

Annotated Bibliography

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Pediatric Neuroradiology and Congenital Malformations

Barkovich AJ, Guerrini R, Battaglia G, et al. **Band heterotopia: correlation of outcome with magnetic resonance imaging parameters.** *Ann Neurol* 1994;36:609–617.

Clinical records and magnetic resonance (MR) imaging of 27 patients with band heterotopia are retrospectively reviewed with statistical analysis to determine whether MR findings can predict clinical outcome in these patients with variable clinical courses, ranging from mildly impaired to severely retarded. Patients with more severe cortical anomalies (pachygyria) and more severe ventricular enlargement have statistically significant early onset of seizure disorders and a worse prognosis for intelligence and neurologic development. Delayed motor development was seen with increasing severity of the T2 prolongation of white matter. Speech delay was identified when the parietal lobe was involved. □N.A.

Sessa S, Sommelet D, Lascombes P, Prevot J. **Treatment of Langerhans-cell histiocytosis in children: experience at the children's hospital of Nancy.** *J Bone Joint Surg* 1994; 76A:1513–1525.

The authors retrospectively review 40 children who had Langerhans-cell histiocytosis who were followed for 6 years and are divided into those with localized disease and those who have multifocal disease. There is a succinct discussion of diagnostic problems and therapeutic options and a general review of this disease. There are 47 references. □J.S.R.

Robertson PL, Allen JC, Abbott IR, Miller DC, Fidel J, Epstein FJ. **Cervicomedullary tumors in children: a distinct subset of brain stem gliomas.** *Neurology* 1994;44: 1798–1803.

The authors investigated 17 children with intraaxial cervicomedullary tumors and found that tumors in the medulla have generally an indolent course and are of a low-grade glial pathologic nature as compared with those in the pons, which have a worse prognosis and are higher-grade glial. In fact, tumors in the medulla behave very similarly to those of pediatric spinal cord tumors. □S.M.W.

Trauma

Tulyapronchote R, Selhorst JB, Malkoff MD, Gomes CR. **Delayed sequelae of vertebral artery dissection and occult cervical fractures.** *Neurology* 1994;44:1397–1399.

The authors investigated three patients with neck injuries in whom symptoms of vertebrobasilar ischemia followed more than 1 week after the injury. In all three patients angiographic evidence of vertebral artery dissection was seen. On further evaluation, occult fractures of C-2 were also identified. □S.M.W.

Cerebral Blood Flow

Silvestrini M, Troisi E, Cupini LM, Matteis M, Pistolese GR, Bernardi G. **Transcranial Doppler assessment of the functional effects of symptomatic carotid stenosis.** *Neurology* 1994;44:1910–1914.

This interesting paper describes an increase in flow velocity in the middle cerebral artery in the hemisphere contralateral to a hand performing a task. Furthermore, the authors found that flow velocities in the middle cerebral artery differed between controls and patients with carotid artery stenosis, as well as between the normal side and the stenotic side. These findings were all obtained after simple motor tasks. The method suggests that the effect of a simple motor task on flow velocity of middle cerebral arteries may allow for the evaluation of the functional effects of carotid lesions. □S.M.W.

Seizure Disorders

Connelly A, Jackson GD, Duncan JS, King MD, Gadian DG. **Magnetic resonance spectroscopy in temporal lobe epilepsy.** *Neurology* 1994;44:1411–1417.

A straightforward paper describing that proton magnetic resonance spectroscopy may be useful in the preoperative investigation of patients with temporal lobe epilepsy, contributing to detection of the side of abnormalities and of bilateral abnormalities. □S.M.W.

Raymond AA, Fish DR, Stevens JM, Cook MJ, Sisodiya SM, Shorvon SD. **Association of hippocampal sclerosis with cortical dysgenesis in patients with epilepsy.** *Neurology* 1994;44:1841–1845.

In a well-controlled study, the authors describe the possible dual occurrence of hippocampal sclerosis and other structural lesions such as cortical dysgenesis in patients with chronic partial epilepsy. □S.M.W.

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Radionuclide Imaging

Masdeu JC, Brass LM, Holman L, Kushner MJ. **Brain single-photon emission computed tomography.** *Neurology* 1994;44:1970–1977.

