ABSTRACTS OF CURRENT LITERATURE

Specificity of Localization of Myosin-specific Antibody Fragments in Experimental Myocardial Infarction. Histologic, Histochemical, Autoradiographic and Scintigraphic Studies. B. A. Khaw, J. T. Fallon, G. A. Beller, E. Haber; Massachusetts General Hospital, Boston, Massachusetts. *Circulation* 60: 1527–1531, 1979

This study compared the exact site of antimyosin antibody localization with other criteria for infarction to determine if antibody localization reflects myocardial cell death. I-125-labeled antimyosin $(Fab')_2$ fragments, 1 mCi, were injected i.v. at 4 hr or 0.5 mCi, into the left main coronary artery 3 hr after the production of experimental myocardial infarcts in dogs. The animals were killed at 48 and 24 hr after infarction, respectively, and regions of myocardial infarction, were identified by TTC staining. Localization of radioactivity was determined by gamma camera scintigraphy and macroautoradiographs. Ratios of antimyosin uptake as high as 46:1 were noted in central regions of myocardial necrosis. Localization of I-125-antimyosin $(Fab')_2$ was also examined microscopically using microautoradiographs and standard histologic preparations. Regions of antimyosin $(Fab')_2$ localization as determined by scintigraphy, macroautoradiography, and scintillation counting of tissue fragments corresponded to areas of infarction as demonstrated by the absence of TTC staining as well as conventional histologic techniques of infarct identification. Normal myocytes did not show uptake of the labeled antibody fragments. This method has promise for the precise localization of myocardial infarcts in vivo.

Radionuclide Assessment of Aortocoronary Bypass Surgery. R. A. Corne, M. S. Gotsman, J. Baron, J. Salomon, R. Vaknine, J. Rod, A. Weiss, H. Atlan; University of Manitoba, Canada. *Ann Thorac Surg* 28: 522–529, 1979

Pre- and postoperative rest and exercise thallium-201 myocardial perfusion imaging and multiple-gated radionuclide angiography were correlated with the results of clinical status, exercise electrocardiography, coronary arteriography, and contrast left ventriculography in a prospective series of 12 consecutive patients who underwent aortocoronary bypass grafting. Anterior, 45° left anterior oblique, and left lateral images obtained using 2 mCi Tl-201 were recorded on Polaroid film and also were digitized on-line on a magnetic disc on a PDP 11/45 computer. Multiple-gated imaging was performed using 20 mCi Tc-99m-labeled red blood cells in 45° LAO and 30° RAO. Patients were divided into two groups based on a comparison of pre- and postoperative Tl-201 images. Group 1 (six patients) showed improved or normal preoperative thallium scans and excellent correlation between the site of a graft and the improvement in myocardial perfusion on the postoperative exercise scans. Regional wall motion remained normal in three patients and improved in three. In Group 2 (six patients) the postoperative thallium scans were unchanged or showed a worsening. Each patient had graft occlusion or stenosis, distal disease, or a peri-operative myocardial infarction. No improvement in regional wall motion occurred in four of them. Neither the symptomatic response to bypass grafting nor the response to exercise testing successfully predict graft patency. The authors concluded that the thallium scan provides a sensitive, objective, noninvasive method to assess functional regional myocardial perfusion postoperatively.

Assessment of Early Ventricular Systole by First Pass Radionuclide Angiography—Useful Method for Detection of Left Ventricular Dysfunction at Rest in Patients with Coronary Artery Disease. R. Slutsky, D. Gordon, J. Karliner, A. Battler, S. Walaski, J. Verba, M. Pfisterer, K. Peterson, W. Ashburn; University of California, San Diego. *Am J Cardiol* 44: 459–465, 1979

