features and differential diagnosis.

Acta Cytol 2004 Nov-Dec;48(6): p843-8

Sarode VR; Islam S, et al.

#### **Case #8**

A 68 y/o man was found to have this 260 gram, 14.0 x 7.0 x 6.0 cm mass during a right inguinal hernia repair. It appeared yellow-tan and was focally positive for CD34. It was negative for S100, Pancytokeratin, actin and CD117. Seen by Dr. Sharon Weiss.

#### **Diagnoses submitted in decreasing order of frequency:**

Renal epithelial and stromal tumor (REST)

Cystic nephroma

Multicystic ectopic kidney

Lymphangioma

MEST/cystic nephroma

Epididymal cyst

#### **Diagnosis: RENAL EPITHELIAL AND STROMAL TUMOR (REST), Kidney**

#### **References:**

Mixed epithelial and stromal tumor of the kidney: report of eight cases and literature review.

World J Surg Oncol 2013;11(1): p207

Wang CJ; Lin YW, et al.

Mixed epithelial and stromal tumor of the kidney: report of eight cases and literature review.

World J Surg Oncol 2013;11(1): p207

Wang CJ; Lin YW, et al.

Malignant mixed epithelial and stromal tumor of the kidney: report of the first male case.

Int J Urol 2013 Apr;20(4): p448-50

Suzuki T; Hiragata S, et al.

Cystic nephroma and mixed epithelial and stromal tumor of kidney: a detailed clinicopathologic analysis of 34 cases and proposal for renal epithelial and stromal tumor (REST) as a unifying term.

Am J Surg Pathol 2007 Apr;31(4): p489-500

Turbiner J; Amin MB, et al.

Large mixed epithelial and stromal tumor of the kidney masquerading as metastatic renal cell carcinoma.

Urology 2007 Nov;70(5): p1008.e17-9

garwal R; Levinson AW, et al.

Mixed epithelial and stromal tumour (MEST) of the kidney: report of 14 cases with male and PEComatous variants and proposed histopathogenesis.

Pathology 2007 Apr;39(2): p235-40

Mai KT; Elkeilani A; Veinot JP

Malignant mixed epithelial and stromal tumor of the kidney with rhabdoid features: report of a case including immunohistochemical, molecular genetic studies and comparison to morphologically similar renal tumors.

Hum Pathol 2007 Sep;38(9): p1432-7

Sukov WR; Cheville JC, et al.

#### **Case #9**

This adult paraplegic developed an abdominal mass. At laparotomy, the right kidney was removed, which was 17.0 x 13.0 x 11.0 cm. A 5 cm mass was present.

**Diagnoses submitted in decreasing order of frequency:**

Mucinous tubular and spindle cell renal cell carcinoma  
Renal cell carcinoma  
Clear cell RCC

**Diagnosis: MUCINOUS TUBULAR AND SPINDLE CELL RENAL CELL CARCINOMA, Kidney**

**References:**

Mucinous tubular and spindle cell carcinoma with aggressive histomorphology--a sarcomatoid variant.  
Hum Pathol 2008 Jun;39(6): p966-9  
Pillay N; Ramdial PK et al.  
Mucinous tubular and spindle cell carcinoma of the kidney with neuroendocrine differentiation: report of two cases.  
Am J Clin Pathol 2006 Jan;125(1): p99-104  
Jung SJ; Yoon HK, et al.  
Mucinous tubular and spindle cell carcinoma with Fuhrman nuclear grade 3: a histological, immunohistochemical, ultrastructural and FISH study.  
Histol Histopathol 2008 Dec;23(12): p1517-23  
Kuroda N; Hes O, et al.  
Mucinous tubular and spindle cell carcinoma of kidney is probably a variant of papillary renal cell carcinoma with spindle cell features.  
Ann Diagn Pathol 2007 Feb;11(1): p13-21  
Shen SS; Ro JY, et al.  
Immunohistochemical analysis of mucinous tubular and spindle cell carcinoma and papillary renal cell carcinoma of the kidney: significant immunophenotypic overlap warrants diagnostic caution.  
Am J Surg Pathol 2006 Jan;30(1): p13-9  
Paner GP; Srigley JR, et al.  
Cytologic aspect of mucinous tubular and spindle-cell renal carcinoma in fine-needle aspirates.  
Diagn Cytopathol 2006 Sep;34(9): p660-2  
Ortega JA; Solano JG; Perez-Guillermo M  
Mucinous tubular and spindle cell carcinoma of the kidney: cytopathologic findings.  
Diagn Cytopathol 2007 Sep;35(9): p593-6  
Owens CL; Argani P; Ali SZ

