Purpose: A radiography system especially developed for specimen radiography and allowing maximal 20-fold magnification is presented. The efficiency of the system was tested and compared with that of conventional magnification mammography systems. *Methods:* Twenty-three surgical and 90 core biopsies of the breast were examined for detection of microcalcifications. As criteria the number of identifiable calcifications, their shape and configuration as well as tissue contrast were chosen. *Results:* The new technique detected about 40% more microcalcifications, 20% more and 50% more surgical biopsies containing calcifications. Thus, in a few cases, additional core biopsies were unnecessary. Moreover, this new system yielded additional information for the pathologist and surgeon concerning the exact location of suspicious lesions that facilitated working up specimens, or indicated additional surgical removal in special cases. *Conclusions:* By identification of malignant lesions not detectable with conventional magnification radiography systems, as well as a more exact localization of suspicious lesions, false-negative results may be reduced.

Authors' Abstract

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MRI DIAGNOSIS OF INVASION OF THE CAVERNOUS SINUS BY PITUITARY ADENOMAS (In French)

Moreau L, Cottier Jph, Destrieux Ch, et al. (Département de Radiologie Adultes, Hôpital Bretonneau, CHU Tours, F-37044 Tours Cedex, France). J Radiol 1998;79:241–246.

Purpose: To evaluate the preoperative MRI criteria of a sinus cavernous invasion by a pituitary adenoma. *Material and Methods:* Study of 102 cavernous sinuses among 51 patients who had had a surgical cure of pituitary adenoma. Thirteen patients had gical invasion of the cavernous sinus. *Results:* A certain number of signs eliminated cavernous sinus invasion. The best means consisted of not crossing the intercarotid line [Sensitivity (Se} = 100%, Specificity (Sp) = 85% and Negative Predictive Value (NPV) = 100%]. The others means implied: not going past twelve o'clock on the internal carotid artery-ICA (NPV = 97.1%), symmetrical size of the cavernous sinus (NPV = 92.5%), non-convexity of the lateral wall (NPV = 90.2%), visualization of at least two venous groups of the laterosellar space (NPV = 90.2%) and finally, non-displacement of the ICA (NPV = 89.2%). The best criteria for diagnosis were passing by the intra and supracavernous ICA lateral tangent (Se = 84.6%, Sp = 95%) and the percentage of ICA encasement by the adenoma exceeding 25% (Se = 92.3%, Sp = 85%). *Conclusion:* Except the total encasement of the intracavernous ICA, the cavernous sinus can be invaded when the lateral tangent of the supra and the intracavernous ICA is crossed, and also when the percentage of ICA encasement exceeds 25%.

Authors' Abstract

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THE ROLE OF TRANSCRANIAL DOPPLER SONOGRAPHY IN DIAGNOSTIC NEURORADIOLOGY (In French)

Fontaine S, Lafortune M, Cattin F, Patriquin H (CHUM, Pavillon Saint-Luc, Montréal, PQ, Canada). J Radiol 1998;79:213–225.

This very informative article reviews the role of Doppler ultrasonography (DU) in the evaluation of the intracranial circulation. The conclusions are based on the experience of the authors and on the review of the literature. Discussed are the technical aspects, equipment, and modalities of examination. Illustrated are images obtained by DU in the evaluation of the intracranial arteries: the middle cerebral, the anterior cerebral, and the posterior cerebral arteries; the vertebral and basilar arteries; the carotid siphon and the ophthalmic artery. Reported also are the parameters followed in DU and the principles on which was based the interpretation of the images. In depth are discussed the indications of intracranial DU in the fetus, the newborn, and in childhood. Evaluated is DU in the demonstration of the intracranial vasculature in the adult in the presence of an intracranial arterial stenosis, in the study of the collateral circulation, of a cerebral vasospasm, of intracranial aneurysms, in the detection of cerebral emboli, and of arteriovenous malformations. Clear and demonstrative are the numerous illustrations. The literature is extensive and up to date (97 references).

Antonio F. Govoni

PII S0899-7071(98)00042-4

GADOLINIUM-ENHANCED DYNAMIC MRI OF THE FRACTURED CARPAL SCAPHOID: PRELIMINARY RESULTS

Munk PL, Lee MJ, Janzen DL, et al. (Department of Radiology and Health Sciences Centre, 855 West

12th Avenue, Vancouver, BC V5Z 1M9, Canada). Austral Radiol 1998;42:10–15.