First-third ejection fraction (EF) obtained with first pass radionuclide angiography (RAG) is an important new observation that permits identification of subtle abnormalities of left ventricular function at rest in patients with coronary artery disease (CAD) that may not be recognized by analysis of total EF alone. The sensitivity of the method for detection of CAD was assessed in 80 subjects [32 normal (Group I); 31 with CAD and normal ejection phase indices of left ventricular performance (Group II); 17 with CAD and depressed EF indices (Group III)]. First pass RAG was performed using 14–20 mCi of Tc-99m-labeled human serum albumin 1–24 hr before cardiac catheterization in all patients in Groups II and III and in the ten patients from Group I who were catheterized. Subjects in Groups I and II had a normal total EF (0.52 or greater) and their mean values were not significantly different from each other (0.62 ± 0.04 against 0.59 ± 0.05). Values in Group III were significantly lower than in the other Groups (0.34 ± 0.09, $P < 0.01$). All patients in Group I who underwent angiography had a LVED pressure of 12 mm Hg or less (mean 7 ± 3 mm Hg). LVED pressure was not significantly different in 26 of 32 patients in Group II (mean 9.1 ± 2.4 mm Hg, all less than 12 mm Hg). In Group III 14 of 17 patients had LVED pressure more than 12 mm Hg (mean 18.2 ± 6.1) ($P < 0.05$ against Groups I and II). Patients in Groups II and III had a lower mean radionuclide first-third EF (0.18 ± 0.04 and 0.13 ± 0.04, respectively) than the value in Group I (0.29 ± 0.04) (both $P < 0.01$). The mean value in Group II was significantly different ($P < 0.05$) from that in Group III. In the 58 patients with angiographic data the correlation between the two methods for total EF was 0.95; for the first-third EF it was 0.91. Specificity of the first-third EF was 100% and sensitivity was 96%; predictive accuracy was 100%. In this study, 46 of 48 patients (96%) with CAD had a decreased first-third EF while 31 had a normal total EF on both contrast and radionuclide angiography.

Radionuclide Scintiphotography in Defining Postoperative Pulmonary Vasoconstriction—Successful Results after Tolazoline Administration in a 4-Month-Old Infant with Congenital Heart Disease. D. S. Moodie, J. M. Levy, D. R. Kahn, L. M. Lieberman, B. Pastakia; Cleveland Clinic Foundation, Cleveland, Ohio, and University of Wisconsin, Madison, Wisconsin. *Chest* 76: 274–277, 1979

This study reports on one boy with D-transposition of the great vessels (D-TGA) who underwent a Rashkind balloon septostomy at 1 day of age. Because of later clinical deterioration, he underwent a Blalock-Hanlon atrial septecomy at 4 mo of age. Postoperatively, the clinical and laboratory picture reflected severe pulmonary vasoconstriction with decreased pulmonary blood flow. At that time, a Tc-99m macroaggregated albumin perfusion scan demonstrated symmetrically decreased perfusion to both middle and upper lung fields bilaterally. Hyperventilation failed to resolve the vasoconstriction. At 4 days postoperatively, clinical signs and

laboratory data showed improvement following a single dose of tolazoline (1 mg/kg i.v.). A repeat lung scan then showed marked improvement in perfusion to the upper and middle lung fields bilaterally. The perfusion lung scan was not only an effective means of defining a specific pattern of pulmonary hypoperfusion postoperatively in the infant but also permitted the clinician to measure response to treatment.

Pulmonary Ventilation Studies of Asthmatic Children with Kr-81m. G. Uchiyama, K. Sugimoto, T. Hotta and N. Arimizu. *Nipp Act Radiol* 39: 499, 1979

Krypton-81m gas was eluted from a ^{81}Rb-^{81m}Kr generator using compressed air or oxygen. Scintillation pulmonary images were obtained in which density was proportional to regional ventilation. Because of the short half-life of Kr-81m (13 sec), several pulmonary views of a patient could be readily available in a short period of time and trapping of exhaled gas was not necessary. A definite advantage of the Kr-81m generator was its use for studies in small children (who are not usually cooperative). Thirty-seven patients ranging from 3 to 15 yr of age with bronchial asthma of varying degrees have been examined. The studies revealed definite defects in images of patients with asthmatic attack. Studies obtained immediately after the use of bronchodilators showed marked improvement of the ventilation defects. Exercise-induced asthma (EIA) was easily identified by the Kr-81m ventilation study. After premedication for EIA with disodium cromoglicate, the images showed fewer ventilation defects, and the preventive effect could be individually determined. The Kr-81m ventilation study was also used for estimating the patient's sensitivity to substances that incited bronchial asthma. House dust was continuously inhaled with Kr-81m gas by patients. The threshold dose of house dust in disclosing scintillation ventilation defects was definitely less than that which caused symptoms of asthmatic attack. The sensitive Kr-81m ventilation study may be another provocative test that induces no clinical symptoms.

