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Ophthalmologic Radiology

Paulson HL, Galetta SL, Grossman M, Alava A. **Hemichoriatopsia of unilateral occipitotemporal infarcts.** *Am J Ophthalmol* 1994;118:518-523.

Color vision is encoded in the ventromedial occipitotemporal cortex. Magnetic resonance (MR) and single-photon emission computed tomography (CT) demonstrate occipitotemporal infarcts in two patients with clinically demonstrable inferior quadrantic achromatopsia in superior quadrantanopia. Both patients were unaware of their color vision disturbance, and the neuroradiologist may be in a unique position to suggest that such a clinical defect may be present when lesions are demonstrated in this vicinity. □J.D.S.

Andenmatten R, Piguet B, Klainguti G. **Orbital hemorrhage induced by barotrauma.** *Am J Ophthalmol* 1994;118:536-537.

Severe orbital pain followed by vertical diplopia was experienced in a 22-year-old diver. A coronal CT image demonstrates an extraconal mass arising in the superior portion of the left orbit, which at surgery represented a spontaneous hemorrhage. Follow-up CT 5 weeks later demonstrates complete resolution of the lesion. □J.D.S.

Logani S, Logani SC, Ali BH, Goldberg RA. **Bilateral, intraconal non-Hodgkin's lymphoma in a patient with acquired immunodeficiency syndrome.** *Am J Ophthalmol* 1994;118:401-402.

The authors report two human immunodeficiency virus-positive 35-year-old men with bilateral proptosis. Biopsy in both cases revealed small-cell, noncleaved, non-Hodgkin lymphoma. The authors indicate that *bilateral* orbital involvement makes these cases unique. A single axial CT demonstrates large amorphous bilateral intraconal masses. □J.D.S.

Demer JL, Kerman BM. **Comparison of standardized echography with magnetic resonance imaging to measure extraocular muscle size.** *Am J Ophthalmol* 1994;118:351-361.

Twenty healthy volunteers underwent extensive MR imaging and ultrasound examinations of the extraocular muscles. The authors conclude that ultrasound measurements of muscle size, particularly those of the inferior and lateral rectus muscles, should be interpreted cautiously. □J.D.S.

Ksiazek SM, Slamovits TL, Rosen CE, et al. **Fascicular arrangement in partial oculomotor paresis.** *Am J Ophthalmol* 1994;118:97-103.

The authors report two patients with pupillary dilatation and inferior rectus paresis with essentially normal medial rectus and levator function. MR (case 1) and CT (case 2) (both illustrated) reveal lesions of the ventromedial midbrain. These cases support the proximity of the fascicular inferior rectus fibers and pupillary fibers within the midbrain and suggest that the fascicular medial rectus and inferior rectus fibers are adjacent to each other as well. The imaging specialist should remember that an oculomotor nerve palsy can be caused by injury to the nucleus, nerve fascicles, or the peripheral nerve. □J.D.S.

Varma R, Miller NR. **Primary oculomotor nerve synkinesis caused by an extracavernous intradural aneurysm.** *Am J Ophthalmol* 1994;118:83-87.

Oculomotor nerve synkinesis refers to unintentional neural transmission of impulses along one branch of the nerve while another branch of the nerve is being stimulated, for instance, constriction of the pupil on attempted adduction of the eye. Aberrant regeneration has been used in most cases to explain this phenomenon, which usually is caused by a slowly growing lesion compressing the oculomotor nerve. The authors report a patient with this syndrome in whom imaging studies demonstrated a partially thrombosed aneurysm of the supraclinoid carotid. The case is well illustrated using axial and coronal MR images and a lateral cerebral angiogram. Meningiomas and aneurysms are by far the most common causes of this phenomenon. □J.D.S.

Spine

Kotilainen E, Alanen A, Erkontalo M, Valtonen S, Kormanen M. **Magnetic resonance image changes and clinical outcome after microdiscectomy or nucleotomy for ruptured disk.** *Surg Neurol* 1994;41:432-440.

