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Annotated Bibliography

Nolan Altman, James A. Brunberg, Allen D. Elster, Ajax E. George, David B. Hackney, Robert B. Lufkin, Jeffrey S. Ross, Joel D. Swartz, Jane L. Weissman, and Samuel M. Wolpert

Stroke

Selhub J, Jacques PF, Bostom AG, et al. **Association between plasma homocysteine concentrations and extracranial carotid-artery stenosis.** *N Engl J Med* 1995; 332:286–291.

More enlightenment from the good people of Framingham. It is known that high levels of homocysteine are associated with vascular disease. This study found two thirds of "elderly" Framinghamites (67 to 96 years old) with high plasma homocysteine had extracranial carotid stenosis of at least 25% by Doppler. Folate intake keeps plasma levels of homocysteine low. The authors suggest that an "innocuous regimen of vitamin supplementation" could lower the considerable risks from vascular disease. Ideally, however, you elderly types should eat your greenleafies.□J.L.W.

Eliasziw M, Streifler JY, Spence JD, Fox AJ, Hachinski VC, Barnett HJM. **Prognosis for patients following a transient ischemic attack with and without a cerebral infarction on brain CT.** *Neurology* 1995:45:428–431.

Patients with transient ischemic attack and a computed tomography (CT)-verified cerebral lesion were more likely to have a higher degree of carotid stenosis and carotid plaque ulceration than patients without CT-verified lesion. However, there was no difference in the clinical outcome between the two groups, the risks of ipsilateral strokes in patients with severe stenosis not being increased.□S.M.W.

Zanette EM, Roberti C, Mancini G, Pozzilli C, Bragoni M, Toni D. **Spontaneous middle cerebral artery reperfusion in ischemic stroke: a follow-up study with transcranial Doppler.** *Stroke* 1995;26:430–433.

The authors used transcranial ultrasonography to look for spontaneous reperfusions of the middle cerebral artery during the first week following acute stroke. Of the 33 patients presenting with abnormal Doppler studies only 14 had permanently abnormal transcranial Doppler findings. This shows early middle cerebral artery reperfusion within the first 48 hours.□J.S.R.

Muller TB, Haraldseth O, Jones RA, et al. **Combined perfusion and diffusion-weighted magnetic resonance imaging in a rat model of reversible middle cerebral artery occlusion.** *Stroke* 1995;26:451–458.

Fifteen rats that had either 45 or 120 minutes of middle cerebral artery occlusion with reperfusion, had correlation with diffusion and perfusion imaging. Middle cerebral artery occlusion for 45 minutes showed a diffusion-weighted hyperintensity that is reduced in area after reperfusion. If the middle cerebral artery was occluded for 120 minutes, there was diffusion-weighted image hyperintensity that was not diminished in area. They also found that perfusion-weighted imaging was able to demonstrate a perfusion defect in the ischemic hemisphere. Seven figures. □J.S.R.

Anzola GP, Gasparotti R, Magoni M, Prandini F. **Transcranial Doppler sonography and magnetic resonance angiography in the assessment of collateral hemispheric flow in patients with carotid artery disease.** *Stroke* 1995;26:214–217.

The authors evaluated 25 patients with unilateral internal carotid artery occlusion or stenosis with both transcranial Doppler and magnetic resonance (MR) angiography. Presaturation pulses were used to evaluate collateral flow. Transcranial Doppler and MR imaging appear to be complementary. Transcranial Doppler probably is more sensitive in depicting potential sources of collateral circulation and MR imaging is a bit more specific in delineating which source has the greatest functional importance. One figure. □J.S.R.

Perez-Trephichio AD, Xue M, Ng TC, et al. **Sensitivity of magnetic resonance diffusion-weighted imaging and regional relationship between the apparent diffusion coefficient and cerebral blood flow in rat focal cerebral ischemia.** *Stroke* 1995;26:667–675.