Sites of Airway Dilatation in Asthma Following Inhaled Versus Subcutaneous Terbutaline-Comparison of Physiologic Tests with Radionuclide Lung Images. D. P. Tashkin, E. Trevor, S. K. Chopra, G. V. Taplin; University of California, Los Angeles, Los Angeles, California. *Am J Med* 68: 14–26, 1980

This study evaluated the sites of airway dilatation following different routes of administration of a bronchodilator compound (terbutaline) by comparison of the effects on airway dynamics and radionuclide lung imaging of subcutaneous injection against aerosol inhalation of terbutaline. Airway dynamic studies included: (a) measurements of plethysmographic airway conductance and peak expiratory flow; and (b) determination of the density-dependence of maximal expiratory flow. Two types of lung imaging procedures were performed: (a) inhalation of a submicronic radioaerosol (~2 mCi Tc-99m DTPA); and (b) inhalation and washout of 10 mCi Xe-133 gas. Twelve clinically stable asthmatic subjects with mild to severe airways obstruction had baseline pulmonary function tests performed immediately before and after radionuclide lung imaging procedures. All studies were then repeated 10–30 min after treatment with bronchodilator or placebo, aerosolized or subcutaneously injected. Placebo resulted in little improvement in either lung function or imaging patterns. Following inhaled terbutaline, large airway function and aerosol images improved in seven and nine patients, respectively. No improvement in small airway function occurred in any subject, and only slight improvement in xenon imaging was noted in five subjects. Subcutaneous terbutaline was more frequently effective in improving both large and small airway function (ten of the 12 patients) and in converting abnormal aerosol and xenon images toward normal patterns (11 and eight patients, respectively). Reasonably good agreement was evident between improvement in aerosol imaging and improvement in large airway function, but no consistent relationship was found between improvement in xenon imaging and improvement in either large or small airway function.

Facial Bone Scintigraphy. V. Differentiation of Purulent from Non-purulent Inflammation of the Maxillary Sinus. H. F. Bergstedt, C. Carenfelt, and M. G. Lind; Karolinska Sjukhuset, Stockholm, Sweden. *Acta Radiol Diagn* 20: 458–464, 1979

The use of facial bone scintigraphy to differentiate between purulent and non-purulent inflammation in maxillary sinusitis was examined. The study included 25 patients and eight controls. Roentgenograms demonstrated all patients to have had an abnormal maxillary sinus study. Sinus secretion was present on the day of, or following, scintigraphy. Eleven patients were found to have a purulent sinusitis, and nine had an allergic rhinitis. Five patients unable to be clearly classified were excluded from the study. Facial scintigraphy followed i.v. injection of Tc-99m MDP. Gamma camera scintigrams of the paranasal sinuses were made in three projections. Results were classified as follows: definitely normal, probably normal, probably abnormal, and definitely abnormal. All controls were found to have normal scintigrams with symmetric tracer uptake. Scintigrams of patients with non-purulent inflammation had scans rated five times as definitely normal and four times as probably normal. All patients with purulent inflammation had abnormal radiotracer uptake. The scintigrams were classified once as probably abnormal and ten times as definitely abnormal. The authors conclude that facial bone scintigraphy permits differentiation between infectious and allergic sinusitis after the radiographic diagnosis of the abnormality has been established.

Influence of Bone Pain on the Results of Bone Scans. H. E. Schutte; The Netherlands. *Cancer* 44: 2039–2043, 1979

The diagnostic value of bone pain in 227 consecutive patients with known primary tumor was evaluated, and bone scans were obtained with a gamma camera 3 hr after the injection of 10 mCi Tc-99m diphosphonate or methylene diphosphonate. Eighty-two of 130 patients with bone pain had metastases with positive scans. In contrast, 80 of 97 patients without bone pain did not have metastases, and the scans were negative. Thirteen, however, did have metastases and positive scans, and in ten of these the lesions were osteoblastic. In 70 patients with bone pain or elevated serum alkaline and acid phosphatase levels of unknown origin, only one had metastatic disease, 40 scans were negative, and the remaining 29 patients had positive scans due to benign, degenerative disease or Paget's disease. The author concluded that in the assessment of malignancies, bone pain is a good indication for bone scintigraphy, except in those patients with osteoblastic lesions, but bone pain is not a reliable indicator for scanning when malignant disease has not yet been established. He also stressed the importance of radiological correlation of coincidental disease.

