ABSTRACTS OF CURRENT LITERATURE

Myocardial Imaging with Dipyridamole: Comparison of the Sensitivity and Specificity of ^{201}Tl versus MUGA. D. Harris, D. Taylor, B. Condon, D. Ackery, N. Conway; Southampton, England. *Eur J Nucl Med* 7:1–5, 1982

After coronary angiography, 40 patients, 23 with coronary artery disease and 17 normals (vascular lesions causing less than 50% lumen reduction were not considered significant), were infused with dipyridamole, and the authors compared the sensitivity of Tl-201 imaging with multiple-gated blood pool studies (MUGA), for detection of coronary artery disease. Dipyridamole was infused at a rate of 0.142 mg/kg/min for 4 min. In 21 patients, 2 mCi of Tl-201 were injected 1 min after termination of the infusion. Thallium-201 images, each containing 400 K counts, were obtained in anterior, LAO 45°, and left lateral positions 3 min after isotope injection. Data were stored in a computer. Redistribution images were acquired at 3 hr. MUGA was obtained in 15 patients after i.v. injection of 20 mCi of Tc-99m HSA. A 4 min-rest study was made, and images were again obtained in the RAO position following a 4-min dipyridamole infusion. Thallium-201 images obtained at rest and after dipyridamole were compared to identify change. MUGA was first assessed for abnormal motion, after which rest and dipyridamole studies were evaluated to identify alteration due to pharmacologic intervention. The authors demonstrated that 90% (19/21) of Tl-201 scans showed change between rest and dipyridamole images. Sensitivity for coronary artery stenosis was 95%, and specificity of thallium scans was 65%. Two out of 15 patients (13%) with coronary artery disease, who had MUGA, showed a change between rest and dipyridamole studies. At rest seven others had abnormal wall motion, which was uninfluenced by dipyridamole. Twenty-six of the 40 patients examined with dipyridamole developed angina. The authors conclude that Tl-201 dipyridamole imaging is a sensitive alternative to stress scintigraphy but that wall-motion irregularities will not become more pronounced after pharmacologic intervention.

Left Ventricular Ejection Fraction and Its Response to Therapy in Essential Hypertension. M. D. Blaufox, J. P. Wexler, R. A Sherman, S. C. Scharf, E. H. Sonnenblick, J. A. Strom, H. B. Lee; Albert Einstein College of Medicine, New York. *Nephron* 28:112–117, 1981

The possible role of the heart in the pathogenesis of high blood pressure was assessed. Blood pressure, ejection fraction, and renin secretion of 19 hypertensives were evaluated. Secondary hypertension was ruled out. Treadmill exercise preceded the radionuclide study. Following in vivo erythrocyte labeling with 18 mCi Tc-99m pertechnetate, the left ventricular ejection fraction was determined, using the first-pass technique. The baseline resting left ventricular ejection fraction was determined in supine position with a gated-probe system. The ejection fraction was redetermined in sitting position at 30 and 45 min following exercise. With the patient supine, 30% of a previously determined maximum isometric handgrip exercise was performed for 2 min, during which time LVEF was determined. Pulse, ECG, and, BP were monitored. Following these studies, patients were randomly selected to receive propranolol or captopril. Maximum medication given reached 450 mg captopril or 360 mg propranolol. Six to 8 wk after therapy the radionuclide examinations were repeated. Eighteen patients completed at least part of the protocol, and 11 completed the study. Therapy resulted in a significant reduction of blood pressure in supine and standing positions. Statistically, a highly significant relationship existed between mean blood pressure and LVEF before and after therapy. Patients receiving captopril had normalization of ejection fraction and blood pressure after exercise. The authors conclude that a high LVEF relative to blood pressure combined with a high LVEF associated with an abnormal exercise response implicates the heart as having an etiologic role in essential hypertension.