The authors correlate apparent diffusion coefficient changes at 1 and 3 hours after embolization of the internal carotid artery in the rat model with autoradiographic cerebral blood flow measurements. Three-hour diffusion-weighted studies depicted the ischemic regions and demonstrated significant correlation with regions of cerebral blood flow decline. Diffusion-weighted imaging appears able to predict not only severely ischemic brain but also moderately compromised regions destined for infarction without therapeutic intervention.□J.S.R.

From Miami Children's Hospital (N.A.); University Hospital, Ann Arbor, Mich (J.A.B.); Bowman Gray School of Medicine, Winston-Salem, NC (A.D.E.); NYU Medical Center, New York (A.E.G.); Hospital of the University of Pennsylvania, Philadelphia (D.B.H.); UCLA School of Medicine, Los Angeles (R.B.L.); The Cleveland Clinic Foundation (J.S.R.); The Germantown Hospital and Medical Center, Philadelphia (J.D.S.); University of Pittsburgh School of Medicine (J.L.W.); and New England Medical Center Hospital, Boston (S.M.W.).

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Iannuzzi A, Wilcosky T, Mercuri M, Rubba P, Bryan FA, Bond MG. **Ultrasonographic correlates of carotid atherosclerosis in transient ischemic attack and stroke.** *Stroke* 1995;26:614–619.

A retrospective analysis of 242 stroke and 336 transient ischemic attack patients, evaluated with real time B-mode ultrasonography. The authors looked at lesion characteristics associated with clinical events. Measurements at the site of minimum residual lumen showed a significant association between a narrow lumen diameter of the ipsilateral carotid to the case hemisphere and stroke. Transient ischemic attack patients showed association between hypoechoic carotid plaques and longitudinal lesion motion with ipsilateral brain involvement. The authors look forward to future studies to improve the ability to predict the occurrence of cerebral vascular events in the presence of differing plaque morphologies.□J.S.R.

Forsting M, Reigth W, Schäbitz W-R, et al. **Decompressive craniectomy for cerebral infarction: an experimental study in rats.** *Stroke* 1995;26:259–264.

Focal ischemia was induced in 50 rats, after which decompressive craniectomy was performed on 30. The mortality rate in the nontreated group was 35%; none of the decompressive craniectomy group died, suggesting that controlled study of decompressive craniectomy in patients with acute internal carotid artery or middle cerebral occlusion would be worthwhile. Early treatment appeared more effective than late treatment (24 hours after stroke). Three color figures.□J.S.R.

Berman SS, Devine JJ, Erdoes LS, Hunter GC. **Distinguishing carotid artery pseudo-occlusion with color-flow Doppler.** *Stroke* 1995;26:434–438.

Carotid pseudoocclusion is also called the "carotid string sign." The authors reviewed arteriograms, surgery results, and noninvasive studies in 26 patients who had the carotid string sign. Conventional gray scale scanning showed 27% of these pseudooccluded internal carotid arteries; 94% were shown with color-flow Doppler. The inclusion of color flow may obviate the need for arteriography in identifying patients with this level of stenosis. □J.S.R.

Graham GD, Kalvach P, Blamire AM, Brass LM, Fayad P, Prichard JW. **Clinical correlates of proton magnetic resonance spectroscopy findings after acute cerebral infarction.** *Stroke* 1995;26:225–229.

Authors evaluated whether proton MR spectroscopy in the first days after stroke correlated with clinical measures of outcome. Scaled lactate and *N*-acetyl signals from the voxels having the highest measured lactate were used to predict clinical variables and lesion volume. Lesion lactate signal correlated with the Toronto Stroke Scale, Barthel Index score, and lesion volume. This study documents clinical predictive value of proton MR spectroscopy after stroke.□J.S.R.

Biousse V, D'Anglejan-Chatillon J, Touboul P-J, Amarenco P, Bousser M-G. **Time course of symptoms in extracranial carotid artery dissections: a series of 80 patients.** *Stroke* 1995;26:235–239.

Eighty consecutive patients with angiographically diagnosed internal carotid artery dissection were followed, and the time between the onset of symptoms and any ischemic event evaluated. Ischemic stroke occurs within the first few days after the onset of symptoms, but may occur as much as 1 month later. Five strokes in this group occurred in 3 to 4 weeks after symptom onset. There were no clinical or angiographic features predictive stroke associated with dissection. This study suggests that preventive treatment should be begun as soon after the onset of symptoms as possible, but may be useful even relatively late.□J.S.R.