This special review describes the use of single-photon emission computed tomography scanning in the treatment of patients with stroke, epilepsy, recurrent brain neoplasms, and some forms of dementia. This paper is a useful review for those interested in single-photon emission computed tomography scanning of the brain. □S.M.W.

Brain Tumors and Cysts

Wilson CB. **Meningiomas: genetics, malignancy, and the role of radiation in induction and treatment.** *J Neurosurg* 1994;81:666–675.

The author reviews the molecular genetics, pathologic features, and cell kinetics of meningiomas, stressing the role that regional multiplicity in the dura mater may play in their recurrence. A good discussion of radiation-induced meningiomas is also included. □A.D.E.

Sugiyama K, Uozumi T, Arita K, et al. **Clinical evaluation of 33 patients with histologically verified germinoma.** *Surg Neurol* 1994;42:200–210.

This is a review of 33 patients with histologically verified germinoma, and all patients underwent biopsy, partial resection, or total resection. The authors make a case for whole neural axis evaluation by MR for accurate staging before treatment. Exact histologic diagnosis needs to be made before treatment begins. Four MR figures. □J.S.R.

Interventional Neuroradiology

Touho H, Karasawa J, Ohnishi H, Yamada K, Ito M, Kinoshita A. **Intravascular treatment of spinal arteriovenous malformations using a microcatheter—with special reference to serial xylocaine tests and intravascular pressure monitoring.** *Surg Neurol* 1994;42:148–156.

Five patients with intramedullary arteriovenous malformations were treated by intravascular methods, using polyvinyl alcohol solutions as liquid embolic material, and the Tracker vascular system. Of note, the authors used serial provocative tests with lidocaine and intravascular pressure monitoring in the anterior spinal artery. Embolization with liquid embolic material should be terminated when the provocative tests become positive and intravascular pressure increases to 90% of systemic blood pressure. □J.S.R.

Yamamoto M, Oka K, Ikeda K, Tomonaga M. **Percutaneous flexible neuroendoscopic ventriculostomy in patients with shunt malfunction as an alternative procedure to shunt revision.** *Surg Neurol* 1994;42:218–223.

This is a review of three patients with shunt malfunction who underwent percutaneous flexural neuroendoscopic ventriculostomy. All patients remained independent of a shunt system after the ventriculostomy. The results of this technique have been variable. The authors postulate that the success rate depends on whether there is sufficient mechanism for resorption of cerebrospinal fluid under normal intracranial pressure at the arachnoid granulations. Two color figures of the intraoperative procedure. Two MR figures, one computed tomogram. □J.S.R.

Stroke

Fujioka M, Okuchi K, Sakaki T, Hiramatsu K-I, Miyamoto S, Iwasaki S. **Specific changes in human brain following reperfusion after cardiac arrest.** *Stroke* 1994;25:2091–2095.

The authors present a serial study on the changes of human brains in patients remaining in a persistent vegetative state after resuscitation after cardiac arrest using MR. MR images showed what the authors postulate to be hemoglobin degradation products in the basal ganglia, thalami, and substantia nigra. They speculate that these hemorrhages result from diapedesis of red cells through the damaged vascular wall exposed to ischemia reperfusion. □J.S.R.

Houkin K, Aoki T, Takahashi A, Abe H. **Diagnosis of Moyamoya disease with magnetic resonance angiography.** *Stroke* 1994;25:2159–2164.

Thirty-nine patients with moyamoya disease confirmed by conventional angiography were evaluated by MR angiography. MR angiography correlated well with conventional angiography, with moyamoya vessels shown as fine unusual vessels on MR angiography. MR angiography is an alternative to conventional angiography in typical moyamoya disease. Three figures. □J.S.R.

Toyoda K, Saku Y, Ibayashi S, Sadoshima S, Ogasawara T, Fujishima M. **Pontine infarction extending to the basal surface.** *Stroke* 1994;25:2171–2178.