The authors performed preoperative and postoperative MR imaging of the lumbar spine in 41 patients treated with microsurgery or with percutaneous nucleotomy for herniation. They showed a variety of epidural changes with MR of the operated space on the first postoperative day with a mass mimicking the preoperative disk herniation in 61% of patients. The MR findings had no correlation with the clinical outcome of the patients. They also noted scar formation in patients who had undergone percutaneous nucleotomy. Three figures. □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.); New York University Medical Center, New York (A.E.G.); Hospital of the University of Pennsylvania, Philadelphia (D.B.H.); University of California Los Angeles School of Medicine (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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Lintner SA, Lindseth RE. **Kyphotic deformity in patients who have a myelomeningocele: operative treatment and long-term follow-up.** *J Bone Joint Surg* 1994;76-A:1301.

Review of the results of resection of the lordotic segment cephalad to the apical vertebra of a kyphotic deformity in 39 patients who had myelomeningocele. Twenty-five of the patients maintained at least a 50% correction over the follow-up period, with only 2 patients showing an increased kyphosis. The authors suggest that the primary indication for surgical intervention is clinical manifestations of deformity rather than radiographic measurements, and this kyphotic deformity can be treated by resection of the cephalad end of the kyphosis. □J.S.R.

Law MD, Bernhardt M, White AA. **Evaluation and management of cervical spondylotic myelopathy.** *J Bone Joint Surg* 1994;76-A:1420.

This review article touches on all aspects of management of cervical spondylotic myelopathy, including clinical evaluation, and a variety of considerations concerning anterior and posterior surgical treatments at both single and multiple levels of abnormality. □J.S.R.

Brinker MR, Rosenfeld SR, Feiwell E, Granger SP, Mitchell DC, Rice JC. **Myelomeningocele at the sacral level: long-term outcomes in adults.** *J Bone Joint Surg* 1994;76-A:1293.

Thirty-six patients who had myelomeningocele at the sacral level and were followed for an average of 10 years. Authors found a decline in the ability to walk in 11 of 35 patients. Breakdown of skin and soft-tissue infections on the metatarsal heads and of the heel were seen in 23 patients, respectively. Thirty-three of the patients have had a total of 371 orthopedic procedures, including a variety of tendinous procedures, osteotomies, soft-tissue releases and debridements, amputations, and arthrodeses of the lower extremities or spine. The authors conclude that the outcomes from adults who have sacral myelomeningocele is poorer than those reported for children. □J.S.R.

Interventional Neuroradiology

Massoud TF, Guglielmi G, Vinuela F, Duckwiler GR. **Saccular aneurysms in moyamoya disease: endovascular treatment using electrically detachable coils.** *Surg Neurol* 1994;41:462-467.

The authors present their treatment of saccular aneurysms using the Guglielmi detachable coil in patients with moyamoya disease. They treated three patients with four aneurysms of the posterior circulation. Near-total occlusion was achieved in three aneurysms and subtotal occlusion achieved in one aneurysm. □J.S.R.

Pediatric Neuroradiology and Congenital Malformations

Rutherford MA, Pennock JM, Dubowitz LM. **Cranial ultrasound and magnetic resonance imaging in hypoxic-ischaemic encephalopathy: a comparison with outcome.** *Dev Med Child Neurol* 1994;36:813-825.

In 40 term neonates with hypoxic-ischemic encephalopathy the results of cranial sonography and MR imaging are compared. Results of the two imaging modalities are then independently correlated with patient clinical outcome at 1 year of age. Although sonography successfully identified all lesions associated with a recognizable poor outcome at 1 year, 11 of the 15 subjects with normal clinical outcomes at this time had abnormalities of the thalami and basal ganglia demonstrated with MR imaging during the neonatal period. The greater sensitivity of inversion-recovery MR imaging techniques, relative to sonography, for the detection and location of brain alteration associated with hypoxia-ischemia is discussed. □J.A.B.

Makiyama Y, Nishimoto H, Aihara T, Tsubokawa T. **Magnetic resonance angiography in the management of childhood moyamoya disease: first choice for neurovascular scrutiny.** *Surg Neurol* 1994;42:32-40.