Neck and Nasopharynx

Siminoski K. **The rational clinical examination: does this patient have a goiter?** *JAMA* 1995;273:813–817.

Reading this brief paper will take you right back to your first physical diagnosis course. In addition to nostalgia value, the paper reminds those of us who read neck CT and MR studies what the clinician must consider. This is good for all of us: where else would you learn about pseudogoiter in patients with long, curving necks, the "Modigliani syndrome"?□J.L.W.

Brennan JA, Mao L, Hruban RH, et al. **Molecular assessment of histopathological staging in squamous-cell carcinoma of the head and neck.** *N Engl J Med* 1995;332:429–435.

The best prognostic indicator for patients with squamous cell carcinoma of the head and neck is complete surgical excision. This means reoperating if surgical margins are "positive" for tumor. These authors looked for a genetic marker of tumor (mutations of the p53 gene, identified by polymerase chain reaction) in the surgical margins and lymph nodes of patients with squamous cell carcinoma. In 13 of 25 patients, p53 mutations indicated positive margins when light microscopy showed clear margins. Six of 28 lymph nodes were positive for p53 mutations and negative by histology. Hematoxylin and eosin, move over.□J.L.W.

Greinwald JH, Wilson FJ, Haggerty PG. **Peritonsillar abscess: an unlikely cause of necrotizing fasciitis.** *Ann Otol Rhinol Laryngol* 1995;104(2):133–137.

Cervical necrotizing fasciitis is a devastating condition that results in gas formation and extensive necrosis of subcutaneous fat. Dental infection and trauma are the most common causes. The authors believe that individuals who develop this manifestation after peritonsillar abscess have a worse prognosis. Two CT scans.□J.D.S.

Bough ID, Chiles PJ, Fratalli MA, Vernose G. **Laryngeal chondrosarcoma: two unusual cases.** *Am J Otolaryngol* 1995;16(2):126–131.

Despite the fact that chondrosarcoma is the most common sarcoma of the larynx, it makes up fewer than 1% of all laryngeal tumors. Both cases arose from the cricoid cartilage and presented as large, palpable soft-tissue masses. Neither CT demonstrates appreciable calcification. Both patients were elderly.□J.D.S.

Thyagarajan D, Cascino T, Harms G. **Magnetic resonance imaging in brachial plexopathy of cancer.** *Neurology* 1995;45:421–427.

As expected, MR imaging was more useful than CT in evaluating the cause of a brachial plexopathy in patients with cancer. The MR films revealed masses, increased signals in T2-weighted images, loss of fat planes, or lesions of contiguous structures involving the apices of the lungs, the mediastinum, the spine, and so forth. Surprisingly, some abnormality was seen in almost all the patients studied.□S.M.W.

Soylu L, Aydogan LB, Kiroglu M, et al. **Hydatic cyst in the head and neck area.** *Am J Otolaryngol* 1995;16(2):123–125.

A single, moderate-quality, axial CT scan demonstrates a huge complex left posterior neck mass. Careful excision of the mass revealed parasitic infection, *Echinococcus granulosus*.□J.D.S.

Ford CN, Unger JM, Zundel RS, Bless DM. **Magnetic resonance imaging assessment of vocal fold medialization surgery.** *Laryngoscope* 1995;105:498–492.

The authors describe the use of MR after vocal fold medialization by injection, thyroplasty, and arytenoid adduction. MR can precisely show placement and persistence of injected implants and effects of size and shape of alloplastic prostheses on vocal fold displacement. It also can aid in confirming indications for and limitations of certain procedures.□R.B.L.

McGuirt WF, Williams DW III, Keyes JW, et al. **A comparative diagnostic study of head and neck nodal metastases using positron emission tomography.** *Laryngoscope* 1995;105:282–288.