**Case #10**

A 10 month old girl presented with an abdominal mass. It was clinically felt to be a Wilms tumor. It was 11.0 cm in greatest diameter and predominantly solid. Case seen by Dr. Elizabeth Pearlman of the National Wilms Tumor Study Group

**Diagnoses submitted in decreasing order of frequency:**

Clear cell sarcoma  
Wilms tumor

**Diagnosis: CLEAR CELL SARCOMA, Kidney**

**References:**

Fine-needle aspiration cytology of clear-cell sarcoma of the kidney: study of eight cases.  
Diagn Cytopathol 2005 Aug;33(2): p83-9  
Iyer VK; Agarwala S; Verma K  
Clear cell sarcoma of the kidney--a study of seven cases over a period of three years.  
Indian J Pathol Microbiol 2007 Apr;50(2): p270-3

Viswanathan S; Dave BK; Desai SB

Clear cell sarcoma: a dilemma on pathological staging and clinical management.

Pediatr Hematol Oncol 2005 Apr-May;22(3): p257-61

Ng A; Jenkinson H, et al.

Outcomes of patients with revised stage I clear cell sarcoma of kidney treated in National Wilms Tumor Studies 1-5.

Int J Radiat Oncol Biol Phys 2013 Feb 1;85(2): p428-31

Kalapurakal JA; Perlman EJ, et al.

Clear cell sarcoma of the kidney misdiagnosed as mesoblastic nephroma: a case report and review of the literature.

Ecancermedalscience 2013;7:311

Alavi S; Khoddami M, et al.

Clear cell sarcoma of kidney: morphoproteomic analysis reveals genomic correlates and therapeutic options.

Pediatr Dev Pathol 2013 Jan-Feb;16(1): p20-7

Dhamne S; Brown RE, et al.

The International Society of Urological Pathology (ISUP)

Vancouver Classification of Renal Neoplasia. Am J Surg Pathol 2013 Oct;37(10): p1469-89 Srigley JR; Delahunt B, et al.

Renal tumors with clear cells. A review. Pathol Res Pract 2013 Mar;209(3): p137-46

Lopez JI

**California Tumor Tissue Registry's  
Subscription "C" - Vol 9(9)  
May, 2016  
Neural-PNS**

**Case #1**

A 42 y/o man presented to his physician with a complaint of throbbing headache. Upon examination, two masses were found in the regions of the right and left carotid arteries. The patient's blood pressure was 132/72.

**Diagnoses submitted in decreasing order of frequency:**

Paranglioma, Carotid body (chemodectoma)  
Hyperplasia of carotid bodies

**Diagnosis: CAROTID BODY TUMOR (PARAGANGLIOMA), Right and left carotid arteries**

**References:**

Head Neck Pathol. 2009 Dec; 3(4): 303–306.  
Published online 2009 Aug 23. doi: 10.1007/s12105-009-0130-5  
PMCID: PMC2791477  
Paranglioma: Carotid Body Tumor  
Jacqueline A. Wieneke 1 and Alice Smith2,3  
Zhang WC, Cheng JP, Li Q, et al. Clinical and pathological analysis of malignant carotid body tumour: a report of nine cases. Acta Otolaryngol. 2009;19:106  
Rao AB, et al. Parangliomas of the head and neck: radiologic-pathologic correlation. Radiographics. 1999;19:1605–1632

**Case #2**

This tissue is from below the left ear of an 85 y/o man. The neoplastic cells were strongly positive for chromogranin, synaptophysin and vimentin. They were negative for AE1/AE3 and melanA.

**Diagnoses submitted in decreasing order of frequency:**

Jugulotympanic paranglioma (glomus jugulare tumor)  
Neurocytoma

**Diagnosis: JUGULOTYMPANIC PARAGANGLIOMA, Left ear**

**References:**

Head Neck Pathol. 2009 Dec; 3(4): 303–306.  
Published online 2009 Aug 23. doi: 10.1007/s12105-009-0130-5  
PMCID: PMC2791477  
Paranglioma: Carotid Body Tumor  
Jacqueline A. Wieneke 1 and Alice Smith2,3  
  
Zhang WC, Cheng JP, Li Q, et al. Clinical and pathological analysis of malignant carotid body tumour: a report of nine cases. Acta Otolaryngol. 2009;19:106  
Rao AB, et al. Parangliomas of the head and neck: radiologic-pathologic correlation. Radiographics. 1999;19:1605–1632

**Case #3**

This is a 1.0 cm right neck mass from a 50 y/o man. It was S100 negative, CD134 negative, and showed nonspecific staining for CD68.



