included an exporatory puncture of a frontal bone cyst and a incisional biopsy of the skull. Histology result verified the tentative diagnosis of fibrous dysplasia with recurrent bleedings into cystic bones of the skull. The patient was known to have craniofascial fibrous dysplasia with additional involvement of the frontal and intermediate cranial base, the posterior ethmoidal labyrinth, the sphenoidal and maxillary sinus. Eye examination showed a reduced visual acuity in the right eye without defects of the visual field. MR imaging demonstrated a fluid-filled cystic cavity of the orbital frontal bone shifting the globe downwards. Fluid-fluid levels may represent blood and serous products within the lesion. Conservative management seemed justified since the symptoms decreased over several weeks. Five months later, the patient reported similar symptoms of the left side. MR imaging revealed a large cystic lesion in the left orbital frontal bone and cystic degeneration of the posterior part of the ethmoidal labyrinth.
Discussion: In craniofascial fibrous dysplasia, MR imaging features can be delineate lesions with different signal intensities on T1- and T2-weighted images. Follow-up studies can be easily performed without additional radiation exposure. The total extent of osseous involvement can be determined and may be helpful for the decision of operative or conservative therapy.

DIAGNOSIS OF POPLITEAL CYSTS: PITFALLS WITH SONOGRAPHY

T.Helbich, F.Kainberger, M.Breitenseher, S.Trattnig, G.Seidl
Universitätsklinik für Radiodiagnostik, Vienna, Austria

Introduction: To evaluate different sonographic appearances of popliteal cysts and to demonstrate specific patterns of cyst formation.
Material and methods: 67 patients (41 male, 28 female, 5-81 years) with osteoarthritis, arthritis, or other reasons of popliteal swelling of the knee underwent high-resolution real time sonography (5-7 MHz linear array transducer, computed sonography system with color Doppler option). US findings were compared to clinical findings, MRI (in case of suspected tumor or any case of unclear popliteal swelling), or angiography (in case of suspected vascular disease).
Results: Popliteal cysts were documented sonographically in 64% of all patients, with a correct clinical diagnosis of a cyst formation in 57%. Four distinct patterns of cyst formation depending on the specific anatomic situation and underlying diseases could be found: Beak-shaped, cross-shaped, slit-shaped and grape-like forms. Solid neoplasms occurred in three cases, popliteal artery aneurysm in one case.
Discussion: US should be performed as first imaging modality together with plain film radiography in case of popliteal swelling. The investigators have to be familiar with different patterns of popliteal cyst formation to differentiate cysts from solid neoplasm and vascular lesions properly.

DEVELOPMENT OF A KNOWLEDGE-ACQUISITION TOOL FOR A RADIOLOGIC EXPERT SYSTEM

F Kainberger, K.Bögl, I Steingruber, A.Gahleitner, J.Kettenbach, S.Kreuzer, F.Lomoschitz, K.P.Adlassnig, H.Imhof
Univ.-Klinik für Radiodiagnostik, Institut für Medizinische Computerwissenschaften, Vienna, Austria

Introduction: Development of a knowledge base is a key-problem of all expert systems. In a time-consuming process, the complex clincial knowledge has to be transformed by identification, formalisation, and testing. Aim of the study was to design a structured software for the radiological knowledge base of the Medframe/CADIAG expert system in rheumatology.
Material and methods: A diagnosis-oriented shell was developed for data-input and pre-processing to establish a hierarchy of signs, to group them, and to quantify the degree of confirmation. Descriptive statistics of the gathered values allowed the experts to perform cross-reading and adapt their opinions to each other. Finally, the data set was tested and refined with a case-collection (48 conventional radiograms of the hips).
Results: Testing with five radiologists and two information technologists showed that the thinking worlds of radiology and informatics could be combined sufficiently. The experts are possible to operate with only basic education in informatics. With its module-based construction the tool may be adapted according to specific clinical needs.
Discussion: Compared to other systems of knowledge acquisition, this access of establishing a knowledge base proved to be effective, feasible, and rapid. It may be used for similar expert systems in other fields of medical diagnosis.

