



CALIFORNIA
TUMOR TISSUE REGISTRY

“Neuroendocrine Tumors”

Minutes – Subscription B

February 2005



SUGGESTED READING (General Topics from Recent Literature):

The Role Of The Cell Cycle In Genitourinary Carcinoma. McGarvey TW, Malkowicz SB. *World J Urol*, 1996; 14:310-17.

Practical Markers Used In The Diagnosis Of Endocrine Tumors. Erickson LA, Lloyd RV. *Adv Anat Pathol*, 2004 Jul; 11(4):175-89.

Genetic Profiling Of Colon Cancer. Neiberger HL, Hein DW, Spratt JS. *J Surg Oncol*, 2002; 80:204-13.

Folding Of Secretory And Membrane Proteins. Kuznetsov G, Nigam SK. *N Engl J Med*, 1998 Dec 3; 339(23):1688-95.

Viral Discovery And Sequence Recovery Using DNA Microarrays. Wang D, Urisman A, Liu YT, et al: *PLOS Biology*, 2003 Nov 7; 1(2):257-60.

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FILE DIAGNOSES

(Preferably submitted on website at www.cttr.org. Click “subscriptions”, then “submit answers”.)

CTTR Subscription B

February, 2005

Case 1:

**Ganglioneuroma, mediastinum
T-Y2300, M-9490/0**

Case 2:

**Neuroblastoma, metastatic to neck
T-Y0600, M-9500/6**

Case 3:

**Ganglioneuroblastoma, back
T-Y1100, M-9490/3**

Case 4:

**Paraganglioma (carotid body tumor)
T-94000, M-8680/1**

Case 5:

**Paraganglioma, retroperitoneum
T-Y4600, M-8680/1**

Case 6:

**Medullary carcinoma, thyroid
T-96000, M-8510/3**

Case 7:

**Invasive thymoma with neuroendocrine differentiation (“thymic carcinoid”)
T-98000, M-8580/3**

Case 8:

**Undifferentiated carcinoma with neuroendocrine and squamoid features, cecum
T-67100, M-8240/1**

Case 9:

**Merkel cell carcinoma (neuroendocrine carcinoma), skin
T-01000, M-8041/3**

Case 10:

**Undifferentiated small cell carcinoma (“oat cell carcinoma”), lung
T-28000, M-8041/3**

Escondido - Ganglioneuroma
Glendale - Ganglioneuroma
Granada Hills - Ganglioneuroma
Loma Linda (Loma Linda University Medical Center Residents) - Ganglioneuroma
Orange (UCI Medical Center Residents) - Ganglioneuroma
Sacramento (U.C. Davis Medical Center) - Ganglioneuroma
San Francisco (San Francisco General Hospital) - Ganglioneuroma
Arizona, Phoenix - Ganglioneuroma
Colorado, Denver - Ganglioneuroma
Florida (Munroe Regional Medical Center) - Ganglioneuroma
Florida (Winter Haven Hospital) - Ganglioneuroma
Georgia, Decatur - Ganglioneuroma
Illinois (Heartland Regional Medical Center) - Ganglioneuroma
Kansas (Coffeyville Regional Medical Center) - Ganglioneuroma of mediastinum
Kentucky (University of Louisville Hospital) - Ganglioneuroma
Maryland (Johns Hopkins Medical Center) - Ganglioneuroma (2)
Maryland (National Naval Medical Center) - Ganglioneuroma
Maryland (University of Maryland) - Ganglioneuroma
New Mexico (University of New Mexico) - Ganglioneuroma
New York (Nassau University Medical Center) - Ganglioneuroma
New York (State University of New York at Stony Brook) - Ganglioneuroma
New York (Westchester Medical Center) - Ganglioneuroma
North Carolina (Wake Forest University School of Medicine) - Ganglioneuroma
North Carolina (Winston-Salem) - Ganglioneuroma
Pennsylvania (Allegheny General Hospital) - Ganglioneuroma
Pennsylvania (Conemaugh Memorial Medical Center) - Ganglioneuroma
Texas (Scott & White Memorial Hospital) - Ganglioneuroma
Texas, Lubbock - Ganglioneuroma
Texas, Sugarland - Ganglioneuroma
Washington, D.C. - Ganglioneuroma
Canada (University of Calgary, Foothills Hospital) - Ganglioneuroma
Canada (Woodstock General Hospital) - Ganglioneuroma, mediastinum
China (Sir Run Run Shaw Hospital) - Ganglioneuroma
Germany (Hamburg) - Ganglioneuroma
Japan (Asahi General Hospital) - Ganglioneuroma
Japan (Hamamatsu University School of Medicine) - Ganglioneuroma
Japan (Gunma University Hospital) - Ganglioneuroma
Puerto Rico (University of Puerto Rico) - Ganglioneuroma
Qatar, Doha - Ganglioneuroma
Spain (Povisa) - Ganglioneuroma
The Netherlands, Amstelveen - Ganglioneuroma of the mediastinum (1); Ganglioneuroma (1)

Case 1 - Diagnosis:

Ganglioneuroma, mediastinum

T-Y2300, M-9490/0

Case 1 - References:

Chang CY, Hsieh YL, Hung GY, et al: Ganglioneuroma Presenting As An Asymptomatic Huge Posterior Mediastinal And Retroperitoneal Tumor. *J Chin Med Assoc*, 2003 Jun; 66(6):370-4
Strollo DC, Rosado-de-Christenson ML, Jett JR: Primary Mediastinal Tumors: Part II. Tumors Of The Middle And Posterior Mediastinum. *Chest*, 1997 Nov 5; 112(5):1344-57. Review.
Marchevsky AM: Mediastinal Tumors Of Peripheral Nervous System Origin. *Semin Diagn Pathol*, 1999 Feb; 16(1):65-78. Review.

