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

Trauma

Zumkeller M, Behrmann R, Heissler HE, Dietz H. **Computed tomographic criteria and survival rate for patients with acute subdural hematoma.** *Neurosurgery* 1996;39: 708–713

Among 174 patients with acute subdural hematomas, hematoma thickness exceeding 18 mm was associated with survival rates that progressively fell below 50%. A 50% survival rate was reached when the midline shift reached 50%, and survival fell to zero when the shift reached 28 mm. If the midline shift was less than 3 mm more than the thickness of the subdural, survival rate progressively declined from the 50% level.□J.A.B.

Degenerative and Metabolic Disease and Aging

Longstreth WT Jr, Manolio TA, Arnold A, et al. **Clinical correlates of white matter findings on cranial magnetic resonance imaging of 3301 elderly people.** *Stroke* 1996; 27:1274–1282

White matter findings on MR images of elderly patients result from injury to the long penetrating arteries of the brain, and correlate with age, silent stroke, hypertension, spirometry, and income. They should not be considered benign because the higher the white matter grade the more likely that a subject will have impaired cognitive function and gait.□J.S.R.

Nakano H, Bandoh K, Miyaoka M, Sato K. **Evaluation of hydrocephalic periventricular radiolucency by dynamic computed tomography and xenon-computed tomography.** *Neurosurgery* 1996;39:758–763

In 14 patients with dementia, ataxia, incontinence, and CT evidence of periventricular radiolucency, dynamic CT imaging was accomplished after the intravenous administration of iodinated contrast. Attenuation values were determined in the thalamus and periventricular frontal white matter. The difference between bolus arrival time at the thalamus and arrival time in the periventricular white matter was calculated. The relatively short thalamus–white matter arrival time differences in four patients, and the correlation of this finding with absence of favorable response to shunting, is discussed.□J.A.B.

Mammi S, Filipi M, Martinelli V, et al. **Correlation between brain MRI lesion volume and disability in patients with multiple sclerosis.** *Acta Neurol Scand* 1966;94:93–96

The authors correlated the clinical status of patients with multiple sclerosis (MS) and their degree of disability with the volume of the lesions as seen on MR imaging. Patients with secondary progressive MS had larger volume loads than patients with benign MS or those with relapsing-remitting MS. Also patients with secondary progressive or relapsing-remitting MS were more disabled than patients with benign MS or primary progressive MS.□S.M.W.

Vascular Lesions and Malformations

Pozzati E, Giangaspero F, Marliani F, Acciarri N. **Occult cerebrovascular malformations after irradiation.** *Neurosurgery* 1996;39:677–684

The development of occult or hemorrhagic vascular malformations within the port of radiation therapy in five patients after an interval of 3 to 9 years is discussed and MR images are presented. The histologic findings of hemorrhagic and nonhemorrhagic lesions, similar to a combination of cavernous malformations with closely packed vascular space and hemosiderin deposition, but with additional telangiectatic changes in adjacent brain, are illustrated. The relationship of histologic findings to possible pathogenesis is succinctly discussed. Recent literature regarding occult vascular malformations is reviewed. □J.A.B.

Schievink WI, Mokri B, Piepgras DG, Gittenberger-de Groot AC. **Intracranial aneurysms and cervicocephalic arterial dissections associated with congenital heart disease.** *Neurosurgery* 1996;39:685–690

Neural crest cells are important in early cardiac development and for development of the muscular arteries of the head and neck. Abnormality of the neural crest itself is postulated to be the mechanism for a newly observed high concordance, especially in adolescence, of congenital heart disease and the occurrence of intracranial aneurysms or arterial dissection of vessels of the head and neck. Experience with 14 patients is documented.□J.A.B.

From Miami (Fla) Children's Hospital (N.A.), Primary Children's Medical Center, Salt Lake City, Utah (R.S.B.), University Hospital, Ann Arbor, Mich (J.A.B.), Bowman Gray School of Medicine, Winston-Salem, NC (A.D.E.), New York (NY) University Medical Center (A.E.G.), Hospital of the University of Pennsylvania, Philadelphia (D.B.H.), Medical College of Wisconsin, Milwaukee (V.M.H.), University of California at Los Angeles School of Medicine (R.B.L.), the Cleveland (Ohio) Clinic Foundation (J.S.R.), the Germantown Hospital and Medical Center, Philadelphia, Pa (J.D.S.), the University of Pittsburgh (Pa) School of Medicine (J.L.W.), and New England Medical Center Hospital, Boston, Mass (S.M.W.).

