943 THE MOHR AND MAJEWSKI SYNDROMES: OVERLAPPING PHENOTYPES. Kenneth N. Rosenbaum, David L. Valle, and L. Stefan Levin (Spon. by John W. Littlefield). Johns Hopkins Univ. School of Med., Dept. Ped., Baltimore, MD.

The Mohr syndrome (oral-facial-digital syndrome, type II) and the Majewski syndrome (a form of short rib-polydactyly) are currently described as separate dysmorphic syndromes with autosomal recessive inheritance. The Mohr syndrome is characterized by median cleft of the upper lip, cleft tongue, oral hamartomas, bimanual polydactyly, hallucal reduplication and a normal lifespan. The Majewski syndrome is characterized by cleft lip, hypoplastic epiglottis, short ribs, genitourinary anomalies, mesomelic brachymelia, pre- and postaxial polydactyly and death in infancy.

We studied two unrelated female infants with features common to both syndromes. One had median pseudocleft of the upper lip, lingual nodules, short ribs, urogenital sinus, hydrometrocolpos, short tibias and hallucal reduplication. She failed to thrive and died at 4 months of age. The second infant had median pseudocleft of the upper lip, lingual nodules, micrognathia, epiglottic hypoplasia, pre- and postaxial polydactyly and hallucal reduplication. Despite tracheostomy, she died at 11 months of age. On post-mortem exam a single atrium and ventricular septal defect were found. Both infants had orofacial and digital features typical of the Mohr syndrome. However, one had the skeletal and genitourinary abnormalities and the other, the hypoplastic epiglottis of the Majewski syndrome. The presence in our patients of anomalies typical of the Mohr and Majewski syndromes may indicate that these syndromes represent two extremes of the same disorder.

944 NEUROLOGICAL FINDINGS IN 4 SIBLINGS WITH THE KLIPPEL-FEIL SYNDROME. A. David Rothner; Donald Dohn; Meredith Weinstein; and Paul Duchesneau. (Spons. by William Michener). The Cleveland Clinic. Depts. of Child Neurology, Neurosurgery and Neuroradiology. Cleveland, Ohio.

In 1912, Klippel and Feil described a patient with fusion of cervical vertebrae. Three forms exist. We report the neurological problems occurring in four siblings with Type II K-F Syndrome.

A 19 y/o female had respiratory distress at birth requiring tracheostomy. She has whistling respirations, mild spasticity and no brevicollis. Cervical x-rays are abnormal.

An 18 y/o brother has progressive spasticity, speech and swallowing difficulties, brevicollis, and bulbar signs. Myelography revealed spinal cord compression. Posterior and anterior decompression were necessary to prevent progression.

A 14 y/o sister has no symptoms. She has spasticity, brevicollis, and abnormal cervical x-rays.

A 10 y/o sister has severe headache and facial numbness with head turning. She has brisk DTR's, brevicollis, cervical malformation and probable cord compression. The parents have no brevicollis and normal x-rays.

The importance of this malformation lies in the secondary effects produced on the nervous system. Manifestations are those of cord and brain stem compression, weakness, spasticity, staggering, dysmetria, nystagmus, sensory loss and lower cervical nerve involvement. Early recognition, evaluation and surgical treatment is emphasized.

945 COMPUTERIZED TOMOGRAPHIC FINDINGS IN PATIENTS WITH CHILDHOOD HEMIPLEGIA. A. David Rothner: Robert Cruse; Meredith Weinstein: and Samuel Horwitz. The Cleveland Clinic Foundation, Case Western Reserve University. Sections of Child Neurology and Neuroradiology, Cleveland, Ohio. (Spons. by William Michener).

In 1937, Dyke, Davidoff and Masson described nine patients with infantile hemiplegia who showed cerebral hemiatrophy, enlargement of the ventricle on the affected side, displacement of these structures toward the affected side, ipsilateral thickening of the skull and ipsilateral dilatation of the sinuses. The present study documents CT findings in patients with infantile hemiplegia; the CT correlate of the "DDM skull".

54 hemiplegic patients were studied, 34 congenital and 20 acquired. The frequency of complicated pregnancies, low birth weights, mental retardation, seizure disorder, abnormal skull x-ray, and EEG abnormalities were similar to previous studies of hemiplegic patients.