**Diagnoses submitted in decreasing order of frequency:**

Neurofibroma (diffuse)  
Neuroma  
Perineurioma  
Hypertrophic scar  
Syringoma

**Diagnosis: DIFFUSE NEUROFIBROMA, Right neck mass**

**References:**

Acta Neuropathol. Author manuscript; available in PMC 2013 Apr 18.

Published in final edited form as:

Acta Neuropathol. 2012 Mar; 123(3): 295–319.

Published online 2012 Feb 12. doi: 10.1007/s00401-012-0954-z

PMCID: PMC3629555

NIHMSID: NIHMS448287

Pathology of Peripheral Nerve Sheath Tumors: Diagnostic Overview and Update on Selected Diagnostic Problems

Fausto J. Rodriguez,<sup>1</sup> Andrew L. Folpe,<sup>2</sup> Caterina Giannini,<sup>2</sup> and Arie Perry<sup>3</sup>

Antonescu CR, Woodruff JM, Scheithauer BW. Tumors of the Peripheral Nervous System. 4th edition edn. American Registry of Pathology; Washington DC: 2012.

Kourea HP, Orlov I, Scheithauer BW, Cordon-Cardo C, Woodruff JM. Deletions of the INK4A gene occur in malignant peripheral nerve sheath tumors but not in neurofibromas. Am J Pathol. 1999;155:1855–1860

**Case #4**

This is from a left forearm 10.5 x 5 x 2.7 cm of a 27 y/o woman. It had a fish-flesh type appearance. The clinical impression was of a lipoma.

**Diagnoses submitted in decreasing order of frequency:**

Schwannoma (benign, myxoid)

**Diagnosis: SCHWANNOMA, Left forearm**

**References:**

Acta Neuropathol. Author manuscript; available in PMC 2013 Apr 18.

Published in final edited form as:

Acta Neuropathol. 2012 Mar; 123(3): 295–319.

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NIHMSID: NIHMS448287

Pathology of Peripheral Nerve Sheath Tumors: Diagnostic Overview and Update on Selected Diagnostic Problems

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Antonescu CR, Woodruff JM, Scheithauer BW. Tumors of the Peripheral Nervous System. 4th edition edn. American Registry of Pathology; Washington DC: 2012.

**Case #5**

A 54 y/o man with a history of neurofibromatosis and acoustic neuromas developed a painful mass on the right thigh. It was 11x6x6 cm and was subcutaneous

**Diagnoses submitted in decreasing order of frequency:**

Plexiform schwannoma (with ancient change)  
Neurofibroma, Plexiform neurofibroma  
Invasive malignant peripheral nerve sheath tumor in plexiform neurofibroma  
Pacinian neuroma

**Diagnosis: PLEXIFORM SCHWANNOMA, Right thigh**

**References:**

Acta Neuropathol. Author manuscript; available in PMC 2013 Apr 18.  
Published in final edited form as:  
Acta Neuropathol. 2012 Mar; 123(3): 295–319.  
Published online 2012 Feb 12. doi: 10.1007/s00401-012-0954-z  
PMCID: PMC3629555  
NIHMSID: NIHMS448287  
Pathology of Peripheral Nerve Sheath Tumors: Diagnostic Overview and Update on Selected Diagnostic Problems  
Fausto J. Rodriguez,<sup>1</sup> Andrew L. Folpe,<sup>2</sup> Caterina Giannini,<sup>2</sup> and Arie Perry<sup>3</sup>  
Agaram NP, Prakash S, Antonescu CR. Deep-seated plexiform schwannoma: a pathologic study of 16 cases and comparative analysis with the superficial variety. Am J Surg Pathol. 2005;29:1042–1048  
Antonescu CR, Woodruff JM, Scheithauer BW. Tumors of the Peripheral Nervous System. 4th edition edn. American Registry of Pathology; Washington DC: 2012.  
Berg JC, Scheithauer BW, Spinner RJ, Allen CM, Koutlas IG. Plexiform schwannoma: a clinicopathologic overview with emphasis on the head and neck region. Hum Pathol. 2008;39:633–640.  
Fletcher CD, Davies SE. Benign plexiform (multinodular) schwannoma: a rare tumour unassociated with neurofibromatosis. Histopathology. 1986;10:971–980.

**Case #6**

A 57 y/o man was found to have a retroperitoneal mass.