Clinical examination, CT, fludeoxyglucose F 18 positron emission tomography, and pathologic findings were compared in 49 patients with squamous cell carcinoma metastatic to neck nodes. Positron emission tomography (82%) and CT (84%) were comparable, both better than clinical examination (71%) in showing the presence or absence of metastatic disease.□R.B.L.

Spine

Goodkin R, Laska L. **Unintended "incidental" durotomy during surgery of the lumbar spine: medicolegal implications.** *Surg Neurol* 1995;43:4–14.

Review of 146 malpractice cases from surgery of the lumbar spine disclosed unintended durotomies in 23 cases, the second most frequent occurrence. Unintended durotomy should be respected for its potential associated complications and medicolegal implications.□J.S.R.

Faciszewski T, Winter RB, Lonstein JE, Sane S, Erickson D. **Segmental spinal dysgenesis.** *J Bone Joint Surg [Am]* 1995;77-A;4:530–537.

The clinical, imaging, and treatment results for 17 patients who had segmental spinal dysgenesis are reported. This is a rare entity characterized by focal stenosis of the spinal canal, with spinal segments caudal to the dysgenetic segment being normal. This is a separate entity from lumbar, lumbosacral, or sacral agenesis. Eight of the patients in this series were neurologically healthy, although there was a high prevelance of neurogenic bladder. Two figures with MR and CT, and plain films.□J.S.R.

Delamarter RB, Howard MW, Goldstein T, Deutsch AL, Mink JH, Dawson EG. **Percutaneous lumbar discectomy: preoperative and postoperative magnetic resonance imaging.** *J Bone Joint Surg [Am]* 1995;77-A;4:578–584.

Thirty patients were evaluated by MR before and after treatment by percutaneous lumbar diskectomy. The preoperative study showed no differences in appearance of the disk that went on to have successful results versus those who had unsuccessful results. Imaging studies cannot predict the clinical outcome for percutaneous lumbar diskectomy. This would imply a chemical or humoral change, rather than mechanical change, accounting for the success of this procedure. Three MR figures.□J.S.R.

Akar Z. **Myelomeningocele.** *Surg Neurol* 1995;43:113–118.

This is a succinct review of the embryology and current treatment trends for myelomeningocele.□J.S.R.

Inflammatory Disease

Bedos J-P, Chastang C, Lucet J-C, Kalo T, Gachot B, Wolff M. **Early predictors of outcome for HIV patients with neurological failure.** *JAMA* 1995;273:35–40.

What predicts how well patients with the human immunodeficiency virus admitted to the intensive care unit will do? Surprisingly, this study found only few and weak predictive factors: CT scans showing mass effect or brain stem involvement, a rating of less than seven on the Glasgow coma scale, and a need for mechanical ventilation within 48 hours of admission. No specific factors were "predictive of death." No help here for those agonizing bedside decisions.□J.L.W.

Scully RE, Mark EJ, McNeely WF, McNeely BU. **Case records of the Massachusetts General Hospital, Case 5-1995.** *N Engl J Med* 1995;332:452–459.

A 73-year-old resident of an area with endemic Lyme disease (red herring) had fluctuating nervous system symptoms, both central (headache, confusion) and peripheral (flaccid paresis, diminished reflexes). T2-weighted MR images showed foci of high signal in the corona radiata, parietooccipital region, midbrain, and caudate nucleus. Angiography showed narrowings of supraclinoid carotid and anterior cerebral arteries. The patient improved with prednisone and cyclophosphamide, but not enough: autopsy showed arteritis. This CPC includes an excellent discussion of the diseases that mimic vasculitis, and the many forms of vasculitis.□J.L.W.

Vascular Lesions and Malformations

Stampfer MJ, Malinow MR. **Editorial: can lowering homocysteine levels reduce cardiovascular risk?** *N Engl J Med* 1995;332:328–329.

This editorial suggests cause and effect, not mere correlation, between plasma homocysteine levels and vascular disease. Homocysteine appears to damage endothelium. The authors cheerfully note that 40% of the population has oral folate intake too low to keep plasma homocysteine in check. Blame the government: the current recommended daily allowance is half what you (and your endothelium) need.□J.L.W.