The CT Scans showed either the combination of hemispheric hypoplasia with ventricular enlargement and ipsilateral shift, or a pattern consistent with infarct. In the congenital group these patterns were equally present. In the acquired group infarct was present to a greater degree. No specific etiology could be ascribed to either pattern, although 5 of 6 patients with postnatal trauma showed infarct.

It is concluded that CT Scanning is a useful procedure in documenting cerebral abnormalities in patients with either congenital or acquired hemiplegias. Further correlative studies with regards to etiology are needed.

946 COMBINED IMMUNE DEFICIENCY IN NAGER'S SYNDROME Mohamed H. Shokeir
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We have observed two separate families with Nager's acrofacial dysostosis. Affected individuals in both families displayed evidence of combined immune deficiency of moderate severity. Both B and T cell functions were assayed and showed diminished activities. The patients had chronic mucocutaneous candidiasis and history of repeated bacterial infections. Adenosine deaminase, phosphoribosyl pryophosphorylase and nucleoside phosphorylase enzymatic activities were within normal levels.

The patients came from highly endogamous ethnic groups with parental consanguinity demonstrated in both sibships.

Together with the freedom of parents from similar manifestations and close similarity in affliction this suggests autosomal recessive inheritance.

947 THE MURINE Ah LOCUS AND DYSMORPHOGENESIS. Shu Shum, George H. Lambert, and Daniel W. Nebert, NICHD, NIH, Bethesda, MD. 20014 (SPON. by Joseph Schulman)

Many environmental pollutants and other polycyclic aromatic compounds induce certain cytochrome P-450-mediated monooxygenases which, in turn, metabolize the inducers at increased rates. This induction process, controlled by the Ah locus, is present in almost all tissues of the mouse. Genetic differences that have been shown to be associated with the Ah locus (because of increased steady-state levels of reactive intermediates) include an increased susceptibility to chemical carcinogenesis, mutagenicity, and drug toxicity. There is evidence for the Ah locus in the human. Pregnant mice received a single intraperitoneal injection of 3-methylcholanthrene, 7,12-dimethylbenz[a]anthracene, or benzo[a]pyrene on day 7, day 10, or day 12 of gestation, and the uterine contents were examined on day 18. Striking (3- to more than 10-fold) increases in the incidence of stillborns, resorptions, small for gestational age, and malformations were seen in individuals genetically "responsive" at the Ah locus, compared with individuals genetically "nonresponsive" at this locus. These data suggest that a single gene (or small number of genes) controlling the metabolism of foreign compounds in tissues of the individual fetus rather than of the mother may be important in the etiology of certain birth defects.

948 ORIGIN OF CALVARIAL SUTURES IN RELATION TO DURAL REFLECTIONS: NORMAL DEVELOPMENT AND PREDICTABLE ALTERATIONS SECONDARY TO BRAIN MALFORMATION. David W. Smith and Gian Töndury. University of Washington School of Medicine, Dysmorphology Unit, Department of Pediatrics, Seattle; Anatomisches Institute, University of Zürich, Switzerland.

Studies of normal calvarial morphogenesis in human fetuses were found to support the concepts of Töndury and of Moss. The early growth and form of the brain causes growth stretch on the dura with the development of reflections which extend from the sites of dural attachment at the cranial base and conform to the major recesses in the early brain. The dura is the guiding tissue in the morphogenesis of the overlying calvarium and its major sutures, which develop from 10 to 16 weeks of fetal life. In the quiet zones between the dural reflections ossification occurs, whereas over the reflections of dura no ossification occurs, these being the sites of sutures. Supportive evidence for the role of the dural reflections in determining the sites of sutures was obtained from the evaluation of instances of major brain malformations which must have antedated calvarial morphogenesis. These included holoprosencephaly (13 cases), craniopagus (7 cases) and dicephaly (2 cases). In each case the gross brain malformation gave rise to unusual sites of dural reflection, which were found to coincide with the unusual sites of sutures in the calvarium. Furthermore, a lack of a dural reflection was accompanied by a lack of development of a suture at that site. The relevance of these findings to the evaluation of problems of brain morphogenesis and the diagnosis and management of craniostenosis will be discussed.