Nongeometric Determination of Right Ventricular Volumes from Equilibrium Blood Pool Scans. G. J. Dehmer, B. G. Firth, L. D. Hillis, P. Nicod, J. T. Willerson, S. E. Lewis; University of Texas, Dallas, TX. *Am J Cardiol* 49:78–84, 1982

A method of determining right ventricular volumes using count data obtained by multigated equilibrium blood-pool scintigraphy has been validated by comparison with values obtained from thermodilution cardiac output measurements in 74 patients (47 men, 27 women, mean age = 50 yr). None of the patients had pulmonary or triscuspid valve regurgitation. The right atrial mean pressure averaged 5.5 ± 3.2 mm Hg (mean ± s.d.) with V waves averaging 5.8 ± 3.4 mm Hg and average pulmonary arterial systolic pressure of 27.5 ± 8.1 mm Hg. By intracardiac oximetry there was no evidence of shunt in any of the patients. The radionuclide study was performed with Tc-99m labeled red blood cells and a portable gamma camera interfaced to a dedicated computer. The entire cardiac cycle was recorded at 32 frames/cycle for approximately 7 min to give a minimum of 150 K counts/frame. Of three scintigraphic approaches tested in the 74 patients, the best proved to be that using a low-energy, 25°, slant-hole collimator and a 5–15° LAO projection with the slant of the collimator directed toward the apex of the heart parallel to the long axis of the septum. End-diastolic and end-systolic frames were smoothed with a nine-point, center-weighted filter, and background correction performed using separate regions of interest for the end-diastolic and end-systolic frames. This approach was then prospectively applied in 14 patients with excellent correlation ($r = 0.94$; SEM = 0.03, $p < 0.001$) between right ventricular ejection fraction determined by the equilibrium method and that obtained by thermodilution. The right ventricular ejection fraction obtained by the equilibrium method was also compared with that obtained by gated first-pass study in 14 patients, with a correlation $r = 0.94$, SEM = 0.03, $p < 0.001$. The relation of gated first-pass ejection fraction to that obtained in the equilibrium study is expressed by the regression equation: gated first pass = 0.99 equilibrium − 0.019.

Evaluation of Postresuscitation of Left Ventricular Global and Segmental Function by Radionuclide Ventriculography in Sudden Coronary Death Survivors of Prehospital Cardiac Arrest—Correlation to Short-Term Prognosis. M. J. Ptacin, D. D. Tresch, J. S. Soin, H. L. Brooks; Veterans Administration Medical Center, Wood, WI. *Am Heart J* 103:54–56, 1982

The authors performed bedside radionuclide ventriculograms (RNV) to determine the extent of left ventricular (LV) dysfunction in the early postresuscitation period in prehospital cardiac arrest survivors and correlated the RNV findings with early mortality (4 wk). A total of 36 nonconsecutive patients, 24 men, and 12 women, age 21–85 yr, were included in the study. These patients had had cardiac arrest within 24 hr of their study. Left ventricular ejection fraction (LVEF) and wall motion were evaluated. The mortality at 4 wk of 18 patients with LVEF <0.30 was 22.2% and

in 18 patients with LVEF >0.30 was 55.5%. Seven patients with normal LV wall motion had no short-term mortality. Of 29 patients with abnormal wall motion (16 of segmental abnormalities, 13 diffusely abnormal wall motion) 14 died, a significantly higher short-term mortality. Normal wall motion was found in a distinctly younger group of patients, mean age 53.5 yr. Therefore, the authors concluded that (1) out-of-hospital cardiac arrest survivors have a high incidence of severe LV dysfunction in early postresuscitation period, (2) a significantly higher early mortality is seen in the group with LVEF < 0.30, and (3) abnormal LV wall motion demonstrated poorer prognosis in the first 4 wk than patients with normal LV wall motion.

Sequential Regional Phase Mapping of Radionuclide Gated Biventriculogram in Patients with Left Bundle Branch Block. S. Swiryn, D. Pavel, E. Byrom, D. Witham, C. Myer-Pavel, C. R. C. Wyndham, B. Handler, K. M. Rosen; University of Illinois Hospital, Chicago, IL. *Am Heart J* 102:1000–1010, 1981

