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Diastematomyelia in Children: Metrizamide and CT Metrizamide Myelography

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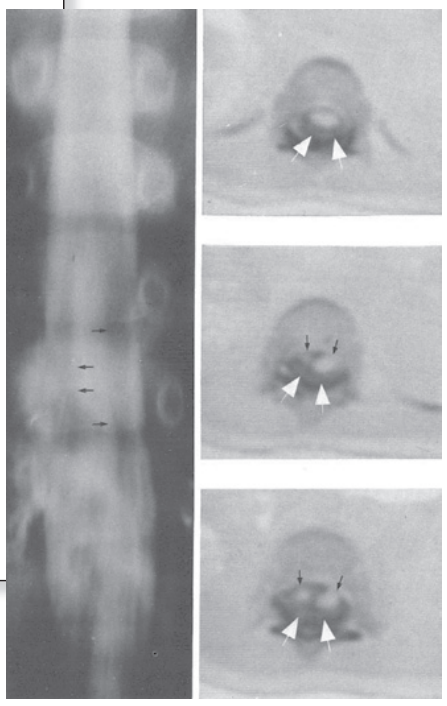
Diastematomyelia is an uncommon dysraphic lesion of the spine which has been diagnosed more frequently since the advent of newer diagnostic methods. A series of 21 cases was examined using metrizamide myelography and computed tomographic metrizamide myelography (CTMM) over a 3-year period. These examinations, in addition to plain radiographs of the spine, have demonstrated certain features of diastematomyelia hitherto unreported. A bony or cartilaginous spur was an uncommon finding, occurring in only six cases. Also, the split spinal cord was found within an unsplit dural sac in 15 cases. Coexistent tethering of the spinal cord, even in the absence of a spur, was present in 16 of the 21 cases. CTMM proved superior to metrizamide myelography in demonstrating the spinal cord anomalies; plain films and CT are complementary in showing the bony anomalies. The radiographic investigative protocol of diastematomyelia includes plain anteroposterior and lateral spine films, metrizamide myelography, and CTMM. Conventional tomography and plain CT are unnecessary; improved density resolution and availability of computed radiographic anteroposterior and lateral scout views will further reduce the need for plain films and intrathecal injection of contrast medium.

Computed tomography (CT), metrizamide myelography (MM), and computed tomographic metrizamide myelography (CTMM) have, in recent years, added a new dimension to the diagnosis of dysraphic lesions of the spine [1–3]. An uncommon condition in this group of anomalies is diastematomyelia, which is anatomically characterized by a longitudinal splitting of the spinal cord at one or more vertebral levels, usually in the lower thoracic and upper lumbar area, sometimes associated with a bony, cartilaginous, or fibrous spur lying within the spinal canal and protruding through the dural sac into the spinal cord. This is distinct from diplomyelia which is a true duplication of the spinal cord with two discrete dural sacs and two pairs of anterior and posterior nerve roots, and which is very rarely diagnosed during life.



Intravenous Angiography Using Digital Video Subtraction: Intravenous Cervicocerebrovascular Angiography

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The clinical application of intravenous angiography to study the cervicocerebrovascular system using the digital video subtraction system described in a companion article is reported. About 0.75 ml/kg of a standard 76% iodine contrast solution is injected into an antecubital vein using a power injector. Then 15–20 exposures of the head and neck region at a 1/sec rate are made on the image intensifier. The images are recorded by a high performance video system and the output signal is digitized for subsequent computer manipulation. The subtraction images of these vessels produced by the computer show the vessels clearly, even though they contain very low concentrations of contrast media. Standard exposure factors of 75–80 kVp, 9–10 msec at 800–1,000 mA are used. Clinically pertinent features of the data alteration and flow through the system and the step-by-step computer procedures used to achieve and analyze the various forms of subtracted images are described.

Five experimental and clinical cases demonstrate app… cocerebrovascular disease: (1) evaluating the effects of… on atherosclerosis; (2) providing a screening angiograph… tomatic bruits and/or positive noninvasive studies; (3) … significant generalized vascular disease either preclu… contraindications to transarterial catheterization; (4) ev… tients in whom standard angiography has higher risk; … asymptomatic patients who are medically at higher risk … lesions. Numerous examples of the various types of imag… (1) linear subtraction; (2) logarithmic subtraction; (3) alt… enhancement (map slope); (4) the usefulness of a series… (5) the importance of multiple projections with this tech…

Intravenous angiography has added to the armam… ogist for evaluation of atherosclerotic disease [1–… satisfactory intravenous angiographic technique, th… visualizing and screening the entire cervicocerebro… traarterial angiography. Although selective transarter… to play a major role in the detailed radiographic de… intracranial lesions, it is not appropriately used as… vessels. Because it has a small, but essentially in… skilled hands, it is a test with inappropriately high r… asymptomatic patients. This morbidity increases sig… Intravenous angiography provides an alternative met… patients in whom either a screening examination is … techniques are contraindicated or unachievable.

With the system described in our companion p… clinically diagnostic images of the cervical arteries ar… segments. We can use these images to make … operative versus nonoperative care in about 80% o… nous angiograms, questionably positive findings were… angiography.

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