Escondido - Paraganglioma
Glendale - Neuroblastoma vs Ewing's/PNET

Granada Hills - Neuroblastoma
Loma Linda (Loma Linda University Medical Center Residents) - Metastatic neuroblastoma
Orange (UCI Medical Center Residents) - Neuroblastoma, stromal poor
Sacramento (U.C. Davis Medical Center) - Neuroblastoma
San Francisco (San Francisco General Hospital) - Pheochromocytoma, composite type
Arizona, Phoenix - Paraganglioma
Colorado, Denver - Ewing's sarcoma
Florida (Munroe Regional Medical Center) - Neuroblastoma
Florida (Winter Haven Hospital) - Neuroblastoma
Georgia, Decatur - Neuroblastoma
Illinois (Heartland Regional Medical Center) - Neuroblastoma
Kansas (Coffeyville Regional Medical Center) - Paraganglioma, extra-adrenal
Kentucky (University of Louisville Hospital) - Neuroblastoma
Maryland (Johns Hopkins Medical Center) - Metastatic neuroblastoma (1); Neuroblastoma, stromal poor, poorly-differentiated, low
 MKI (1)
Maryland (National Naval Medical Center) - Neuroblastoma
Maryland (University of Maryland) - Metastatic neuroblastoma
New Mexico (University of New Mexico) - Neuroblastoma
New York (Nassau University Medical Center) - Neuroblastoma, undifferentiated
New York (State University of New York at Stony Brook) - Neuroblastoma
New York (Westchester Medical Center) - Neuroblastoma, poorly-differentiated
North Carolina (Wake Forest University School of Medicine) - Metastatic poorly-differentiated neuroblastoma
North Carolina (Winston-Salem) - Neuroblastoma
Pennsylvania (Allegheny General Hospital) - Neuroblastoma
Pennsylvania (Conemaugh Memorial Medical Center) - Neuroblastoma
Texas (Scott & White Memorial Hospital) - Metastatic neuroblastoma
Texas, Lubbock - Neuroblastoma
Texas, Sugarland - Neuroblastoma
Washington, D.C. - Neuroblastoma
Canada (University of Calgary, Foothills Hospital) - Neuroblastoma
Canada (Woodstock General Hospital) - Neuroblastoma, neck
China (Sir Run Run Shaw Hospital) - Neuroblastoma
Germany (Hamburg) - Neuroblastoma
Japan (Asahi General Hospital) - Neuroblastoma
Japan (Hamamatsu University School of Medicine) - Neuroblastoma, poorly-differentiated
Japan (Gunma University Hospital) - Neuroblastoma
Puerto Rico (University of Puerto Rico) - PNET/Neuroblastoma
Qatar, Doha - Neuroblastoma – stroma poor
Spain (Povisa) - Paraganglioma (malignant)
The Netherlands, Amstelveen - Neuroblastoma (2)

Case 2 - Diagnosis:

Neuroblastoma, metastatic to neck

T-Y0600, M-9500/6

Case 2 - References:

- Loneragan GJ, Schwab CM, Suarez ES, Carlson CL: Neuroblastoma, Ganglioneuroblastoma, And Ganglioneuroma: Radiologic-Pathologic Correlation. *Radiographics*, 2002 Jul-Aug; 22(4):911-34. Review.
 Izbicki T, Mazur J, Izbicka E: Varicella Zoster Virus Infections In Neuroblastoma Patients: A 31-Year Clinical Study. *Anticancer Res*, 2003 May-Jun; 23(3C):3061-8.
 Gonzalez-Gomez P, Bello MJ, Lomas J, et al: Aberrant Methylation Of Multiple Genes In Neuroblastic Tumours. Relationship With MYCN Amplification And Allelic Status At 1p. *Eur J Cancer*, 2003 Jul; 39(10):1478-85.
 De Lagausie P, Berrebi D, Michon J, et al: Laparoscopic Adrenal Surgery For Neuroblastomas In Children. *J Urol*, 2003 Sep; 170(3):932-5.
 Tateishi U, Hasegawa T, Makimoto A, Moriyama N: Adult Neuroblastoma: Radiologic And Clinicopathologic Features. *J Comput Assist Tomogr*, 2003 May-Jun; 27(3):321-6.