The aim of the present report was to evaluate the vascularity of fracture fragments of the fractured carpal scaphoid in the acute (<4 weeks) and chronic (>3 months) phases using a gadolinium-enhanced dynamic magnetic resonance imaging (MRI) sequence. Eight patients with acute scaphoid fractures, six patients with chronic scaphoid fractures, and three control patients without fractures were evaluated using a T1-weighted fast spoiled gradient recalled acquisition (fSPGR) sequence with gadolinium-DTPA enhancement (0.1 mmol/kg body weight). Signal intensity over time plots were obtained using region of interest measurements from both fracture fragments. Enhancement factors (EF) were then calculated from the plots. No enhancement of the scaphoid was seen in control subjects (EF: distal scaphoid pole 1.04 ± 0.01, proximal pole 1.07 ± 0.08). In acute fracture patients, enhancement of the distal pole was greater than that of the proximal in all cases but one in which the two poles enhanced in a similar fashion (EF: distal 1.99 ± 0.77, proximal 1.43 ± 0.99). In chronic fracture patients the enhancement pattern was reversed, as the proximal pole enhanced to a greater degree than the distal with the exception of one case where both poles enhanced equally (EF: distal 1.74 ± 0.52, proximal 2.64 ± 0.50). Using a two-tailed non-parametric Mann-Whitney U-test, the difference in enhancement of the proximal poles between the acute and chronic groups was found to be highly significant ($p < 0.003$). Dynamic contrast-enhanced (fSPGR) MRI demonstrates significant differences in the enhancement patterns of the scaphoid when chronic and acute fractures are compared.

Authors' Abstract

PII S0899-7071(98)00043-6

MAGNETIC RESONANCE IMAGING OF THE SUPRASPINATUS TENDON: THE SIGNIFICANCE OF SIGNAL INTENSITY ALTERATIONS AT THE "CRITICAL ZONE"

Jones AO (Maroubra Medical Imaging and X-Ray, 2/830 Anzac Parade, Maroubra Jn, NSW 2035, Australia). Austral Radiol 1998;42:106–113.

A pictorial essay of normal and abnormal appearances of the supraspinatus tendon is presented. An increased signal intensity within the supraspinatus tendon on short TE sequences is not necessarily abnormal. Increased signal seen within the tendon on modern magnetic resonance imaging (MRI) units is often due to a phenomenon known as the "magic angle" effect. Only when supraspinatus tendon signal intensity is greater than that of muscle on long TE (T2) sequences should it be considered to be abnormal. The physical basis for the magic angle effect is outlined and a pictorial essay demonstrating the practical implications of this effect is presented. A comparison is made to signal intensity changes seen with partial and complete tears of the supraspinatus tendon. Correlation is made with important morphologic features of partial or complete tears.

Authors' Abstract

PII S0899-7071(98)00044-8

OSSEOUS TUMORS OF THE FOOT: A PICTORIAL ESSAY

Mitchell MJ, Logan PM (Queen Elizabeth II Health Sciences Centre, 1278 Tower Rd., Halifax NS, B3H 2Y9, Canada) Can Assoc Radiol J 1998;49:90–101.

This informative pictorial essay reviews the radiographic images demonstrated in tumors involving the foot and originating from bone-forming cells: osteoid osteoma, osteosarcoma; from the cartilage-forming cells: osteochondroma, enchondroma, chondroblastoma, chondromixoid fibroma, chondrosarcoma; from the fibrous connective tissue: fibrosarcoma; tumors of histiocytic origin; of fatty tissue origin; of marrow origin: multiple myeloma, non-Hodgkins lymphoma, metastases; tumors of unknown origin: unicameral bone cyst, aneurysmal bone cyst, giant cell tumor, and Ewing's sarcoma. Demonstrative is the iconography.

Antonio F. Govoni

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POSTOPERATIVE PATELLAR TENDON HEALING: AN ULTRASOUND STUDY

Kiss ZS, Kellaway DP, Cook JI, et al. (East Melbourne Radiology, Mercy Private Hospital, 141 Grey Street, East Melbourne, Vic. 3002, Australia). Austral Radiol 1998;42:28–32.

The patellar tendon donor site of 20 patients who underwent anterior cruciate ligament (ACL) reconstruction using the patellar tendon tissue as autograft was examined with high resolution 7.5 MHz ultrasound.