01.08.04

CT und NMR - findings in basilar impression.

Arnold-Chiari and Dandy-Walker-malformation.

A.L. Agnoli, J.C. Tonn, B. Lochner

Sagittal and coronar reformations in CT proved to be very helpful in the evaluation of malformations of the occipito-cervical region and rendered encephalography and myelography unnecessary (Kendall et al: B.J.R. 51, 171-190, 1978, Naidich et al: Neuroradiology 25, 179-197, 1983, Bamberger-Bozo: J. Neuroradiol. 9, 47-70, 1982). NMR provides the best images of patho-anatomical situation. Changes in the soft tissues can be better evaluated. However in order to demonstrate a complete or incomplete intraspinal block the CT after intrathecal contrast medium injection is still necessary. Angiographic study may prove necessary if operative procedures are planned in order to exclude vascular malformation. CT is superior to conventional radiography for postoperative evaluation of extend or completeness of bony resection. Examples of possibilities and limits of modern imaging technics in the diagnosis of congenital malformations of occipito-cervical region will be given.

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01.08.05

MR and CT imaging in various diseases of the brainstem and spinal cord

F. Aichner, F. Gerstenbrand, J. Willeit, K. Twerdy, G. Weiser, K. Wallnoefer and W. Rogalsky

This study attempts to present the current potentials and limitations of MR in the differential diagnosis of spinal cord and brainstem diseases and to delineate some guidelines for the indication and performance of MR examinations of the spinal cord.
The authors have examined 30 patients with brainstem diseases and 40 patients with various spinal cord lesions. All patients had undergone a complete neuroradiologic check up before performing MR. The results of MR and CT were compared with neurosurgical and neuropathological findings.
Several technical considerations are important for optimal MR of the brainstem and the spinal cord:
1. The SE technique is superior to IR technique in yielding optimal contrast. SE images with short TR and short TE provide the best signal-to-noise ratio allowing the highest contrast differentiation between CSF and spinal cord. With larger TE values different soft tissue structures become more pronounced.
2. Using great slice thickness lesions sized less than 1 cm may be missed. On the other hand very thin sections may cause partial volume effects.
3. Best visualization of the spinal cord is obtained by sagittal scans which implies the need for exact positioning of the patients. Zooming is required to receive axial scans of sufficient resolution.
4. A special coil can provide further improving MR resolution.
Important implications of MR of the brainstem and the spinal cord are demonstrated especially with respect to MS, infarction, intramedullary expansive lesions and to central nervous system degeneration.

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01.08.06

BASAL GANGLIA CALCIFICATIONS (FAHR's SYNDROME): CT AND CLINICAL FEATURES IN 6 CASES (NRM IN 3 CASES)

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In our General Hospital, during the last two years, basal ganglia calcifications were visualized by CT as an incidental finding in 25 out of 5560 patients (0.44%).The classic picture of Fahr's syndrome (massive, bilateral and symmetrical calcifications of the basal ganglia. often associated with similar changes in the dentate nuclei of cerebellum) was present only in 6 patients.

Three of these were affected with parathyroid insufficiency (two man, 30 and 58 years old, had idiopathic hypoparathyroidism and one woman. 40 years old. suffered from post-thyroidectomy hypoparathyroidism) without clinical manifestations related to the basal ganglia involvement.

Disturbances of the calcium metabolism were not found in the remaining three patients: a man aged 70, who showed calcifications also in the brain stem but no neurological signs, and two sisters, aged 30 and 34 years, who presented a somato-psychic ipoevolutism and deafness.

In an effort to define further the pathogenetic mechanism of Fahr's Syndrome, an NRM investigation has been carried out in the last three cases.

01.08.07

GENETIC TRANSMISSION OF STRIOPALLIDODENTATE CALCIFICATION

T.I. Oei and J.T.J. Tans

Cerebral calcification can now be detected easily and accurately with computerized tomography (CT). A family exhibiting an unusual pattern of autosomal dominancy (9 of the 23 examined patients were affected) were examined. During a follow-up period of more than 5 years no changes in the symptomatology could be shown. None of the family members, aged from 6 to 70, displayed any neurological sign nor symptom, except one with intermittent gait disturbance of unusual type. Serum calcium, phosphorus and parathormone values were normal, although such laboratory findings do not exclude pseudo(pseudo)hypoparathyroidism. The family tree suggested autosomal dominant heredity with a penetrance rate of about 100%. The most important CT findings were symmetric calcification in nucleus caudatus, globus pallidus, putamen, nucleus dentatus and subcortical in both occipital lobes. There was a tendency toward increased area of calcification with increased age. As far as we know this case is the second familial striopallidodentate calcification without any circumscribed neurological symptomatology.

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