Escondido - Ganglioneuroblastoma
Glendale - Ganglioneuroblastoma
Granada Hills - Ganglioneuroma
Loma Linda (Loma Linda University Medical Center Residents) - Ganglioneuroblastoma
Orange (UCI Medical Center Residents) - Ganglioneuroblastoma
Sacramento (U.C. Davis Medical Center) - Ganglioneuroblastoma
San Francisco (San Francisco General Hospital) - Ganglioneuroblastoma
Arizona, Phoenix - Composite pheochromocytoma/ganglioneuroma
Colorado, Denver - Paraganglioma
Florida (Munroe Regional Medical Center) - Ganglioneuroblastoma
Florida (Winter Haven Hospital) - Ganglioneuroblastoma
Georgia, Decatur - Ganglioneuroblastoma
Illinois (Heartland Regional Medical Center) - Ganglioneuroblastoma
Kansas (Coffeyville Regional Medical Center) - Chordoma
Kentucky (University of Louisville Hospital) - Ganglioneuroblastoma vs. ganglioglioma
Maryland (Johns Hopkins Medical Center) - Metastatic neuroblastoma (1); Well-differentiated neuroblastoma (1)
Maryland (National Naval Medical Center) - Ganglioneuroblastoma
Maryland (University of Maryland) - Differentiating neuroblastoma or neuroblastoma with favorable histology
New York (Nassau University Medical Center) - Maturing ganglioneuroma
New York (State University of New York at Stony Brook) - Ganglioneuroblastoma
New York (Westchester Medical Center) - Ganglioneuroblastoma, stroma rich
North Carolina (Wake Forest University School of Medicine) - Intermixed ganglioneuroblastoma
North Carolina (Winston-Salem) - Ganglioneuroblastoma
Pennsylvania (Allegheny General Hospital) - Ganglioneuroblastoma
Pennsylvania (Conemaugh Memorial Medical Center) - Ganglioneuroblastoma
Texas (Scott & White Memorial Hospital) - Metastatic ganglioneuroblastoma
Texas, Lubbock - Ganglioneuroblastoma
Texas, Sugarland - Ganglioneuroma
Washington, D.C. - Ganglioneuroblastoma
Canada (University of Calgary, Foothills Hospital) - Ganglioneuroblastoma
Canada (Woodstock General Hospital) - Differentiating neuroblastoma, back
China (Sir Run Run Shaw Hospital) - Ganglioneuroblastoma
Germany (Hamburg) - Ganglioneuroblastoma
Japan (Asahi General Hospital) - Ganglioneuroblastoma
Japan (Hamamatsu University School of Medicine) - Neuroblastoma, differentiating
Japan (Gunma University Hospital) - Ganglioneuroblastoma
Puerto Rico (University of Puerto Rico) - Ganglioneuroblastoma
Qatar, Doha - Ganglioneuroblastoma/Differentiated neuroblastoma
Spain (Povisa) - Ganglioneuroblastoma
The Netherlands, Amstelveen - Ganglioneuroblastoma (1); Astrocytoma (1)

CASE 3 - Diagnosis:

**Ganglioneuroblastoma, back
T-Y1100, M-9490/3**

Case 3 - References:

Hammond RR, Walton JC: Cutaneous Ganglioneuromas: A Case Report And Review Of The Literature. *Hum Pathol*, 1996 Jul; 27(7):735-8. Review.
Lee JY, Martinez AJ, Abell E: Ganglioneuromatous Tumor Of The Skin: A Combined Heterotopia Of Ganglion Cells And Hamartomatous Neuroma: Report Of A Case. *J Cutan Pathol*, 1988 Feb; 15(1):58-61.

Escondido - Paraganglioma
Glendale - Chemodectoma
Granada Hills - Carotid body paraganglioma

Loma Linda (Loma Linda University Medical Center Residents) - Carotid body paraganglioma (chemodectoma)
Orange (UCI Medical Center Residents) - Paraganglioma
Sacramento (U.C. Davis Medical Center) - Carotid body tumor
San Francisco (San Francisco General Hospital) - Paraganglioma
Arizona, Phoenix - Carotid body tumor
Colorado, Denver - Carotid body tumor
Florida (Munroe Regional Medical Center) - Paraganglioma
Florida (Winter Haven Hospital) - Paraganglioma, carotid body
Georgia, Decatur - Paraganglioma
Illinois (Heartland Regional Medical Center) - Carotid body paraganglioma
Kansas (Coffeyville Regional Medical Center) - Carotid body paraganglioma (chemodectoma)
Kentucky (University of Louisville Hospital) - Carotid body paraganglioma
Maryland (Johns Hopkins Medical Center) - Paraganglioma (2)
Maryland (National Naval Medical Center) - Carotid body tumor
Maryland (University of Maryland) - Carotid body tumor (paraganglioma)
New Mexico (University of New Mexico) - Paraganglioma
New York (Nassau University Medical Center) - Paraganglioma
New York (State University of New York at Stony Brook) - Paraganglioma
New York (Westchester Medical Center) - Carotid body tumor/chemodectoma
North Carolina (Wake Forest University School of Medicine) - Paraganglioma
North Carolina (Winston-Salem) - Paraganglioma (chemodectoma)
Pennsylvania (Allegheny General Hospital) - Paraganglioma
Pennsylvania (Conemaugh Memorial Medical Center) - Chemodectoma (paraganglioma)
Texas (Scott & White Memorial Hospital) - Paraganglioma
Texas, Lubbock - Paraganglioma
Texas, Sugarland - Carotid body paraganglioma
Washington, D.C. - Paraganglioma
Canada (University of Calgary, Foothills Hospital) - Carotid body paraganglioma
Canada (Woodstock General Hospital) - Paraganglioma, carotid body
China (Sir Run Run Shaw Hospital) - Carotid body paraganglioma
Germany (Hamburg) - Paraganglioma
Japan (Asahi General Hospital) - Paraganglioma
Japan (Hamamatsu University School of Medicine) - Paraganglioma
Japan (Gunma University Hospital) - Paraganglioma
Puerto Rico (University of Puerto Rico) - Paraganglioma
Qatar, Doha - Carotid body tumor/Paraganglioma
Spain (Povisa) - Paraganglioma
The Netherlands, Amstelveen - Paraganglioma of the carotid body (1); Paraganglioma (1)