Phakomatoses

Schievink WI, Michels VV, Mokri B, Piepgras DG, Perry Ho. **Brief report: a familial syndrome of arterial dissections with lentiginosis.** *N Engl J Med* 1995;332:576–579

Angiographers take note: here is a new genetic syndrome of arterial dissections (cystic medial necrosis) and multiple lentigines (freckles). Both arterial media and melanocytes derive from the neural crest, making this yet another "neurocristopathy" (sic). So check your patients' freckles: you just never know.□J.L.W.

Brain Tumors and Cysts

Czeisler CA, Shanahan TL, Klerman EB, et al. **Suppression of melatonin secretion in some blind patients by exposure to bright light.** *N Engl J Med* 1995;332:6–11.

The circadian pacemaker responds to light entering through the eyes. The pacemaker, in the suprachiasmatic nucleus of the hypothalamus, signals the pineal gland to make more melatonin when light is low (night), and less melatonin during daylight. The authors found that some (not all) blind eyes can transmit enough light to regulate the circadian pacemaker. Because some blind patients have periodic bouts of insomnia and daytime somnolence, this is strong evidence against the "cosmetic" enucleation of disfigured blind globes. It also is fascinating insight (as it were) into the complex workings of human circadian rhythms.□J.L.W.

Skull and Craniovertebral Junction

Saleh E, Naguib M, Aristegui M, Cokkeser Y, Sanna M. **Lower skull base: anatomic study with surgical implications.** *Ann Otol Rhinol Laryngol* 1995;104:57–61.

This is a fascinating anatomic study that focuses specifically on the jugular foramen. The authors emphasize that previous anatomic studies have not stressed microsurgical anatomy of this region as seen from contemporary lateral surgical approaches. Excellent.□J.D.S.

Nose, Paranasal Sinuses, Face, and Oral Cavity

Stack BC, Klotch DW. **Mucocele of the pterygomaxillary space.** *Ann Otol Rhinol Laryngol* 1995;104(3):246–247.

Single axial CT demonstrates a large low-density mass expanding/destroying the posterior portion of the left maxillary antrum and pterygoid plates. The authors believed this is represent an eccentric mucocele that occurred in this location caused by previous surgery that included removal of the posterior antral wall. The case is interesting and unique, but I question the authors' presumption of a "pterygomaxillary space" origin. Perhaps this would be better described as an "eccentric paraantral mucocele." □J.D.S.

Lawson W, Ho BT, Shaari CM, Biller HF. **Inverted papilloma: a report of 112 cases.** *Laryngoscope* 1995;105:282–288.

Inverted papilloma is a benign, locally aggressive sinonasal tumor that has significant malignancy potential. The authors review their experience with 112 patients with inverted papilloma. The recurrence rates for patients treated with medial maxillectomy or ethmoidectomy were 14% and 20%, respectively. The overall rate of squamous carcinoma was 5%.□R.B.L.

Pediatric Neuroradiology and Congenital Malformations

DiMario FJ Jr, Ramsby GR, Burleson JA, Greenshields IR. **Brain morphometric analysis in achondroplasia.** *Neurology* 1995;45:519–524.

The authors on the basis of MR studies postulate that rostral displacement of the brain stem occurs with age in achondroplasia patients. As a result, tectal shearing may occur with secondary cerebrospinal fluid outflow obstruction superimposed on the existing communicating hydrocephalus. Unfortunately, no MR imaging studies are provided.□S.M.W.

Kuzniecky R, Morawetz R, Faught E, Black L. **Frontal and central lobe focal dysplasia: clinical, EEG and imaging features.** *Dev Med Child Neurol* 1995;37:159–166.

Recurring clusters of patrial motor or sensory seizures in children may be associated with regional but nonfocal paroxysmal electroencephalographic activity. In these patients, ictal events may occur without alteration in ongoing electroencephalographic activity, and there may be preservation of awareness during prolonged seizures. From a group of 11 such patients, central and frontal gyral alterations involving single or multiple gyri are nicely illustrated with MR images. Histologic alterations of focal cortical dysplasia in surgically excised specimens are discussed. □J.A.B.