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Young WL, Kader A, Ornstein E, et al. **Cerebral hyperemia after arteriovenous malformation resection is related to "breakthrough" complications but not to feeding artery pressure.** *Neurosurgery* 1996;38:1085–1095

For 152 surgeries for cerebral arteriovenous malformations (AVMs), cerebral blood flow (CBF) was measured during and after surgery using xenon 133. No relationship between CBF changes after resection and preresection feeding vessel mean arterial pressure was demonstrated. Additionally, changes in CBF that occurred after surgery were global, even in patients in whom symptoms developed that would otherwise be characterized as normal perfusion pressure breakthrough (NPPB). The concept of NPPB is discussed. Other processes potentially responsible for neurologic change after AVM resection/embolization are presented.□J.A.B.

Mayer PL, Awad IA, Todor R, et al. **Misdiagnosis of symptomatic cerebral aneurysm: prevalence and correlation with outcome at four institutions.** *Stroke* 1996;27:1558–1563

Consecutive patients with symptomatic cerebral aneurysms were treated at four tertiary-care neurosurgical services in a 19-month period. Fifty-four of 217 patients were misdiagnosed at initial medical evaluation, including 38% in initially good clinical condition. The misdiagnosed patients were more likely than the correctly diagnosed patients to deteriorate clinically and have a worse overall outcome. The majority of misdiagnoses occurred because the possibility of symptomatic aneurysm was not entertained, and imaging studies were not performed.□J.S.R.

Functional Neuroradiology

Mueller WM, Yetkin FZ, Hammeke TA, et al. **Functional magnetic resonance imaging mapping of the motor cortex in patients with cerebral tumors.** *Neurosurgery* 1996; 39:515–521

Functional MR imaging using echo planar techniques, and procedures for tactile, motor, and language location are presented in this succinct, well-illustrated manuscript. The clinical role of functional imaging for the definitive location of eloquent cortex in patients with cerebral tumors is emphasized.□J.A.B.

Socioeconomics

Alves WA, Macciocchi SN. **Ethical considerations in clinical neuroscience: current concepts in neuroclinical trials.** *Stroke* 1996;27:1903–1909

Useful reference to read before your next institutional review board submission, because the discussion is directed toward ethical concerns that investigators consider and justify before institutional review board submission. □J.S.R.

Temporal Bone

Zhang Q, Jessurun J, Schachern PA, Paparella MM, Fulton S. **Outgrowing schwannomas arising from tympanic segments of the facial nerve.** *Am J Otolaryngol* 1966;17: 311–315

The authors perform a histopathologic examination of 526 ears from their human temporal bone collection. They demonstrated 12 asymptomatic schwannomas that developed from the perineurium at a dehiscence in the facial canal suprajacent to the oval window. The authors indicate that most facial schwannomas arising from the tympanic segment occur in this location. They comment that this type of facial nerve schwannoma constitute the most treacherous type of facial nerve tumor for the inexperienced surgeon because they typically do not present with facial palsy. Rather, symptoms are related to pulsatile tinnitus and conductive hearing loss. Of further concern is that these lesions can be incidentally discovered during surgery for chronic otitis media and might be inadvertently mistaken for granulation tissue.□J.D.S.