Case 4 - Diagnosis:

Paraganglioma (carotid body tumor)

T-94000, M-8680/1

Case 4 - References:

- Monabati A, Hodjati H, Kumar PV: Cytologic Findings In Carotid Body Tumors. *Acta Cytol*, 2002 Nov-Dec; 46(6):1101-4.
 Timmers HJ, Karemaker JM, Wieling M, et al: Baroreflex Control Of Muscle Sympathetic Nerve Activity After Carotid Body Tumor Resection. *Hypertension*, 2003 Aug; 42(2):143-9.
 Magliulo G, Zardo F, Varacalli S, D'Amico R: Multiple Paragangliomas Of The Head & Neck. *An Otorrinolaringol Ibero Am*, 2003; 30(1):31-8.
 Tripp HF Jr, Fail PS, Beyer MG, Chaisson GA: New Approach To Preoperative Vascular Exclusion For Carotid Body Tumor. *J Vasc Surg*, 2003 Aug; 38(2):389-91.
 Kliewer KE, Wen DR, Cancilla PA, Cochran AJ: Paragangliomas: Assessment Of Prognosis By Histologic, Immunohistochemical, And Ultrastructural Techniques. *Hum Pathol*, 1989 Jan; 20(1):29-39.
 Astrom K, Cohen JE, Willett-Brozick JE, et al: Altitude Is A Phenotypic Modifier In Hereditary Paraganglioma Type 1: Evidence For An Oxygen-Sensing Defect. *Hum Genet*, 2003 Aug; 113(3):228-37.

Case No. 5 - Accession No. 20780

February, 2005

Escondido - Pancreatic endocrine neoplasm

Glendale - Paranglioma
Granada Hills - Cortical adenocarcinoma
Loma Linda (Loma Linda University Medical Center Residents) - Retroperitoneal paraganglioma
Orange (UCI Medical Center Residents) - Paranglioma
Sacramento (U.C. Davis Medical Center) - Paranglioma
San Francisco (San Francisco General Hospital) - Paranglioma
Arizona, Phoenix - Extra-adrenal pheochromocytoma
Colorado, Denver - Paranglioma
Florida (Munroe Regional Medical Center) - Paranglioma
Florida (Winter Haven Hospital) - Paranglioma consistent with pheochromocytoma
Georgia, Decatur - Paranglioma/pheochromocytoma
Illinois (Heartland Regional Medical Center) - Retroperitoneal paraganglioma
Kansas (Coffeyville Regional Medical Center) - Paranglioma, retroperitoneal
Kentucky (University of Louisville Hospital) - Paranglioma (pheochromocytoma, if adrenal)
Maryland (Johns Hopkins Medical Center) - Pheochromocytoma (2)
Maryland (National Naval Medical Center) - Paranglioma
Maryland (University of Maryland) - Paranglioma
New Mexico (University of New Mexico) - Paranglioma
New York (Nassau University Medical Center) - Adrenocortical carcinoma
New York (State University of New York at Stony Brook) - Adrenal cortical carcinoma
New York (Westchester Medical Center) - Paranglioma/pheochromocytoma
North Carolina (Wake Forest University School of Medicine) - Paranglioma
North Carolina (Winston-Salem) - Clear cell sarcoma
Pennsylvania (Allegheny General Hospital) - Paranglioma
Pennsylvania (Conemaugh Memorial Medical Center) - Paranglioma
Texas (Scott & White Memorial Hospital) - Paranglioma
Texas, Lubbock - Paranglioma
Texas, Sugarland - Paranglioma
Washington, D.C. - Adrenal cortical tumor
Canada (University of Calgary, Foothills Hospital) - Paranglioma
Canada (Woodstock General Hospital) - Paranglioma, retroperitoneum
China (Sir Run Run Shaw Hospital) - Paranglioma
Germany (Hamburg) - Adrenocortical neoplasm
Japan (Asahi General Hospital) - Paranglioma
Japan (Hamamatsu University School of Medicine) - Paranglioma
Japan (Gunma University Hospital) - Pheochromocytoma
Puerto Rico (University of Puerto Rico) - Pheochromocytoma/adrenocortical tumor
Qatar, Doha - Paranglioma
Spain (Povisa) - Pheochromocytoma
The Netherlands, Amstelveen - Extra-adrenal paraganglioma (1); Paranglioma (1)

Case 5 - Diagnosis:

Paranglioma, retroperitoneum

T-Y4600, M-8680/1

Case 5 - References:

Reddy CE, Panda NK, Vaiphei K, Poweri M: Pigmented Vagal Paranglioma. *J Laryngol Otol*, 2003 Jul; 117(7):584-7.
 Kytola S, Nord B, Elder EE, et al: Alterations Of The SDHD Gene Locus In Midgut Carcinoids, Merkel Cell Carcinomas, Pheochromocytomas, And Abdominal Parangliomas. *Genes Chromosomes Cancer*, 2002 Jul; 34(3):325-32.
 Rha SE, Byun JY, Jung SE, et al: Neurogenic Tumors In The Abdomen: Tumor Types And Imaging Characteristics. *Radiographics*, 2003 Jan-Feb; 23(1):29-43. Review.
 Somasundar P, Krouse R, Hostetter R, et al: Parangliomas -- A Decade Of Clinical Experience. *J Surg Oncol*, 2000 Aug; 74(4):286-90.