Ophthalmologic Radiology

Stroman JA, Stewart WC, Golnik KC, Curé JK, Olinger RE. **Magnetic resonance imaging in patients with low-tension glaucoma.** *Arch Ophthalmol* 1995;113:168–172.

A subset of patients with typical ophthalmoscopic manifestations of glaucoma have normal intraocular pressure. Many researchers have proposed a vascular cause for this phenomenon. These authors study 20 consecutive patients as well as age-matched controls with MR imaging. Pathologic signal in the deep white matter was identified in 8 patients. The authors believe this to be significant. There were no orbital manifestations.□J.D.S.

Sella Turcica

Rao GP, Blyth CPJ, Jeffreys RV. **Ophthalmic manifestations of Rathke's cleft cysts.** *Am J Ophthalmol* 1995;119: 86–91.

Nice review confirms difficulty in imaging differentiation of Rathke's cleft cysts from craniopharyngioma. The authors confirm that histopathologically Rathke's cleft cysts are lined by cuboidal or ciliated columnar epithelium, whereas cariopharyngiomas are lined by stratified squamous epithelium. These authors indicate that a Rathke's cleft cyst is far more likely to cause visual disturbance. The authors consider this important, because as a general rule Rathke's cleft cyst requires less aggressive treatment. □J.D.S.

Temporal Bone

Hart MJ, Lillihei KO. **Management of posterior cranial fossa meningiomas.** *Ann Otol Rhinol Laryngol* 1995;104(2):105–116.

The authors reviewed their experience with nine posterior fossa meningiomas emphasizing correlation of cochleovetibular symtomatology. Seven of their nine patients had signs of peripheral or central vestibular dysfunction on electronystagmography, and six had objective evidence of auditory dysfunction. All five patients with meningiomas involving the internal auditory canal had audiometric brain stem response results consistent with a retrocochlear lesion. Three CT scans, three MR images, one MR angiogram. Thorough discussion.□J.D.S.

Cerebral Blood Flow

Vanninen R, Koivisto K, Tulla H, Manninen H, Partanen K. **Hemodynamic effects of carotid endarectomy by magnetic resonance flow quantification.** *Stroke* 1995;26:84–89.

Volumetric flow rates and systolic velocities of the internal and common carotid and vertebral arteries in 16 patients were measured by MR flow quantification using a phase-contrast, fast low-angle shot sequence. Surgery was followed by significant increase in blood flow in the ipsilateral carotid. Improvement of velocity flow rate in the internal carotid artery after endarectomy is less significant in the subgroup of mildly or moderately stenosed internal carotid arteries than in the subgroup of patients with severe stenosis.□J.S.R.

Kleinschmidt A, Steinmetz H, Sitzer M, Merboldt K-D, Frahm J. **Magnetic resonance imaging of regional cerebral blood oxygenation changes under acetazolamide in carotid occlusive disease.** *Stroke* 1995;26:106–110.

The authors studied four patients with unilateral occlusion of the internal carotid artery using oxygen-sensitive gradient-echo sequence (BOLD technique). Dynamic recordings were performed before and after acetazolamide challenge. Acetazolamide induced a rise in signal intensity in the normally perfused hemispheres: in hemispheres ipsilateral to the occlusions, there was unresponsiveness to rises paralleling those in a normally perfused hemisphere. MR imaging can demonstrate exhaustion of the autoregulatory reserve capacity during vasodilatory stress.□J.S.R.

Seizure Disorders

Abou-Khalil B, Fakhoury T, Jennings M, Moots P, Warner J, Kessler RM. **Inhibitory motor seizures: correlation with centroparietal structural and functional abnormalities.** *Acta Neurol Scand* 1995;91:103–108.

Seizures may, in rare cases, be inhibitory, manifested as episodes of focal paralysis rather than the classic convulsions. The authors describe eight patients with the disorder, which is ictal rather than postictal in nature. Six of the eight patients showed MR imaging abnormalities in the centroparietal region, most often neoplastic. Interictally, the electroencephalogram did not show any abnormalities.□S.M.W.