The authors performed three-dimensional time-of-flight MR angiography in 12 children with suspected or angiographically proved moyamoya disease. They saw distinct moyamoya vessels in 8 patients, and the primary abnormalities were shown in 10 of 12 patients. They recommend that MR angiography be the choice for selecting patients that undergo conventional angiography. Six figures with MR angiography and angiographic correlation. □J.S.R.

Stroke

Libman RB, Sacco RL, Shi T, Correll JW, Mohr JP. **Outcome after carotid endarterectomy for asymptomatic carotid stenosis.** *Surg Neurol* 1994;41:443-449.

A retrospective cohort study on 215 patients with asymptomatic carotid stenosis in which those who underwent endarterectomy are compared with medical treatment. Authors found no statistically significant overall difference at 5 years between surgically and medically treated patients with asymptomatic carotid stenosis, in terms of subsequent ipsilateral stroke, "any" stroke, or survival free of any stroke.

Yamauchi H, Fukuama H, Ogawa M, Ouchi Y, Kimura J. **Callosal atrophy in patients with lacunar infarction and extensive leukoaraiosis.** *Stroke* 1994;25:1788-1793.

Evaluation of the midsagittal corpus callosal area on T1-weighted images in patients with lacunar infarction and extensive white matter abnormalities, compared with the Wechsler Adult Intelligence Scale. The subjects compared with age- and sex-matched controls had significantly smaller callosal area; this also related to intelligence quotient. The authors postulate that callosal atrophy reflects the severity and extent of white matter damage associated with decreased oxygen metabolism. One MR figure. □J.S.R.

Adams HP Jr, Brott T, Crowell RM, et al. **Guidelines for the management of patients with acute ischemic stroke: a statement for healthcare professionals from a special writing group of the Stroke Council, American Heart Association.** *Stroke* 1994;25:1901.

This is a primer for primary-care physicians, emergency physicians, and neurologists who take care of patients during the first few hours after stroke. It gives a nice overview of the current state of general early supportive care, as well as recommendations concerning antiplatelet and/or thrombotic therapy. There are also 179 references. □J.S.R.

Schomer DF, Marks MP, Steinberg GK, et al. **The anatomy of the posterior communicating artery as a risk factor for ischemic cerebral infarction.** *N Engl J Med* 1994;330:1565-1570

A group of Stanford neuroradiologists (plus one neurosurgeon and some statisticians) looked at 29 patients with at least one occluded internal carotid artery. Using spin-echo sequences and three-dimensional phase-contrast MR angiography, the authors found no watershed infarcts in patients with large posterior communicating arteries on the sides of the occluded carotids, and many watershed infarcts in patients with small posterior communicating arteries. The article is erudite, interesting, and nicely illustrated, but the authors are coy about the clinical implications of their findings. □J.L.W.

Cerebral Blood Flow

Mandai K, Sueyoshi K, Fukunaga R, et al. **Evaluation of cerebral vasoreactivity by three-dimensional time-of-flight magnetic resonance angiography.** *Stroke* 1994;25:1807-1811.

The authors examined volunteers and patients before and after administration of acetazolamide and analyzed the data to show vasoreactivity. The arterial trees of the anterior middle and posterior cerebrals were measured in terms of pixel counts before and after acetazolamide administration. They noted normal vasoreactivity of the right middle cerebral artery distribution of 71% and of the left 74%. They noted less vasoreactivity in patients who had stenotic middle cerebral arteries than in those who had nonstenotic arteries. They conclude that this is potentially useful because it provides the vascular anatomy but also can access the vasoreactivity of individual arterial territories. One MR figure. □J.S.R.

Sturzenegger M, Newell DW, Douville C, Byrd S, Schoonover K. **Dynamic transcranial Doppler assessment of positional vertebrobasilar ischemia.** *Stroke* 1994;25:1776-1783.