Case No. 6 - Accession No. 21076

February, 2005

Escondido - Medullary carcinoma
Glendale - Medullary carcinoma
Granada Hills - Medullary carcinoma

Loma Linda (Loma Linda University Medical Center Residents) - Medullary carcinoma of the thyroid
Orange (UCI Medical Center Residents) - Medullary carcinoma
Sacramento (U.C. Davis Medical Center) - Medullary carcinoma
San Francisco (San Francisco General Hospital) - Medullary carcinoma
Arizona, Phoenix - Medullary carcinoma
Colorado, Denver - Medullary carcinoma
Florida (Munroe Regional Medical Center) - Medullary carcinoma
Florida (Winter Haven Hospital) - Medullary carcinoma
Georgia, Decatur - Medullary carcinoma
Illinois (Heartland Regional Medical Center) - Medullary carcinoma
Kansas (Coffeyville Regional Medical Center) - Medullary carcinoma of thyroid (C-cell carcinoma)
Kentucky (University of Louisville Hospital) - Medullary carcinoma of thyroid
Maryland (Johns Hopkins Medical Center) - Medullary carcinoma (2)
Maryland (National Naval Medical Center) - Medullary thyroid carcinoma, likely “MEN” syndrome associated
Maryland (University of Maryland) - Medullary carcinoma
New Mexico (University of New Mexico) - Medullary carcinoma
New York (Nassau University Medical Center) - Medullary carcinoma
New York (State University of New York at Stony Brook) - Medullary thyroid carcinoma
New York (Westchester Medical Center) - Medullary carcinoma of thyroid
North Carolina (Wake Forest University School of Medicine) - Medullary thyroid carcinoma
North Carolina (Winston-Salem) - Medullary thyroid carcinoma
Pennsylvania (Allegheny General Hospital) - Medullary carcinoma
Pennsylvania (Conemaugh Memorial Medical Center) - Medullary carcinoma
Texas (Scott & White Memorial Hospital) - Medullary carcinoma
Texas, Lubbock - Medullary carcinoma
Texas, Sugarland - Medullary carcinoma
Washington, D.C. - Medullary carcinoma
Canada (University of Calgary, Foothills Hospital) - Medullary carcinoma of thyroid
Canada (Woodstock General Hospital) - Medullary carcinoma, thyroid
China (Sir Run Run Shaw Hospital) - Mixed medullary-follicular carcinoma
Germany (Hamburg) - Medullary carcinoma and C-cell hyperplasia
Japan (Asahi General Hospital) - Medullary thyroid carcinoma
Japan (Hamamatsu University School of Medicine) - Medullary carcinoma
Japan (Gunma University Hospital) - Medullary carcinoma, thyroid gland
Puerto Rico (University of Puerto Rico) - Medullary carcinoma
Qatar, Doha - Medullary carcinoma
Spain (Povisa) - Medullary thyroid carcinoma
The Netherlands, Amstelveen - Medullary carcinoma of the thyroid (1); Medullary carcinoma (1)

Case 6 - Diagnosis:

Medullary carcinoma, thyroid
T-96000, M-8510/3

Case 6 - References:

Moley JF: Medullary Thyroid Carcinoma. *Current Treat Options Oncol*, 2003 Aug; 4(4):339-47.
 Stoeckli SJ, Pfaltz M, Steinert H, Schmid S: Sentinel Lymph Node Biopsy In Thyroid Tumors: A Pilot Study. *Eur Arch Otorhinolaryngol*, 2003 Aug; 260(7):364-8.
 Sobol G, Narod SA, Schuffenecker I, et al: Hereditary Medullary Thyroid Carcinoma: Genetic Analysis Of Three Related Syndromes. Groupe d'Etude Des Tumeurs A Calcitonine. *Henry Ford Hosp Med J*, 1989; 37(3-4):109-11.
 Wells SA Jr, Baylin SB, Leight GS, et al: The Importance Of Early Diagnosis In Patients With Hereditary Medullary Thyroid Carcinomas. *Ann Surg*, 1982 May; 195(5):595-9.
 Uribe M, Fenoglio-Preiser CM, Grimes M, Feind C: Medullary Carcinoma Of The Thyroid Gland: Clinical, Pathological, And Immunohistochemical Features With Review Of The Literature. *Am J Surg Pathol*, 1985 Aug; 9(8):577-94.