The mechanical consequences of myocardial muscle contraction due to abnormal conduction of the His-Purkinje tract, such as left bundle branch block (LBBB), have been difficult to demonstrate, because the right ventricle (RV) and left ventricle (LV) are no longer synchronous and because of the complexity and rapidity of muscular contraction. In seven patients with normal His-Purkinje function and eight patients with LBBB, the authors used the technique of Fourier analysis to examine the relative timing of regional radionuclide blood-pool motion of both ventricles at the inter- and intraventricular level. Qualitative analyses included the amplitude image, phase image, phase distribution histogram, and automatically determined areas of earliest and latest phase for each ventricle. The results showed relatively uniform distribution of phase across both ventricles in patients with normal conduction but markedly delayed phase in the LV of patients with LBBB. In addition, the location within the ventricles of areas of earliest and latest phase was somewhat different for the two groups, the most prominent finding being an area of earliest LV phase along the interventricular septum seen in seven of eight patients with LBB but in none of the normal patients. Quantitatively, relative measures of mean, early, and late phases calculated by subtracting the respective RV from LV values of phase to give Δ mean, Δ early, and Δ late showed marked LV phase delay in LBBB patients. The authors concluded that phase analysis of radionuclide ventricular gated studies demonstrates marked difference in both location and timing of mechanical LV events in LBBB patients when compared with normal patients, and Fourier phase analysis has a potential for the evaluation of mechanical consequences of a wide variety of abnormalities due to electrical activation.

Abdominal Scintigraphy for Ectopic Gastric Mucosa: A Retrospective Analysis of 143 Studies. G. N. Sfakianakis, G. M. Haase; University of Miami, Miami, FL. *Am J Roentgenol* 138:7–12, 1982

A review was made of 143 abdominal examinations performed in 139 patients in search of ectopic gastric mucosa, usually located in a Meckel's diverticulum. Fifty-seven of these studies were done using a dual-head rectilinear scanner with the patient supine and without any standardized preparation of the patient. Two images were made within 1 hr following the injection of Tc-99m and constituted one examination. Eighty-six studies were carried out using a gamma camera. An initial flow study was acquired consisting of 3- to 5-sec frames for 1 to 2 min after the intravenous injection of Tc-99m followed by static images. Careful patient preparation preceded the gamma camera studies. There were five true-positive and 46 true-negative rectilinear scans, two false-positive, and four-false-negative scans. There were 10 true positive and 74 true-negative scintillation camera studies, one false-negative study, and one examination that revealed large bowel activity in a patient with intestinal inflammation. The diagnosis in each case was based on surgical exploration, the establishment of another clinical cause for rectal bleeding, or no recurrence of symptomatology. The follow-up period was from 1 to 8 yr. Scintigraphy of the abdomen following the intravenous administration of Tc-99m was useful in detecting ectopic gastric mucosa and with proper patient preparation before the study, the sensitivity and specificity of this procedure have improved.

Quantitative Renal Scintillation Camera Studies in Renal Transplantation. G. D. Frentz, J. U. Schlegel, J. L. Hussey, R. Prima; Tulane University, New Orleans, LA. *Urology* 18:546–556, 1981

Following the intravenous administration of Tc-99m iron ascorbate (100% filtered by the glomeruli) and subsequently I-131 iodohippurate (80% secreted by the renal tubular cells), dynamic studies were performed to determine the effective renal plasma flow, glomerular filtration rate, filtration fraction, and predicted return. This procedure was evaluated in 18 consecutive renal transplant recipients at frequent intervals following transplantation in an attempt to distinguish episodes of rejection from periods of acute tubular necrosis. Three of the nine live, related donor recipients and eight of nine cadaver kidney recipients experienced episodes of rejection; acute tubular necrosis was observed in some of the patients. Specific patterns of the parameters monitored accompanied rejection and acute tubular necrosis, and a preclinical diagnosis of rejection was sometimes possible, permitting more prompt and aggressive therapy. Most notable was the finding that rejection was preceded by or accompanied by a drop in filtration fraction, which may also occur in acute renal artery stenosis and acute glomerulonephritis. A rise in filtration fraction is characteristic of acute tubular necrosis (even when caused by nephrotoxic agents) and in pylonephritis. When used in conjunction with the other parameters measured, the filtration fraction was valuable in differentiating rejection from acute tubular necrosis as well as in predicting renal graft prognosis.