Clinical Evaluation of ^{99m}Tc-Pyridoxylidene Glutamate as a Cholescintigraphic Agent Labeled by a Simplified Method. T. Odori, R. Morita, H. Saji, K. Horiuchi, A. Yokoyama, T. Fujita, and K. Torizuka. *Jap J Nucl Med* 16: 707, 1979

The clinical usefulness of Tc-99m pyridoxylidene glutamate (Tc-99m PG) was investigated in 44 cases with various liver and

biliary tract diseases and in five normal subjects. Tc-99m PG was labeled with TC-99m by a simplified resin-Sn^{++} method. Sequential scintigrams were obtained by a gamma camera equipped with a data processor. Sequential blood and urine collection were also made. The gallbladder and the bile ducts were normally seen within the first 15–20 min after administration of the dose and early passage into the intestine was also visualized clearly. In cholelithiasis, the visualization of gallbladder was poor or absent, however, the appearance of Tc-99m PG in the common bile duct and the intestine was rapid and abundant even with associated cholecystitis. In complete extrahepatic obstruction, no accumulation of Tc-99m PG was observed in the biliary trees or in the intestine. In incomplete obstruction, on the other hand, increased radioactivity was seen in the region of the porta hepatis, but only a small amount of Tc-99m PG was excreted into the intestine.

Tc-99m PG exhibited a rapid blood clearance in normal subjects showing two exponential components; a fast one (T 1/2 6 min) and a slow one (T 1/2 53 min). These two rates corresponded to the liver uptake rate and urinary excretion rate, respectively. Tc-99m PG was not thought to be suitable for kinetic studies of the liver function, since the urinary excretion of Tc-99m PG increases in severe parenchymal liver diseases and marked extrahepatic obstructions. Tc-99m PG was, however, felt to be useful for the investigation of biliary tract disorders and offers a useful method in differentiating the moderately jaundiced patient.

A Single Scan Technique for Estimating Acid Output. T. V. Taylor, S. Holt, G. P. McLoughlin, R. C. Heading; Edinburgh, Midlothian, Scotland. *Gastroenterology* 77: 1241–1244, 1979

This study reports a noninvasive method of estimating maximal gastric acid output (MAO) in 40 patients with peptic ulcer, gastric cancer, or pernicious anemia. After fasting overnight, patients received pentagastrin (6 μg/kg) subcutaneously. At 15, 30, and 45 min after radionuclide administration, the abdomen was imaged by dual-headed rectilinear scanner. The fraction of total radioactivity in the stomach was determined using a factor to correct for photon attenuation in overlying tissues. Separately, acid secreted in response to pentagastrin was sampled by nasogastric tube over a 2-hr period and expressed in millimoles. The relationship between intragastric Tc-99m fraction and MAO was direct and linear with a correlation coefficient of 0.87 when imaged 15 min after Tc-99m, 0.85 when imaged at 30 min, and 0.82 at 45 min. In 23 of the subjects, a solitary anterior view of the gastric Tc-99m fraction by a gamma camera was also found to be correlated with MAO ($r = 0.82$). The authors feel that the gastric Tc-99m measurement should be made only at 15 min after dose; before salivary secretion, gastric emptying, and back diffusion of Tc-99m across the gastric mucosa affect the measurement. When gastric Tc-99m fraction was measured in the same 24 patients on separate occasions, the mean difference between paired results was 2.2%. With minimal inconvenience and discomfort to the patient, this method rapidly classified patients as high, normal, or low acid secretors.

Esophageal Emptying in Achalasia Quantitated by a Radioisotope Technique. R. Gross, L. F. Johnson, R. J. Kaminski; Walter Reed Army Medical Center, Washington, DC. *Digestive Dis Sci* 24: 945–949, 1979