Case No. 7 - Accession No. 20921

February, 2005

Escondido - Carcinoid
Glendale - Invasive thymoma

Granada Hills - Non-keratinized epidermoid carcinoma of thymus
Loma Linda (Loma Linda University Medical Center Residents) - Malignant thymoma, type I
Orange (UCI Medical Center Residents) - Malignant thymic carcinoma
Sacramento (U.C. Davis Medical Center) - Invasive thymoma
San Francisco (San Francisco General Hospital) - Invasive thymoma
Arizona, Phoenix - Thymic carcinoma (type B3 thymoma)
Colorado, Denver - Thymoma
Florida (Munroe Regional Medical Center) - Thymoma
Florida (Winter Haven Hospital) - Paraganglioma
Georgia, Decatur - Thyroid carcinoid, rule/out thymic carcinoma
Illinois (Heartland Regional Medical Center) - Invasive epithelial thymoma
Kansas (Coffeyville Regional Medical Center) - Thymoma, Polygonal cell type
Kentucky (University of Louisville Hospital) - Invasive epithelioid thymoma
Maryland (Johns Hopkins Medical Center) - Thymoma, WHO type B3, widely invasive (1); Malignant thymoma (1)
Maryland (National Naval Medical Center) - Invasive thymoma
Maryland (University of Maryland) - Invasive thymic carcinoid
New Mexico (University of New Mexico) - Atypical carcinoid
New York (Nassau University Medical Center) - Thymoma, invasive
New York (State University of New York at Stony Brook) - Carcinoid tumor of thymus
New York (Westchester Medical Center) - Thymic carcinoid, atypical
North Carolina (Wake Forest University School of Medicine) - Thymic carcinoid
North Carolina (Winston-Salem) - Thymic carcinoid
Pennsylvania (Allegheny General Hospital) - Thymic neuroendocrine carcinoma
Pennsylvania (Conemaugh Memorial Medical Center) - Germ cell tumor
Texas (Scott & White Memorial Hospital) - Cortical thymoma
Texas, Lubbock - Thymoma
Texas, Sugarland - Thymic carcinoid
Washington, D.C. - Thymic carcinoid
Canada (University of Calgary, Foothills Hospital) - Thymic neuroendocrine carcinoma
Canada (Woodstock General Hospital) - Carcinoid, thymus
China (Sir Run Run Shaw Hospital) - Thymic carcinoma
Germany (Hamburg) - Well-differentiated thymic carcinoma
Japan (Asahi General Hospital) - Carcinoid tumor, thymus
Japan (Hamamatsu University School of Medicine) - Thymic carcinoid tumor
Japan (Gunma University Hospital) - Carcinoid tumor, thymus
Puerto Rico (University of Puerto Rico) - Thymoma
Qatar, Doha - Invasive thymoma (4): Thymic carcinoma (4)
Spain (Povisa) - Thymoma
The Netherlands, Amstelveen - Neuroendocrine tumor (1); Carcinoid, atypical (1)

Case 7 - Diagnosis:

Invasive thymoma with neuroendocrine differentiation (“thymic carcinoid”)
T-98000, M-8580/3

Case 7 - References:

- Pan CC, Chen PC, Wang LS, et al: Expression Of Apoptosis-Related Markers And HER-2/Neu In Thymic Epithelial Tumours. *Histopathology*, 2003 Aug; 43(2):165-72.
 Inoue M, Starostik P, Zettl A, et al: Correlating Genetic Aberrations With World Health Organization-Defined Histology And Stage Across The Spectrum Of Thymomas. *Cancer Res*, 2003 Jul 1; 63(13):3708-15.
 Lee SC, Harn HJ, Lin TS, et al: Prognostic Significance Of CD44v5 Expression In Human Thymic Epithelial Neoplasms. *Ann Thorac Surg*, 2003 Jul; 76(1):213-8; discussion 218.
 Chalabreysse L, Roy P, Cordier JF, et al: Correlation Of The WHO Schema For The Classification Of Thymic Epithelial Neoplasms With Prognosis: A Retrospective Study Of 90 Tumors. *Am J Surg Pathol*, 2002 Dec; 26(12):1605-11.
 De Montpreville VT, Macchiarini P, Delmet E: Thymic Neuroendocrine Carcinoma (Carcinoid): A Clinicopathologic Study Of Fourteen Cases. *J Thorac Cardiovasc Surg*, 1996; 111(1):134-41.