Radiolodine Total Body Scan Versus Serum Thyroglobulin Levels in Follow-up of Patients with Thyroid Cancer. T. A. Colacchio, P. Logerfo, D. A. Colacchio C. Feind; Columbia University, College of Physicians and Surgeons, New York. *Surgery* 91:42–45, 1982

The authors evaluated serum thyroglobulin levels (Tg), measured by double-antibody radioimmunoassay) and total body scans (TBS), performed 48 hr after an oral dose of 2 mCi iodide-131) in each of 67 patients who had previously undergone total thyroidectomy for differentiated nonmedullary thyroid cancer. The control group was comprised of 30 patients, all of whom had no evidence of recurrent or metastatic disease following surgery for small tumors (less than 1 cm). In the study group of 37 patients, each subject had recurrent or metastatic disease documented by one or more of the following: biopsy, needle cytology, TBS, bone scan, chest radiograph, or other radiographic technique. Each patient was taking either thyroxine or triiodothyronine (T_3) replacement therapy, which was withdrawn before TBS. I-131 scans showing uptake over 3% in thyroid bed and any nonphysiologic uptake outside the bed in lateral neck or elsewhere were considered abnormal. All 30 control patients had normal (undetectable) levels of Tg (<15 ng/ml) while on and off replacement T_3. Although no control patient had abnormal I-131 uptake, eight such patients had thyroid remnants showing uptake ranging from 1 to 3%. In the study group, 31 patients had positive TBS: 28 with positive (measurable) Tg and three with negative Tg. The remaining six patients had negative TBS but positive Tg. Measurable Tg ranged from 40,000 to 70,000 ng/ml. Of these latter six patients, five had biopsy-proved recurrence, and the sixth had a pathologic fracture with positive bone scan finding. These authors recommend that I-131 total body scan and serum thyroglobulin

level determination should be complementary methods for efficient detection of recurrent or metastatic thyroid cancer.

Evaluation of Methods for Sizing of Colloidal Radiopharmaceuticals. B. Pedersen, K. Kristensen; Copenhagen, Denmark. *Eur J Nucl Med* 6:521–526, 1981

The authors compared different commercial Tc-99m colloidal products with respect to size using both filtration and photon correlation spectroscopy, a technique based on Brownian movements in laser light. Polycarbonate filters (Nucleopore R) with pores between 0.1–8 μm were used. The radioactivities of the filter and the filtrate were determined. Photon correlation spectroscopy (Nanosizer R) measured particle size in the 40–3000 nm range. A polydispersity index was used to indicate the range of particle sizes in a colloidal preparation. Light microscopy was used to verify the particle size range and examine particle size change in time. Three commercial Tc-99m sulfur colloid preparations and five Tc-99m tin colloids were compared. The authors found that Nanosizer and Nucleopore filtration gave very similar results for the sulfur colloid preparations. With the Nanosizer Tc-99m albumin microspheres were shown to have a mean diameter of 730 nm, and a mean particle size was reported to be below 100 nm. Sulfur colloid preparations had uniform particle size, whereas Tc-99m tin colloids showed change in particle size with time, as well as from batch to batch. The experiments also suggest that absorption to filters of tin colloids can be due to an increase in particle size with time. The good correlation in results found by Nucleopore filtration and Nanosizer measurements seems to indicate that simple filtration may serve to evaluate the particle size of colloidal preparations.

Detection of Japanese Encephalitis Virus Immunoglobulin M Antibodies in Serum by Antibody Capture Radioimmunoassay. D. S. Burke, A. Nisalak; Armed Forces Research Institute, Bangkok, Thailand. *J Clin Microbiol* 15:353–361, 1982

The diagnosis of acute Japanese encephalitis (JE) has been a problem because the JE virus can never be recovered from the blood or cerebrospinal fluid of these patients and because the nonspecificity of hemagglutination inhibition (HAI) seroconversions caused by the extensive serological cross-reaction between other flaviviruses and JE virus. By means of the antibody capture solid-phase radioimmunoassay approach (JE IgM ACRIA) an assay for detecting human immunoglobulin M (IgM) antibodies to JE virus was developed. Heavy-chain-specific goat antihuman IgM was first bound to the walls of a polyvinyl microliter plate followed by sequential binding of test sample IgM, acetone-extracted mouse brain JE antigen, and I-125 labeled flavivirus hyperimmune human IgG. Among 20 patients in Bangkok with clinical diagnoses of acute encephalitis and with acute flavivirus infections proven by hemagglutination inhibitation (HAI) serology, 16 had detectable JE IgM ACRIA antibodies in the acute-phase serum specimen and 19 had such antibodies in the convalescent-phase specimen. None of 70 serum specimens from healthy subjects with serum JE HAI antibodies had detectable JE IgM ACRIA activity. The authors concluded that the JE IgM ACRIA technique permits a rapid, accurate diagnosis of acute JE virus infections in patients with and those without previous exposure to other flaviviruses.