This technique for precisely quantitating delayed esophageal emptying of food in achalasia proved useful in 20 consecutive symptomatic achalasia patients. Six normal volunteers served as controls. The test meal consisted of corn flakes, sugar, and milk labeled with 500 μCi Tc-99m DTPA. It was consumed over a 2–3-min period with the subject sitting erect in front of a gamma camera interfaced with a computer. An esophageal emptying curve was constructed showing the percentage of the isotope meal remaining in the esophagus at 10-sec intervals for 20 min. Peak esophageal retention in both achalasia patients and controls corresponded to the approximate time of completion of the radiolabeled meal. The esophageal retention values at peak averaged 67% in the achalasia patients and 15% in controls. Significant esophageal retention persisted in the achalasia group for the entire 20 min but esophageal emptying was completed in the control group by 5 min. The 5-min value clearly separated the achalasia patients from normal subjects. Pneumatic dilation in ten achalasia patients resulted in a significant improvement in esophageal emptying of the isotope meal as did surgical myotomy in the one patient so treated. Reproducibility of the curve was shown in three untreated achalasia patients and two asymptomatic controls. Partitioning of technetium in the test meal was found to be 57% in milk and 43% in corn flakes, showing that Tc-99m DTPA is an ideal radiopharmaceutical for this purpose. The use of the curve permits both quantitation of esophageal emptying and comparison of different emptying curves.

Technetium-99 Pelvic Scan: Use in Follow-up of Penile Revascularization Bypass Operations. W. C. Casey, M. I. Zucker; Los Angeles, California. *Urology* 14: 465–466, 1979

Six patients who had had saphenous vein and/or basilic vein bypass grafts from the femoral artery to the corpus cavernosum for impotency were studied by Tc-99m scans at different lengths of time after surgery, ranging from 1 day to 1.5 yr. Ten mCi [^{99m}Tc] sodium pertechnetate was injected, and images of the pelvis and penile area were made with the gamma camera immediately after injection and every 2 sec up to 60 sec. All patients demonstrated pulse sound in their bypass grafts on routine follow-up immediately postoperatively. In four of six patients, patency was demonstrated. The clearest image was obtained from a patient 1 day after surgery. The technique is valuable in assessing postoperative graft patency of the penile bypass procedures and may obviate the need for postoperative angiography.

Gallium-67 Radionuclide Imaging in Acute Pyelonephritis. G. Mendez, G. Morillo, M. Alonso, M. B. Isikoff; Jackson Memorial Medical Center, Miami, Florida. *Am J Roentgenol* 134: 17–22, 1980

Imaging with gallium-67 citrate was used to detect pyelonephritis in 12 cases in which the results of urinalysis and excretory urography were either equivocal or insufficient to make the diagnosis. The patients ranged in age from 21–86 yr; two were thought to have fever due to alcoholic hepatitis, and ten were classified as having fever of unknown origin. Urograms performed at the time of gallium scanning in seven yielded normal findings in four of these and only a subtle alteration in one patient. This latter patient was demonstrated to have reflux to the affected kidney by radionuclide cystography. Following the injection of 5 mCi of Ga-67 citrate, serial scans were performed at 6, 24, and 48 hr in all cases with an additional scan at 72 hr in one case. Four patients were scanned with a multiplane tomographic scanner, the remainder had images obtained with a large-field-of-view gamma camera. The multiplane tomographic scans showed sufficient activity in the kidneys at 6 hr to make the diagnosis in two cases. The rest of the patients had equivocal scans at 6 hr with positive scans at 24 and 48 hr. The multiplane tomographic scanner also appeared superior due to its capability of separating intestinal activity from that localized in the area of the kidneys.

Detection of Abdominal Abscesses—Combined Approach Employing Ultrasonography, Computed Tomography and Gal-

lium-67 Scanning—Annual Oration. R. A. Filly; University of California, San Francisco, California. *J Can Assoc Radiol* 30: 202–210, 1979

This author reviews indications for and relative efficacies of three noninvasive methodologies used for diagnosis of abdominal and pelvic abscesses. Patient characteristics—(a) presence or absence of localizing signs, (b) postoperative status, (c) immunosuppression by pharmacologic means or disease process, and (d) low or high overall risk—and typical anatomic location of abscesses are discussed. Retrospective analyses of combined modalities—ultrasonography (US), computed tomography (CT), and Ga-67 imaging—for sensitivity and specificity of abscess detection show highly desirable results. However, no controlled prospective analysis has yet been reported. Ultrasonography and CT provide immediate results whereas Ga-67 imaging sometimes requires several days for completion. Computed tomography shows extremely high sensitivity for detection of both fluid collections and extraluminal gas, a finding, which when coupled with presentation of superlative anatomic detail, makes CT the most accurate single test available for abscess detection. Although the presence of bowel gas can interfere with US imaging, proper patient positioning can negate such interference. Separate diagnostic flow charts are presented for choice of sequential diagnostic methods for assessment of the high-risk patient either with or without localized symptoms. For example, in the high risk patient with such symptoms, conventional radiography precedes US or CT in the workup. Gallium-67 is reserved for later use. However, in the high risk patient with no localized symptoms, nontomographic, whole-body, Ga-67 imaging is the initial modality to be used. Such charts permit the clinician to avail himself of the unique advantages of each modality while minimizing the occurrence of false-negative results. In the presence of clinical signs and symptoms of abscess, the clinician must pursue such diagnosis with all the tools available to him and not be led astray by the occurrence of one or two negative findings by CT, US, or Ga-67. For example, when complementary US (or CT) and Ga-67 studies indicate a fluid collection that accumulates Ga-67, the clinician can be assured that he has found an abscess containing drainable fluid.