Transcranial Doppler is used to look at the P-1 segments bilaterally and during different head movements of 14 patients being evaluated for hemodynamic vertebrobasilar ischemia. Four patients had a severe drop of posterior cerebral blood flow with reactive hyperemia with head rotation to one side. The symptoms and the blood flow changes could be reproduced. Angiography did confirm severe vertebral artery obstruction during head rotation. The authors recommend transcranial monitoring of these hemodynamic findings as a screening method to identify patients with true positional vertebrobasilar hemodynamic insufficiency in the posterior circulation. They succinctly discuss the advantages and disadvantages of this technique. Four figures. □J.S.R.

Neck and Nasopharynx

Neumann DR, MacIntyre WJ, Esselstyn CB, et al. **Preoperative imaging of a parathyroid carcinoma by positron emission tomography.** *Ann Otol Rhinol Laryngol* 1994;103:741-745.

Fludeoxyglucose F18 uptake was noted to be substantially increased in the right lower neck before surgical exploration, which revealed a parathyroid carcinoma. The authors hypothesized that the relative degree of fludeoxyglucose F18 uptake may correspond to histologic grade allowing for differentiation of benign from malignant parathyroid tumors. Nonspecifically abnormal technetium-thallium subtraction scan and contrast-enhanced CT are also illustrated. □J.D.S.

Minotti AM, Kountakis SE, Stiernberg CM. **Paraneoplastic syndromes in patients with head and neck cancer.** *Am J Otolaryngol* 1994;15:336-343.

This purely clinical article extensively reviews paraneoplastic syndromes associated with squamous cell carcinoma, lymphoma, and thymoma, as well as thyroid and parathyroid neoplasms, glomus tumors, and neuroblastomas. □J.D.S.

Soylu L, Ozcan C, Cetik F, et al. **Small cell carcinoma of the larynx.** *Am J Otolaryngol* 1994;15:375-378.

Small-cell carcinomas account for 25% to 36% of all lung cancers, and only 4% occur in extrapulmonary sites such as the larynx. Oat cell carcinoma is the most well-known pathologic subtype. Satisfactory-quality axial CT scans demonstrate a subglottic mass in one patient and a supraglottic mass in another. This lesion is rare in the larynx and is associated with early, widespread metastases. The tumor is believed to arise from argyrophilic Kulchitsky cells in the laryngeal mucosa. □J.D.S.

O'Halloran LR, Lusk RP. **Amyloidosis of the larynx in a child.** *Ann Otol Rhinol Laryngol* 1994;103:590-594.

A 9-year-old girl presented with a 3- to 4-week history of progressive hoarseness. Axial CT demonstrates thickening of the left true cord with evidence of infiltration of the paralaryngeal space. Coronal T1-weighted MR demonstrates that the lesion enhanced with gadolinium. Very unusual case; the authors indicate that only three cases have been reported in children. □J.D.S.

Temporal Bone

Clerico DM, Jahn AF, Fontanella S. **Osteoma of the internal auditory canal: case report and literature review.** *Ann Otol Rhinol Laryngol* 1994;103:619–623.

Stenosis of the right internal auditory canal secondary to a hyperostotic lesion arising from the posteromedial aspect of the internal auditory canal was discovered with axial CT (illustrated) in a 59-year-old woman with a history of severe vertigo. At surgery, a bilobed bony mass was found in this location associated with a tethered loop of the anterior internal carotid artery between the two lobes compressing the vestibulocochlear neural bundle. Histologic examination was consistent with osteoma. The authors hypothesize that constant pulsations of the aberrant anterior internal carotid artery along the posterior wall of the internal auditory canal may have caused periosteal irritation and induced new bone formation. They indicate that MR (not illustrated) failed to reveal any abnormal or pathologic process, even in retrospect. □J.D.S.

Tang A, Parnes LS. **X-linked progressive mixed hearing loss: computed tomography findings.** *Ann Otol Rhinol Laryngol* 1994;103:655–657.