Case No. 8 - Accession No. 24172

February, 2005

Escondido - Large cell neuroendocrine carcinoma

Glendale - Neuroendocrine carcinoma
Granada Hills - Atypical carcinoid
Loma Linda (Loma Linda University Medical Center Residents) - Malignant carcinoid tumor
Orange (UCI Medical Center Residents) - Malignant neuroendocrine carcinoma with squamous differentiation
Sacramento (U.C. Davis Medical Center) - Poorly-differentiated carcinoma with squamoid features
San Francisco (San Francisco General Hospital) - Neuroendocrine carcinoma with squamous differentiation
Arizona, Phoenix - Carcinoid, cecum
Colorado, Denver - Adenocarcinoma with neuroendocrine features
Florida (Munroe Regional Medical Center) - Adenocarcinoid
Florida (Winter Haven Hospital) - Poorly-differentiated adenocarcinoma with focal squamous carcinoma
Georgia, Decatur - Neuroendocrine carcinoma
Illinois (Heartland Regional Medical Center) - Poorly-differentiated neuroendocrine carcinoma
Kansas (Coffeyville Regional Medical Center) - Carcinoid tumor, cecum
Kentucky (University of Louisville Hospital) - Undifferentiated carcinoma with neuroendocrine features
Maryland (Johns Hopkins Medical Center) - Neuroendocrine carcinoma (malignant carcinoid) (1): Large cell neuroendocrine carcinoma (1)
Maryland (National Naval Medical Center) - Poorly-differentiated neuroendocrine carcinoma
Maryland (University of Maryland) - Atypical carcinoid/moderately-differentiated neuroendocrine carcinoma with focal squamous differentiation
New Mexico (University of New Mexico) - Poorly-differentiated carcinoma with squamous cell and neuroendocrine differentiation
New York (Nassau University Medical Center) - Poorly-differentiated adenocarcinoma with squamous features
New York (State University of New York at Stony Brook) - Poorly-differentiated carcinoma with neuroendocrine features
New York (Westchester Medical Center) - High grade neuroendocrine carcinoma
North Carolina (Wake Forest University School of Medicine) - High grade neuroendocrine carcinoma with squamous differentiation
North Carolina (Winston-Salem) - Neuroendocrine carcinoma
Pennsylvania (Allegheny General Hospital) - Neuroendocrine carcinoma, large cell
Pennsylvania (Conemaugh Memorial Medical Center) - Malignant carcinoid
Texas (Scott & White Memorial Hospital) - Undifferentiated carcinoma with neuroendocrine features
Texas, Lubbock - Carcinoid tumor
Texas, Sugarland - Carcinoid tumor
Washington, D.C. - Carcinoid
Canada (University of Calgary, Foothills Hospital) - Large cell neuroendocrine carcinoma of colon
Canada (Woodstock General Hospital) - Large cell neuroendocrine carcinoma, cecum
China (Sir Run Run Shaw Hospital) - Mixed neuroendocrine-squamous cell carcinoma
Germany (Hamburg) - Poorly-differentiated neuroendocrine carcinoma
Japan (Asahi General Hospital) - Atypical carcinoid tumor, intestine
Japan (Hamamatsu University School of Medicine) - Poorly-differentiated neuroendocrine carcinoma with squamous differentiation
Japan (Gunma University Hospital) - Neuroendocrine carcinoma, cecum
Puerto Rico (University of Puerto Rico) - Neuroendocrine carcinoma
Qatar, Doha - Neuroendocrine carcinoma
Spain (Povisa) - Malignant carcinoid tumor
The Netherlands, Amstelveen - Large cell neuroendocrine tumor (1); Large cell neuroendocrine and squamous carcinoma (1)

Case 8 - Diagnosis:

Undifferentiated carcinoma with neuroendocrine and squamoid features, cecum
T-67100, M-8240/1

Case 8 - References:

McCluggage WG, Sumathi VP: Lesson Of The Month: Neuroendocrine Carcinoma Of The Caecum. *Histopathology*, 2002 Dec; 41(6):556-8.
 Berardi RS: Carcinoid Tumors Of The Colon (Exclusive Of The Rectum): Review Of The Literature. *Dis Col Rectum*, 1972 Sep-Oct; 15(5):383-91. Review.
 Rosenberg JM, Welch JP: Carcinoid Tumors Of The Colon: A Study Of 72 Patients. *Am J Surg*, 1985 Jun; 149(6):775-9.

Case No. 9 - Accession No. 29659

February, 2005

Escondido - Neuroendocrine carcinoma
Glendale - Small cell carcinoma, primary vs metastatic

Granada Hills - Merkel cell tumor
Loma Linda (Loma Linda University Medical Center Residents) - Merkel cell carcinoma
Orange (UCI Medical Center Residents) - Merkel cell carcinoma
Sacramento (U.C. Davis Medical Center) - Poorly-differentiated small cell carcinoma
San Francisco (San Francisco General Hospital) - Merkel cell carcinoma
Arizona, Phoenix - Merkel cell carcinoma
Colorado, Denver - Merkel cell tumor
Florida (Munroe Regional Medical Center) - Merkel tumor
Florida (Winter Haven Hospital) - Merkel cell carcinoma
Georgia, Decatur - Merkel cell carcinoma, rule out metastasis
Illinois (Heartland Regional Medical Center) - Merkel cell carcinoma
Kansas (Coffeyville Regional Medical Center) - Merkel cell tumor vs metastatic small cell carcinoma
Kentucky (University of Louisville Hospital) - Merkel cell carcinoma
Maryland (Johns Hopkins Medical Center) - Merkel cell carcinoma (2)
Maryland (National Naval Medical Center) - Merkel cell carcinoma
Maryland (University of Maryland) - Merkel cell carcinoma
New Mexico (University of New Mexico) - Merkel cell carcinoma
New York (Nassau University Medical Center) - Merkel cell carcinoma
New York (State University of New York at Stony Brook) - Merkel cell carcinoma
New York (Westchester Medical Center) - Merkel cell carcinoma
North Carolina (Wake Forest University School of Medicine) - Merkel cell carcinoma
North Carolina (Winston-Salem) - Merkel cell carcinoma
Pennsylvania (Allegheny General Hospital) - Merkel cell carcinoma
Pennsylvania (Conemaugh Memorial Medical Center) - Merkel cell carcinoma
Texas (Scott & White Memorial Hospital) - Merkel cell carcinoma
Texas, Lubbock - Merkel cell tumor
Texas, Sugarland - Merkel cell tumor
Washington, D.C. - Merkel cell tumor
Canada (University of Calgary, Foothills Hospital) - Merkel cell tumor
Canada (Woodstock General Hospital) - Merkel cell carcinoma, forearm
China (Sir Run Run Shaw Hospital) - Merkel cell carcinoma
Germany (Hamburg) - Merkel cell carcinoma
Japan (Asahi General Hospital) - Neuroendocrine carcinoma, skin
Japan (Hamamatsu University School of Medicine) - Merkel cell carcinoma
Japan (Gunma University Hospital) - Metastatic small cell carcinoma, skin
Puerto Rico (University of Puerto Rico) - Merkel cell carcinoma
Qatar, Doha - Merkel cell carcinoma
Spain (Povisa) - Merkel cell carcinoma
The Netherlands, Amstelveen - Merkel cell carcinoma (1); Small cell carcinoma (1)