Gallium-67 Scanning for the Diagnosis of Infection in Children. F. Cox, W. T. Hughes; Medical College of Georgia, Augusta, Georgia. *Am J Dis Child* 133: 1171–1173, 1979

Ga-67 scanning was evaluated prospectively in 26 children with clinically suspected abscesses. After the i.v. injection of Ga-67 citrate (5 mCi/1.8 m^2 in boys), total body images were made at 2,24, and 48–72 hr with a whole-body imager. Laxatives or enemas were given before the 24- or 48-hr studies. The scan interpretation agreed with the clinical course and other standard diagnostic procedures in 21 (81%) of 26 patients. The diseases of 11 (92%) of 12 patients with clinical infection were correctly diagnosed (true-positive rate). Fourteen of the 26 patients were clinically confirmed to have no infection, and in ten of these the conditions were correctly diagnosed by scan, a true-negative rate of 71%. False-positive scans occurred due to bone infarcts and bleeding, and false-negative scans were related to neutropenia or to lesions smaller than 1 cm. The authors feel that the gallium scan is a safe and reliable method to diagnose infection in children, and 2-hr scans may be useful in some patients, particularly those with osteomyelitis.

Microwave Scattering Parameter Imaging of an Isolated Canine Kidney. L. E. Larsen, J. H. Jacobi; Walter Reed Army Institute of Research, Washington, DC. *Med Phys* 6: 394–403, 1979

It has long been felt that electromagnetic waves in the microwave region could not be used for imaging because the wavelength necessary to penetrate tissue would give very poor resolution. It has been found, however, that one can obtain a resolution of 5 mm operating at ^4GH_z using an open-ended wave guide antenna in a high relative dielectric constant medium. With this in mind the authors constructed an electromechanical scanner for underwater microwave scans of tissue phantom targets and isolated organs displaying two-dimensional arrays of microwave transmission coefficients. Some data processing is used. It appears from images of canine kidneys that regions of thinly populated glomeruli in the cortex corticis are distinguishable from deeper cortical regions. The authors conclude that regions corresponding to filtration appear to be separated from regions corresponding to osmotic concentration and these are easily separable from the pelvis. Thus the image is one of function not anatomy.

Resolution, Sensitivity, and Contrast in Gamma Camera Design: A Critical Review. W. White; Searle Diagnostics, Inc, Des Plaines, Illinois. *Radiology* 132: 179–187, 1979

The performance parameters of gamma cameras are examined in the light of historical developments that have made improvements possible. For example, over a span of 12 yr spatial resolution has improved from a FWHM of approximately 12 mm to 4 mm with the advent of bialkali PMTs, pulse arithmetic, 37 tube cameras, and improved quality control. The author also critically analyzed the effect of one parameter upon another, showing that further improvement of the spatial resolution of 25-cm field-of-view cameras is of no value clinically unless improvements in sensitivity or photon yield are made concomitantly. Since increased resolution requires increased counts to resolve the smaller areas of detail, counting efficiency becomes a fundamental limitation. An alternative to increased resolution is better image contrast, which may result from developments in display technology and emission computed tomography.

Abruptio Placenta: Sonographic and Pathologic Correlation. B. A. Spirt, E. H. Kagan, R. M. Rozanski; SUNY Upstate Medical Center, Syracuse, New York. *Am J Roentgenol* 133: 877–881, 1979

A spectrum of findings in abruptio placenta in six patients is presented. Most commonly, when visualized, retroplacental hematoma appears as a retroplacental mass with an anechoic or mixed-echo pattern. A similar collection can be found beneath the chorionic plate when blood dissects into this region. In one such case, the hematoma was followed over a 2-wk span from a mixed-echo pattern to that of a cystic collection and was found to decrease in size on subsequent examination. If external bleeding occurs without sufficient accumulation of blood, abruptio placenta may not be sonographically demonstrable. Another differential diagnostic possibility to be considered is that of subplacental uterine leiomyoma. Photographs of the placentas are correlated with the illustrations of ultrasound studies.