Skull and Craniovertebral Junction

Andrews JT, Kountakis SE. **Wegener's granulomatosis of the skull base.** *Am J Otolaryngol* 1996;17:349–352

A 29-year-old woman presented with paresis of the left 9th, 10th, and 12th cranial nerves. Imaging studies showed a retropharyngeal/parapharyngeal mass infiltrating the skull base (enhanced axial T1-weighted MR image included). Biopsy results revealed Wegener granulomatosis. The authors state that the most common head and neck symptom is long-standing nasal obstruction. Septal perforations and saddle-nose deformity should pique clinical suspicion. The classic clinical triad of Wegener granulomatosis is upper and lower respiratory tract and kidney involvement. The classic pathologic triad is granulomatous inflammation, necrosis, and vasculitis. The researchers used the c-ANCA assay, which has a very high specificity for Wegener granulomatosis, in the treatment of this patient.□J.D.S

Spine

Torg JS, Naranja RJ Jr, Pavlov H, Galinat BJ, Warren R, Stine RA. **The relationship of developmental narrowing of the cervical spinal canal to reversible and irreversible injury of the cervical spinal cord in football players.** *J Bone Joint Surg* 1996;78:1308–1314

The authors looked at variable cohorts of football players and a control group to evaluate the relationship between developmentally narrowed cervical canal and reversible and irreversible injury to the cervical cord. They showed that a ratio of the diameter of the spinal canal to that of the vertebral body of 0.8 or less had a high sensitivity for transient neurapraxia. However, this ratio has a low positive predictive value, which precludes its use as a screening mechanism for determining the suitability of an athlete for participation in contact sports.□J.S.R.

Poletti CE. **Third cervical nerve root and ganglion compression: clinical syndrome, surgical anatomy, and pathological findings.** *Neurosurgery* 1996;39:941–949

Normal anatomy of the neural foramen at the C2-3 level, clinical manifestations of C-3 radiculopathy, and the relationship of radiculopathy to hypertrophy of the C2-3 facet joint or medial looping of the vertebral artery are presented. The surgical approach to such lesions is outlined and a differential diagnosis for pain and sensory alteration relating to the C-3 dermatome is presented.□J.A.B.

Scarfò GB, Muzii VF, Mariottini A, Bolognini A, Cartolari R. **Posterior retroextramarginal disc hernia (PREMDH): definition, diagnosis, and treatment.** *Surg Neurol* 1996;46: 205–211

Twenty-six patients had disk herniations with nontraumatic attachment of the ring apophysis. This condition is important to recognize because adequate neural decompression might not be achieved without removal of the associated ring apophysis as well as the herniation. The authors propose two types, a median herniation with a large piece of the ring apophysis being detached, and the lateral type with only a small piece of the apophysis being removed. Eight figures.□J.S.R.

Connolly ES Jr, Winfree CJ, McCormick PC, Cruz M, Stein BM. **Intramedullary spinal cord metastasis: report of three cases and review of the literature.** *Surg Neurol* 1996;46:322–329

A review of three cases of intramedullary metastatic disease presenting as a focal mass. Regardless of the treatment types, many patients survive less than 1 year. There is an extensive review of the literature concerning this entity. Sixty-seven references. Three MR figures. □J.S.R.

Peripheral Nerve and Soft-Tissue Lesions

Kuntz C, Blake L, Britz G, et al. **Magnetic resonance neurography of peripheral nerve lesions in the lower extremity.** *Neurosurgery* 1996;39:750–757

MR neurography, obtained with custom-built phase-array coils, was used to study nine patients with peripheral nerve tumors, intraneural cysts, and traumatic peripheral lesions. The technique precisely depicted the relationship between the peripheral nerves and the lesions. Patients with nerve injuries had increased signal on T2-weighted fast spin-echo and short-tau inversion recovery sequences in the peripheral nerve fascicles. As a reviewer points out, MR neurography will be an important adjunct to the evaluation of peripheral nerve tumors in the future.□S.M.W.

Pediatric Neuroradiology and Congenital Malformations

Gurecki PJ, Holden KR, Sahn EE, Dyer DS, Cure JK. **Developmental neural abnormalities and seizures in epidermal nevus syndrome.** *Dev Med Child Neurol* 1996;38: 716–723

Epidermal nevus syndrome is reviewed from the perspective of etiology, clinical and imaging alterations, prognosis, pathogenesis, and criteria for making the diagnosis. A differential diagnosis of linear cutaneous disorders of childhood that are not related to epidermal nevus syndrome is presented. Get a copy of this manuscript to tuck away for future reference.□J.A.B.