High-quality axial CT images demonstrate symmetric bulbous lateral internal auditory canals and absent bone partition between the fundus and basal cochlear turn in two boys with progressive bilateral mixed hearing loss. The authors emphasize the strong association of perilymphatic gushers during stapes manipulation as intracranial pressure is directly transmitted through the perilymphatic space to the stapes footplate in these patients. The cochlear aqueducts were normal bilaterally in both patients. The conductive component of the hearing loss is the result of the increased pressure within the vestibule. Superb addition to the literature on this subject. □J.D.S.

Lewis ML, Weber AL, McKenna MJ. **Reparative cell granuloma of the temporal bone.** *Ann Otol Rhinol Laryngol* 1994;103:826–828.

High-quality axial and coronal CT images demonstrate a lytic lesion at the petrosquamous junction on the left in a patient with an otoscopically seen mass in the left external auditory canal. The lesion extended into the epitympanum. An axial T2-weighted image and a coronal enhanced T1-weighted image revealed that the mass has a short T2 relaxation time and faintly enhanced with gadolinium. These images also revealed impingement on the under-surface of the temporal lobe. Reparative cell granuloma was diagnosed pathologically. There was a history of trauma 3 years earlier. There is a rather scattered discussion of other giant cell lesions. □J.D.S.

Strasnick B, Glasscock ME, Haynes D, McMenomey SO, Minor LB. **The natural history of untreated acoustic neuromas.** *Laryngoscope* 1994;104:1115–1119.

Since 1979, 51 patients with radiographic evidence of acoustic neuroma were prospectively followed. Patients were selected for this conservative approach based on age, medical condition, tumor size, and other factors. A significant number of patients may be safely followed with regular imaging studies and never require treatment. □R.B.L.

Nose, Paranasal Sinuses, Face, and Oral Cavity

Yellin SA, Weiss MH, O'Malley B, Weingarten K. **Massive concha bullosa masquerading as an intranasal tumor.** *Ann Otol Rhinol Laryngol* 1994;103:658–659.

Axial CT scan and coronal T1-weighted MR image demonstrate an expansile mass in the right nasal cavity with secondary obstructive debris in the right frontal sinus. At surgery, a massive infected concha bullosa was identified. The thin bone rim seen on CT could have alerted the imaging specialist to the true nature of the lesion. Interestingly, the lesion is hyperintense on T1-weighted images, presumably reflecting its long-standing nature. □J.D.S.

May M, Levine H, Mester SJ, Schaitkin B. **Complications of endoscopic sinus surgery: analysis of 2108 patients.** *Laryngoscope* 1994;104:1080–1083.

The incidence of complications of 2108 patients undergoing endoscopic sinus surgery is compared with that in 11 series of other patients undergoing endoscopic sinus surgery and 6 series of patients who underwent traditional endonasal sinus surgery. The incidence of major perioperative complications was 0.85%, with cerebrospinal fluid leak being the most common. Other minor complications were orbital penetration and middle turbinate adhesions. There were no significant differences in major complications between this series and the other two groups. □R.B.L.

Anon JB, Lipman SP, Oppenheim D, Halt RA. **Computer-assisted endoscopic sinus surgery.** *Laryngoscope* 1994;104:901–905

The authors describe the use of an articulated arm with a computer graphics system for display of segmented and rendered three-dimensional computed tomographic data during endoscopic sinus surgery. □R.B.L.

Salivary Glands

Laccourreye O, Bely N, Halimi P, Guimaraes R, Prasnu D. **Cavernous sinus involvement from recurrent adenoid cystic carcinoma.** *Ann Otol Rhinol Laryngol* 1994;103:822–825.

Adenoid cystic carcinoma is the most common malignant neoplasm of the minor salivary glands; these lesions frequently originate in the palate. A 37-year-old woman presented with right facial pain, ptosis, and hypesthesia of V-2 5 years after resection of an adenoid cystic carcinoma of the hard palate. Four high-quality CT images and four high-quality enhanced MR images beautifully demonstrate involvement of the pterygopalatine fossa, sphenopalatine foramen, inferior orbital fissure, vidian canal, and Meckel's cave. There is also widening of the foramen rotundum and vidian canal. MR demonstrates enlargement of the right cavernous sinus. □J.D.S.