Case 9 - Diagnosis:

Merkel cell carcinoma (neuroendocrine carcinoma), skin
T-01000, M-8041/3

Case 9 - References:

Boutilier R, Desormeau L, Cragg F, et al: Merkel Cell Carcinoma: Squamous And Atypical Fibroxanthoma-Like Differentiation In Successive Local Tumor Recurrences. *Am J Dermatopathol*, 2001 Feb; 23(1):46-9.
 Brown HA, Sawyer DM, Woo T: Intraepidermal Merkel Cell Carcinoma With No Dermal Involvement. *Am J Dermatopathol*, 2000 Feb; 22(1):65-9.
 Scott MP, Helm KF: Cytokeratin 20: A Marker For Diagnosing Merkel Cell Carcinoma. *Am J Dermatopathol*, 1999 Feb; 21(1):16-20.
 Rosso R, Paulli M, Carnevali L: Neuroendocrine Carcinoma Of The Skin With Lymphoepithelioma-Like Features. *Am J Dermatopathol*, 1998 Oct; 20(5):483-6.
 Duncan WC, Tschen JA: Spontaneous Regression Of Merkel Cell (Neuroendocrine) Carcinoma Of The Skin. *J Am Acad Dermatol*, 1993 Oct; 29(4):653-4.

Case No. 10 - Accession No. 24074

February, 2005

Escondido - Small cell carcinoma

Glendale - Small cell carcinoma
Granada Hills - Small cell carcinoma
Loma Linda (Loma Linda University Medical Center Residents) - Bronchial carcinoid tumor vs small cell (oat cell)
Orange (UCI Medical Center Residents) - Small cell carcinoma
Sacramento (U.C. Davis Medical Center) - Poorly-differentiated neuroendocrine carcinoma
San Francisco (San Francisco General Hospital) - Atypical carcinoid
Arizona, Phoenix - Large cell neuroendocrine carcinoma
Colorado, Denver - Small cell carcinoma
Florida (Munroe Regional Medical Center) - Small cell carcinoma
Florida (Winter Haven Hospital) - Atypical (malignant) carcinoid
Georgia, Decatur - Poorly-differentiated neuroendocrine (small cell) carcinoma
Illinois (Heartland Regional Medical Center) - Poorly-differentiated neuroendocrine carcinoma, large cell type
Kansas (Coffeyville Regional Medical Center) - Small cell (oat cell) carcinoma of lung
Kentucky (University of Louisville Hospital) - Small cell carcinoma
Maryland (Johns Hopkins Medical Center) - Small cell carcinoma (2)
Maryland (National Naval Medical Center) - Small cell carcinoma, lung
Maryland (University of Maryland) - Small cell carcinoma
New Mexico (University of New Mexico) - Small cell carcinoma
New York (Nassau University Medical Center) - Small cell carcinoma
New York (State University of New York at Stony Brook) - Large cell neuroendocrine carcinoma
New York (Westchester Medical Center) - Large cell neuroendocrine carcinoma
North Carolina (Wake Forest University School of Medicine) - Mixed small cell carcinoma/large cell neuroendocrine carcinoma
North Carolina (Winston-Salem) - Small cell carcinoma
Pennsylvania (Allegheny General Hospital) - Small cell carcinoma
Pennsylvania (Conemaugh Memorial Medical Center) - Small cell lung carcinoma
Texas (Scott & White Memorial Hospital) - Atypical carcinoid
Texas, Lubbock - Small cell undifferentiated carcinoma
Texas, Sugarland - Atypical carcinoid
Washington, D.C. - Oat cell carcinoma
Canada (University of Calgary, Foothills Hospital) - Small cell carcinoma of lung
Canada (Woodstock General Hospital) - Small cell carcinoma, lung
China (Sir Run Run Shaw Hospital) - Small cell carcinoma
Germany (Hamburg) - Small cell carcinoma
Japan (Asahi General Hospital) - Small cell carcinoma, lung
Japan (Hamamatsu University School of Medicine) - Small cell carcinoma
Japan (Gunma University Hospital) - Large cell neuroendocrine carcinoma
Puerto Rico (University of Puerto Rico) - Small cell carcinoma
Qatar, Doha - Small cell carcinoma
Spain (Povisa) - Oat cell carcinoma
The Netherlands, Amstelveen - Atypical carcinoid (1); Small cell carcinoma (1)

Case 10 - Diagnosis:

Undifferentiated small cell carcinoma (“oat cell carcinoma”), lung
T-28000, M-8041/3

Case 10 - References:

- Hirsch FR, Matthews MJ, Aisner S, et al: Histopathologic Classification Of Small Cell Lung Cancer: Changing Concepts And Terminology. *Cancer*, 1988 Sep; 62(2):973-7.
 Horai T, Sone H, Takenaga A, et al: Cytologic Characteristics Of Oat-Cell Carcinoma Of The Lung In Relation To The Effect Of Chemotherapy. *Cancer*, 1981 Jan 1; 47(1):22-6.
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 Levison V: Preoperative Radiotherapy And Surgery In The Treatment Of Oat-Cell Carcinoma Of The Bronchus. *Clin Radiol*, 1980 May; 31(3):345-8.