Tuite GF, Evanson J, Chong WK, et al. **The beaten copper cranium: a correlation between intracranial pressure, cranial radiographs, and computed tomographic scans in children with craniosynostosis.** *Neurosurgery* 1996;39: 691–699

In patients with craniosynostosis, the solitary presence of a beaten silver pattern did not correlate with elevated intracranial pressure. A diffuse and severe beaten silver pattern was, however, associated with high intracranial pressure, as were sellar erosion and suture diastasis. Patterns of normal skull markings and their variation with age are discussed.□J.A.B.

Shillito J Jr. **Pediatric lumbar disc surgery: 20 patients under 15 years of age.** *Surg Neurol* 1996;46:14–18

This is a retrospective review of 20 patients under the age of 15 years who had lumbar diskectomy. Initial symptoms were either back pain or almost painless kyphoscoliosis in 80%. Seventy-five percent of the disks were at L5-S1. Significant coincident trauma was seen in 45%. The authors conclude that lumbar disk disease in the first two decades can be missed because of the absence of sciatica. Diskectomy was successful in 88%. Five figures.□J.S.R.

Lowe DW, Gospe SM Jr, Hecht ST. **Spinal arteriovenous malformation presenting as meningitis.** *Dev Med Child Neurol* 1996;38:549–553

The classification of spinal cord AVMs and their clinical presentation in children are reviewed in this concise presentation and discussion of an 8-month-old child with symptoms and cerebrospinal fluid findings initially suggestive of infectious meningitis.□J.A.B.

Deliganis AV, Geyer JR, Berger MS. **Prognostic significance of type 1 neurofibromatosis (von Recklinghausen disease) in childhood optic glioma.** *Neurosurgery* 1996; 38:1114–1119

Among 44 pediatric patients with optic nerve glioma, comparison of those with associated neurofibromatosis type 1 to those without showed a significantly longer time to evidence of tumor progression among patients with neurofibromatosis 1 (8.37 years versus 2.39 years) but no significant difference in survival time (81% versus 76% 10-year survival).□J.A.B.

Wilson JT, Shapiro RH, Wald SL. **Multiple intradural spinal lipomata with intracranial extension.** *Pediatr Neurosurg* 1996;24:5–7

An interesting case report of a 2-month-old infant with an extensive intradural intramedullary lipoma in the upper cervical spinal cord, which extends into the posterior fossa. There are also two additional foci of intradural lipomata at the conus level.□R.S.B.

Fischbein NJ, Prados MD, Wara W, Russo C, Edwards MSB, Barkovich AJ. **Radiologic classifications of brain stem tumors: correlation of magnetic resonance imaging appearance with clinical outcome.** *Pediatr Neurosurg* 1996;24:9–23

A symposium on brain stem tumors in childhood was held in December 1995 at New York University. Several papers from that symposium are published in this and subsequent issues of *Pediatric Neurosurgery* and will be included in this and subsequent entries in the annotated bibliography. This first paper presents a classification scheme developed at the University of California San Francisco based on their 64 patients with brain stem tumors. The authors observe that the most important prognostic factor was whether the tumor was diffuse or focal, the latter having an excellent prognosis regardless of the site of origin. Diffuse pontine tumors have the worst prognosis. The presence or absence of gadolinium enhancement had no significant effect on prognosis.□R.S.B.

Epstein F, Constantini S. **Practical decisions in the treatment of pediatric brain stem tumors.** *Pediatr Neurosurg* 1996;24:24–34

This paper from the NYU symposium on brain stem tumors proposes a preoperative classification for intrinsic brain stem lesions based whether they are diffuse or focal and their site of origin. The paper also describes the surgical approach to each of several categories of brain stem tumor.□R.S.B.

Burger PC. **Pathology of brain stem astrocytomas.** *Pediatr Neurosurg* 1996;24:35–40

This contribution to the NYU symposium on brain stem tumors from the Department of Pathology at Johns Hopkins University divides brain stem tumors into two distinct pathological entities, fibrillary and pilocytic astrocytomas. On imaging studies, the exophytic and cystic astrocytomas were pilocytic and had a predictably benign clinical course.□R.S.B.