Prenatal Diagnosis of Fetal Lymphatic System Abnormalities by Ultrasound. A. H. Adam, H. P. Robinson, M. Pont, V. D. Hood, A. A. M. Gibson; Glasgow University, Glasgow, Scotland. *J Clin Ultrasound* 7: 361–364, 1979

The authors present three cases in which a prenatal diagnosis of malformation of the lymphatic system was made. A cystic hygroma of the neck presented as a large, single, cystic structure. Atresia of the lymphatic system was seen as a thick layer of low-level echoes surrounding the entire fetus, and a cystic lymphangioma completely replaced the normal architecture of the right arm, involved the right upper chest, and was identified as a complex cystic mass closely adjacent to but separable from the lower fetal

trunk. The antenatal diagnosis of such entities sufficiently early in pregnancy may allow elective termination of the gestation. Such information is exceedingly valuable in the management of the labor and delivery as well. Sonograms and photographs of gross specimens are presented.

Ultrasound Findings in Liver Hydatid Cysts. A. Hadidi; Tehran University, Tehran, Iran. *Clin Ultrasound* 7: 365–368, 1979

The author presents experience with 81 hydatid cysts of the liver evaluated by gray-scale ultrasonography. Two patterns are described: (a) nonsuppurative hydatid cysts consist of clearly definable cystic structures of a solitary, multiloculated, or multiple nature; and (b) suppurative hydatid cysts in which varying degrees of internal echogenicity are identified because of the infected material contained within the cysts. The presence of a daughter cyst within a smoothly marginated cyst of the liver clearly defines the lesion as a hydatid cyst. The shape of the cyst and the regularity of its wall have been determined to be the cardinal diagnostic criteria for the identification of hydatid cysts of the liver. These properties will serve to differentiate even the infected hydatid cysts from the necrotic neoplasm. Overall accuracy for ultrasonography in this series was found to be 98%.

JOHN J. COUPAL
PEGGY DOMSTAD
ANDREW FRIED
EUISHIN KIM
University of Kentucky
Medical Center and VA Hospital
Lexington, Kentucky

AUDREY V. WEGST
University of Kansas
Medical Center
Kansas City, Kansas

JOHN H. CLORIUS
Deutsches Krebs-
forschungzentrum
Heidelberg, Germany

MASAHIRO IIO
Tokyo Metropolitan
Geriatric Hospital
Tokyo, Japan

SOCIETY OF NUCLEAR MEDICINE
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ANNUAL MEETING

June 24, 1980 **Cobo Hall** **Detroit, Michigan**

The Pediatric Nuclear Medicine Club will hold its annual meeting in conjunction with the 27th Annual Society of Nuclear Medicine Meeting on Tuesday, June 24, 1980, Cobo Hall, Detroit, Michigan at 12:00 noon following the pediatric session. There will be a 30 minute lunch break between the pediatric session and the meeting. Lunches may be brought to the meeting room.

Anyone interested in pediatric nuclear medicine is invited to attend. If you have any interesting cases to share witht the club, please bring them on 2" × 2" slides.

Please watch for further announcements in the *Journal of Nuclear Medicine*, in the 27th Annual Society of Nuclear Medicine Program, and in the convention mail.

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Judith Ellen Ho, M.D.
Secretary-Treasurer
Pediatric Nuclear Medicine Club
c/o Dept. of Nuclear Medicine
St. Louis University Hospital
1325 South Grand Blvd.
St. Louis, MO 63104
Tel: (314) 771-7600

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The Education and Research Foundation of the Society of Nuclear Medicine welcomes applications for two of its projects.

Student Fellowship Program: This educational project is designed to stimulate interest among students in the United States and Canada in the field of nuclear medicine. It will make it possible for interested and qualified students to spend elective quarters and summers in active nuclear medicine laboratories working and associating with experts in the field. Maximum grant: $3,000. Application letters in duplicate, including a description of the project and budget, should be sent to Merle K. Loken, President of the E & R Foundation, c/o Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016.

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