**Diagnoses submitted in decreasing order of frequency:**

Degenerating (ancient) schwannoma (cellular)  
Neurofibroma  
Malignant peripheral nerve sheath tumor  
Perineurioma  
Desmoid

**Diagnosis: RETROPERITONEAL SCHWANNOMA WITH DEGENERATIVE / CYSTIC CHANGE, Retroperitoneal mass**

**References:**

Acta Neuropathol. Author manuscript; available in PMC 2013 Apr 18. Published in final edited form as:  
Acta Neuropathol. 2012 Mar; 123(3): 295–319.  
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Pathology of Peripheral Nerve Sheath Tumors: Diagnostic Overview and Update on Selected Diagnostic Problems  
Fausto J. Rodriguez,<sup>1</sup> Andrew L. Folpe,<sup>2</sup> Caterina Giannini,<sup>2</sup> and Arie Perry<sup>3</sup>

**Case #7**

A 34 y/o man with neurofibromatosis (von Recklinghausen Disease) developed a rapidly growing mass in the left groin. At surgery it was found to be 7 cm, and focally necrotic.

**Diagnoses submitted in decreasing order of frequency:**

Malignant peripheral nerve sheath tumor

Spindle cell sarcoma  
Fibrosarcoma

**Diagnosis: MALIGNANT PERIPHERAL NERVE SHEATH TUMOR, Left groin**

**References:**

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Pathology of Peripheral Nerve Sheath Tumors: Diagnostic Overview and Update on Selected Diagnostic Problems

Fausto J. Rodriguez,<sup>1</sup> Andrew L. Folpe,<sup>2</sup> Caterina Giannini,<sup>2</sup> and Arie Perry<sup>3</sup>

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Zhou H, Coffin CM, Perkins SL, Tripp SR, Liew M, Viskochil DH. Malignant peripheral nerve sheath tumor: a comparison of grade, immunophenotype, and cell cycle/growth activation marker expression in sporadic and neurofibromatosis 1-related lesions. Am J Surg Pathol. 2003;27:1337–1345

**Case #8**

A 67-year-old woman presented with a 5 year history of non-tender swelling in the perineal area. There had been no drainage or infection. Physical examination showed a 3 x 2 cm, firm mass attached to the skin just below and lateral to the labia. It was superficial and did not involve underlying tissues.

**Diagnoses submitted in decreasing order of frequency:**

Granular cell tumor (benign)

**Diagnosis: GRANULAR CELL TUMOR, Perineal area**

**References:**

Pathology of the Skin (Fourth edition, 2012). McKee PH, J. Calonje JE, Granter SR

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Granular cell tumor on the sole of a child: a case report. Pediatr Dermatol. 2011 Jul-Aug;28(4):473-4.

The neural histogenetic origin of the oral granular cell tumor: an immunohistochemical evidence. Med Oral Patol Oral Cir Bucal. 2011 Jan 1. 16(1):e6-10. Rejas RA, Campos MS, Cortes AR, Pinto DD, de Sousa SC.

**Case #9**

A 7 y/o boy had a recurrence of a right thoracic paraspinal tumor. The original tumor was 4 cm in diameter and was immediately contiguous to bone.

**Diagnoses submitted in decreasing order of frequency:**

Ganglioneuroma

Ganglioneuroblastoma

**Diagnosis: GANGLIONEUROMA, Right thoracic**

**References:**

Late occurrence of malignancy in a ganglioneuroma 19 years following radiation therapy to a neuroblastoma. J Surg Oncol. 1984;25:227–231. Keller SM, Papazoglou S, McKeever P, Baker A, Roth JA.

Neuroblastoma, ganglioneuroblastoma, and ganglioneuroma: radiologic-pathologic correlation. Radiographics. 2002 Jul-Aug;22(4):911-34. Lonergan GJ1, Schwab CM, Suarez ES, Carlson CL.  
2 pediatric patients (one with MEN2A, one with MEN2B) with ganglioneuromas and no evidence of pheochromocytoma (J Clin Endocrinol Metab 2005;90:4383) Lack: Tumors of the Adrenal Glands and Extraadrenal Paraganglia, Vol.8, 2007

#### **Case #10**

A 16-year-old boy fractured his distal femur while playing football. Radiographs documented a fracture of the distal femoral metaphysis. In addition, an ill-defined permeative, lytic lesion was noted in the mid-shaft of the femur, with an overlying periosteal reaction. An amputation was performed.

#### **Diagnoses submitted in decreasing order of frequency:**

Ewing sarcoma/PNET

#### **Diagnosis: PNET / EWING SARCOMA, Distal femur**

#### **References:**

Immunohistochemical profile of monoclonal antibody O13: antibody that recognizes glycoprotein p30/32MIC2 and is useful in diagnosing Ewing's sarcoma and peripheral neuroepithelioma. Am J Surg Pathol. 1994;18(5):486. Weidner N, Tjoe J

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