NEW ULTRASOUND CHECKING POSSIBILITIES: ULTRASOUND ANGIO AND HISTOGRAM AT THE CHECKING OF THE SHOULDER-JOINT

P.N.Kaposi, P.G.Reti
X-Ray Department, National Institute for Rheumatology and Physiotherapy, Budapest, Hungary

It is the aim of our poster to drive one's attention to a newly introduced sonography method which is ultrasound angiography and a previously known, but not widely used method the histogram. We tried to introduce the use of histogram and ultrasound angiography to our institute's rheumatological patients having shoulder joint problems. We used Toshiba Sonolayer SSH-140A instrument and 7,5 MHz linear probe. We examined over 60 patients with this method together with the traditional gray-scale sonography, sometimes with histogram too. We assessed all the advantages of above mentioned ultrasound methods which further widens the ultrasound diagnostic tools on the field of musculoskeletal system examinations.
The ultrasound angiography: 1. proves a sensitive means of assessing soft-tissue perfusion at the microvascular level. 2. is based on the fact, that the ultrasound angiography essentially is angle independent, free from aliasing and effectively extends the dynamic range over of the conventional colour Doppler imaging. 3. supplemented with histogram offers an objective evaluation of the effectiveness of the treatment. 4. helps in differentiating between soft-tissue hyperemia due to inflammation, pseudotumor of tumor.
The histogram: 1. enables the objective evaluation and the comparison of the tissular echogenicity and homogenity. 2. depicts objectively of the effectiveness of the treatment applied. 3. in case of effusion allows deductions to be made concerning their content.

SYNOVITIS AND BONE EROSIONS IN THE RHEUMATOID WRIST AND METACARPOPHALANGEAL JOINTS. OPTIMAL VISUALISATION BY MRI.

M.Klarlund, M.Østergaard, K.Sørensen, I.Lorenzen
The Danish Research Center of Magnetic Resonance, and the Departments of Rheumatology and Radiology, Hvidovre Hospital, University of Copenhagen, Denmark

Introduction: To examine the potential of different MRI-techniques for evaluation of the wrist and metacarpophalangeal joints in patients with rheumatoid arthritis (RA).
Material and methods: MRI of metacarpophalangeal (MCP) and wrist joints of 16 patient with RA and 2 controls was performed on a 1.0 T Siemens Impact MR-unit, using a dedicated wrap-around coil. Continuous coronal and transversal Tl-weighted spin echo (SE) (TR/TE/slice thickness = 600ms/15ms/3mm) MR-images were obtained before and after intravenous Gadolinium-DTPA (Gd-DTPA) (0.05 mmol/kg bw) injection. Moreover T2-weighted SE (TR/TE/flip angle/slice thickness = 4500ms/90ms/180°/3mm), T2-weighted turbo SE (TR/TE/flip angle/slice thickness =2200ms/70ms/90°/3mm), 3D-FLASH (TR/TE/flip angle/slice thickness 30ms/12ms/70°/0.7mm), 3D-DESS (TR/TE/flip angle/slice thickness = 30ms/12ms/70°/1.5mm) and 2D-FLASH (TR/TE/flip angle/slice thickness 500ms/l0ms/60°/3mm), (FOV 120-140mm) sequences were applied. The presence or absence of erosions was determined in each bone of the wrist and in each of four quadrants in each MCP joint, on MR images and radiographs. Assessment of synovia hypertrophy in the MCP joints was done on transversal post GD-DTPA Tl-weighted SI images by measuring the maximal width from the bone to the capsule, medially and laterally.
Results: MRI and radiography revealed bone erosions in 42 versus 25 MCP joints and 53 versus 26 of the wrists bones. A positive statistical correlation was found between the duration of RA and the total bone MR-erosion score (Spearman rho=0.59, $p<0.05$) The synovial membrane width in MCP joint with clinical signs of inflammation (swelling) was significantly higher than in joints without clinical swelling (Mann-Whitney, $p<0.05$) T2-weighted sequences enabled distinction of the joint fluid. Only small amounts of synovial fluid were found in the MCP joints, even in the joints with marked synovial hypertrophy. The faster T2-weighted turbo SE sequences appeared equally informative as conventional T2-weighted SE sequences. Cartilage was best defined on the FLASH-2D sequence, as a high signal intensity band.
Discussion: MRI of the finger joints is now possible and may be a useful technique for precise evaluation of joint damage. Pre- and postcontrast Tl-weighted SE sequences in two planes, combined with (turbo) T2-weighted