The authors categorized pontine infarcts as: (a) pontine infarcts extending to the basal surface of the brain stem; (b) pontine infarcts without extension to the basal surface; and (c) pontine infarcts with extrapontine infarcts. Patients were evaluated by MR and clinical course. Pontine infarcts that extend to the surface seem to have different causes, such as cardioembolic, artery-to-artery embolic, or atherosclerosis of the basilar artery. Those that extend to the surface are larger and show a higher incidence of hemiparesis involving the face and hemiparesis with confusion. □J.S.R.

Sloan MA, Burch CM, Wozniak MA, et al. **Transcranial Doppler detection of vertebrobasilar vasospasm following subarachnoid hemorrhage.** *Stroke* 1994;25:2187-2197.

Fifty-nine patients with subarachnoid hemorrhage underwent transcranial Doppler evaluation, and 42 underwent posterior circulation angiography. A mean flow velocity of 60 cm/s and greater was indicative of both vertebral and basilar artery vasospasm. Sensitivity for vasospasm was 44% and specificity 87.5% for the vertebral arteries; sensitivity was 76.9% and specificity 79.3% for the basilar artery. □J.S.R.

Rorick MB, Nichols FT, Adams RJ. **Transcranial Doppler correlation with angiography in detection of intracranial stenosis.** *Stroke* 1994;25:1931-1934.

Sixty-five patients underwent both cerebral angiography and transcranial Doppler examinations for acute cerebral ischemia. When transcranial Doppler is successfully performed on patients with less than 75% stenosis of the internal carotid artery, finding of normal transcranial Doppler flow in the M1 segment reliably indicates absence of stenosis. An abnormal transcranial Doppler study of the M1 segment does not reliably predict the presence of stenosis. Transcranial Doppler may also miss a number of stenotic lesions of the vertebral basilar system. □J.S.R.

Vascular Lesions and Malformations

Schievink WI, Schaid DJ, Rogers HM, Piepgras DG, Michels VV. **On the inheritance of intracranial aneurysms.** *Stroke* 1994;25:2028-2037.

Screening for intracranial aneurysms in asymptomatic relatives of patients with aneurysms should be considered when there are two or more members with an intracranial aneurysm in the immediate family, although benefits of screening have not been quantitated. Analytical decision methods suggest that screening is advisable for all relatives between 35 and 60 years of age, "when the physician thinks that the risk of intracranial aneurysms increase." □J.S.R.

Giulioni M, Acciarri N, Padovani R, Frank F, Galassi E, Gaist G. **Surgical management of cavernous angiomas in children.** *Surg Neurol* 1994;42:194-199.

Eighteen pediatric patients were operated on for symptomatic central nervous system cavernous angiomas. The majority of clinical manifestations were seizures. Excisions of four of the deep cerebral lesions were performed after stereotactic location. There was no mortality in this series, and all 11 patients with epilepsy obtained seizure control. The authors conclude that all accessible symptomatic central nervous system cavernous angiomas should have surgical treatment. □J.S.R.

Degenerative and Metabolic Disease and Aging

Kruse B, Barker PB, van Zijl PCM, Duyn JH, Moonen CTW, Moser HW. **Multislice proton magnetic resonance spectroscopic imaging in X-linked adrenoleukodystrophy.** *Ann Neurol* 1994;36:595-608.

Twenty-five patients with adrenoleukodystrophy with varying phenotypes had correlation of MR spectroscopic imaging with clinical and MR imaging findings. MR spectroscopic imaging demonstrated a better capacity to show brain abnormalities than MR imaging. The earliest findings in MR spectroscopic imaging in the asymptomatic patient is the elevation of the choline-containing compounds with subsequent reduction of *N*-acetyl aspartate and elevated lactate. These authors suggest these metabolic alterations may be early indicators of disease activity and may provide information that is critical for prognosis, counseling, and management decisions. □N.A.

Skull and Craniovertebral Junction

Olsen KD. **Tumors and surgery of the parapharyngeal space.** *Laryngoscope* 1994;104(suppl):1-28.

This paper reviews the anatomy, presentation, surgical approaches, evaluation, pathologic features, and complications in treating patients with parapharyngeal-space neoplasms, based on the literature and the author's experience with 44 tumors. The cervicoparotid approach was used in 35 patients, and the cervicoparotid with midline mandibulotomy was used in the remaining 9 patients. □R.B.L.