Furnari FB, Huang H-JS, Cavenee WK. **Molecular biology of malignant degeneration of astrocytoma.** *Pediatr Neurosurg* 1996;24:41–49

This rather esoteric contribution to the NYU symposium on brain stem tumors details the genetic alterations associated with malignant degeneration of astrocytomas in the brain stem. Heavy reading!□R.S.B.

Allen JC, Siffert J. **Contemporary chemotherapy issues for children with brainstem gliomas.** *Pediatr Neurosurg* 1996;24:98–102

This paper from the NYU symposium reviews the experience from the host institution in radiation therapy and chemotherapy of children with brain stem tumors over a 20-year period. Conventional combination chemotherapy yields a low response rate in the range of 15% to 20%. New, aggressive treatments have also met with disappointment. Newer, even more aggressive treatment is discussed.□R.S.B.

Kurata H, Tamaki N, Sawa H, et al. **Acrania: report of the first surviving case.** *Pediatr Neurosurg* 1996;24:52–54

This is an interesting case report of a surviving neonate born without a bony calvarium (acrania). Images include both prenatal and postnatal ultrasound, x-ray, and MR studies.□R.S.B.

Freeman CR. **Hyperfractionated radiotherapy for diffuse intrinsic brain stem tumors in children.** *Pediatr Neurosurg* 1996;24:103–110

This report discusses the response and complications of three levels of hyperfractionated radiation therapy for intrinsic brain stem tumor. Intermediate and high dose levels were somewhat more effective than low-dose and conventional radiation therapy. However, treatment complications were observed with the high-dose regimen.□R.S.B.

Jallo GI, Morota N, Abbott R. **Introduction of a second working portal for neuroendoscopy.** *Pediatr Neurosurg* 1996;24:56–60

In six endoscopic neurosurgery cases, a second portal was used to allow passage of larger instruments while the surgical field was viewed through an endoscope in the first portal. A thoughtful editorial asks "How many holes in the brain are too many?"□R.S.B.

Domingo Z, Peter J. **Midline developmental abnormalities of the posterior fossa: correlation of classification with outcome.** *Pediatr Neurosurg* 1996;24:111–118

The authors review 50 children with "developmental retrocerebellar cysts of the posterior fossa" treated in their practice over the past 11 years. Despite attempts to classify these fluid collections according to the proposed Barkovich classification, the authors conclude that the theoretical embryologic development of the cyst does not influence the selection of treatment or the surgical outcome after shunt insertion. The most important factor is successful drainage of the fluid collection with a shunt. □R.S.B.

Dias MS, Klein DM, Backstrom JW. **Occipital plagiocephaly: deformation or lambdoid synostosis? I: morphologic analysis and results of unilateral lambdoid craniectomy.** *Pediatr Neurosurg* 1996;24:61–68

Dias MS, Klein DM. **Occipital plagiocephaly-deformation or lambdoid synostosis? II: a unifying theory regarding pathogenesis.** *Pediatr Neurosurg* 1996;24:69–73

These companion articles approach the controversial issue of occipital plagiocephaly, its etiology regarding unilateral lambdoid synostosis, and its treatment. In part I, the authors describe a morphometric technique for analysis of calvarial asymmetry, allowing "an objective and reproducible means of assessing the results of various treatments for this disorder." Part II proposes a "unifying theory" of pathogenesis, that intrauterine and/or postnatal forces are responsible for the primary calvarial deformation. Initially these forces act in a reversible manner, but the deformity can become fixed if allowed to progress untreated. The unilateral sutural changes can be secondary to this process since "true or primary lambdoid synostosis is exceedingly rare."□R.S.B.

Foreman NK, Love S, Thorne R. **Intracranial ependymomas: analysis of prognostic factors in a population-based series.** *Pediatr Neurosurg* 1996;24:119–125

Thirty-one children with intracranial ependymoma treated in a 17-year period in the United Kingdom were reviewed. Favorable factors for survival included supratentorial primary site, low or moderate cellularity, and diagnosis after 1986. Survival was not significantly affected by radiation therapy or chemotherapy. Failure at the primary resection site is the major obstacle to improved cure rates. □R.S.B.

Gerszten PC, Adelson PD, Kondziolka D, Flickinger J, Lunsford LD. **Seizure outcome in children treated for arteriovenous malformations using gamma knife radiosurgery.** *Pediatr Neurosurg* 1996;24:139–144

The Pittsburgh group report their experience with seizure outcome over 7 years with 72 children treated for brain AVMs with gamma knife radiosurgery. Thirteen of 15 patients initially presenting with seizures became seizure free after treatment. The other two patients had improvement in their seizures. In two of the 72 patients, seizures developed after treatment.□R.S.B.

Wang MY, Steinberg GK. **Rapid and near-complete resolution of moyamoya vessels in a patient with moyamoya disease treated with superficial temporal artery–middle cerebral artery bypass.** *Pediatr Neurosurg* 1996;24:145–150

A 5-year-old boy underwent bilateral STA-MCA bypass with unilateral encephaloduroarteriosynangiosis. He subsequently had near-complete resolution of the moyamoya vessels on angiography and a dramatic improvement in cerebral perfusion on xenon-enhanced CT. The discussion of growth factors involved in a angiogenesis is interesting. □R.S.B.

Erşahin Y, Demirtaş E, Mutluer S, Tosum AR, Saydam S. **Split cord malformations: report of three unusual cases.** *Pediatr Neurosurg* 1996;24:155–159

The authors report three unusual cases of combinations of various manifestations of split cord malformation. They refer to the luminary articles by Pang et al (*Neurosurgery* 1992) proposing a unified theory of embryogenesis for split cord malformations and cite these cases as good examples supporting the proposed theory.□R.S.B.

Hari JK, Azzarelli B, Caldemeyer KS. **Malignant fibrous histiocytoma in a 9-year-old girl.** *Pediatr Neurosurg* 1996; 24:160–166

This is a case report of a rare intracranial tumor, a malignant fibrous histiocytoma (a pleomorphic xanthomatous sarcoma) in a 9-year-old girl. The intraaxial hemispheric tumor had a large cyst and two smaller nodules. Interestingly, the solid portion of the tumor was hypointense on T2-weighted images, probably because of the dense connective tissue matrix.□R.S.B.

Deutsch M, Thomas PRM, Kirscher J, et al. **Results of a prospective randomized trial comparing standard dose neuraxis irradiation (3,600 cGy/20) with reduced neuraxis irradiation (2,340 cGy/13) in patients with low-stage medulloblastoma.** *Pediatr Neurosurg* 1996;24:167–177

This is a combined Children's Cancer Group–Pediatric Oncology Group study of 126 pediatric patients with medulloblastoma who had minimal postoperative residual tumor and no evidence of dissemination. These patients were randomized into two different doses of neuraxis irradiation, comparing 3600 cGy with 2340 cGy. (All patients received 5400 cGy to the posterior fossa.) The study was closed after 16 months because there was a statistically significant increase in the number of relapses in the patients randomized to the lower dose of neuraxis irradiation. □R.S.B.

Marymont MH, Geohas J, Tomita T, Strauss L, Brand WN, Mittal BB. **Hyperfractionated craniospinal radiation in medulloblastoma.** *Pediatr Neurosurg* 1996;24:178–184

This paper reports a pilot study of 13 pediatric patients with medulloblastoma or cerebral primitive neuroectodermal tumor who were treated with hyperfractionated craniospinal radiation therapy, the treatment regimen depending on prior treatment history and degree of surgical resection. Both acute/subacute and chronic toxicities were noted. Neuropsychologic complications affected the 3 youngest patients in the study. However, the investigators felt that the survival results were favorable and that this treatment strategy should be further explored as a phase-III randomized trial.□R.S.B.

Kaplan AM, Albright AL, Zimmerman RA, et al. **Brainstem gliomas in children: a children's cancer group review of 119 cases.** *Pediatr Neurosurg* 1996;24:185–192

This paper reports 119 children with brain stem gliomas, both intrinsic and extrinsic. All patients were treated with hyperfractionated radiation therapy (7200 to 7800 cGy). The overall survival was very poor. No correlation with age, sex, clinical symptoms, or signs or tumor grade could be made with survival. Longer survival was only associated with brain stem symptoms present for more than 1 month before diagnosis of the tumor.□R.S.B.