Detection of Immunoglobulin G Antibody to Purified Protein Derivative in Patients with Tuberculosis by Radioimmunoassay and Enzyme-Linked Immunosorbent Assay. C. R. Zeiss, R. C. Radin, J. E. Williams, D. Levitz, J. P. Phair; Northwestern University School of Medicine, Chicago, IL. *J Clin Microbiol* 15:93–96, 1982

The authors described the detection and quantitation of IgG antibody to PPD antigen by polystyrene tube radioimmunoassay (PTRIA) and the enzyme-linked immunosorbent assay (ELISA) in sera from patients with active tuberculosis and from appropriate control individuals. The control subjects were divided into normal individuals with PPD negative skin tests (16) and healthy individuals with PPD positive skin tests (12). All 22 patients with active tuberculosis had positive acid-fast smears as well as a positive culture of *Mycobacterium tuberculosis*. There was a marked difference in both PTRIA and ELISA assays between patients with active tuberculosis and those healthy individuals, with either a positive or negative skin test. No overlap was observed in the values for the patients with active tuberculosis and those for the control group. Both assays could provide quantitative measurement of immunoglobulin G antibody activity to purified protein derivate antigen within 24 hr. These techniques have potential as rapid diagnostic aids in evaluating patients with suspected active tuberculosis.

Serum and Bone Marrow Radioimmunoassay of Acid Phosphatase in Prostatic Cancer. M. F. Sarosdy, G. Kledzik, D. L. Lamm; University of Texas, San Antonio, TX. *Urology* 19:33–36, 1982

Elevations of serum acid phosphatase have served as a tumor marker for metastatic prostate carcinoma for decades. A considerable drawback to these enzymatic assays has been cross-reactivity with acid phosphatases of nonprostatic origin. The recent development of a radioimmunoassay (RIA) for prostatic acid phosphatase has provided a diagnostic procedure that is said to be more sensitive and specific for prostatic carcinoma. This postulate was investigated by comparison of enzymatic and RIA determinations of serum acid phosphatase in 52 patients undergoing prostatic surgery and 20 additional patients with known prostatic cancer. Bone marrow aspirates, 25 samples from 19 patients (including 13 women) with nonprostatic disease, were assayed for prostatic acid phosphatase by RIA. Results showed essentially no increase in sensitivity of the RIA over the enzymatic analysis (17.3% as 13.5%) for serum acid phosphatase in prostate carcinoma. The false-positive rate was 9% for the RIA contrasted with 0% for the enzymatic analysis. Elevated values of prostatic acid phosphatase by RIA were found in over half of the bone marrow aspirates from the patients with nonprostatic disease. The authors concluded that cross-reactivity with acid phosphatase of nonprostatic origin can occur with RIA and that RIA of serum acid phosphatase cannot be used as a screening test for prostatic carcinoma at this stage of development.

True Three-Dimensional Image Reconstruction by Nuclear Magnetic Resonance Zeugmatography. C-M. Lai, P. C. Lauterbur; SUNY at Stony Brook, Stony Brook, NY. *Phys Med Biol* 26:851–856, 1981

Nuclear magnetic resonance (NMR) techniques are ideally suited for generating three-dimensional images. A one-dimensional representation of the spatial distribution of the NMR signals in a plane is obtained using a magnetic field gradient. Rotation of the gradient direction in a plane perpendicular to any axis generates a set of one-dimensional projections from which a two-dimensional image may be reconstructed. From a set of two-dimensinal images, which can be obtained with no mechanical motion, a three-dimensional image can be reconstructed. The authors estimate the data acquisition time for 3600 independent projections of 128 data points would be 6 min and the reconstruction time, using a commercial hardware reconstructor, would be 160 msec. These techniques would provide practical NMR images with three-dimensional resolution better than the slice thickness of CT image and approaching CT resolution in the scanning plane.

Performance Study of PETT VI, a Positron Computed Tomograph with 288 Cesium Fluoride Detectors. M. Yamamoto, D. C. Ficke,

M. M. Ter-Pogossian; Washington University School of Medicine, St. Louis, MO. *IEEE Trans Nucl Sci* NS-29 No. 1: 529–533, 1982

The PETT VI scanner is a positron computed tomography system using four circular rings of 72 CsF scintillation detectors each, capable of simultaneous reconstruction of seven slices (four straight and three cross slices between the straight planes). Minimum imaging time is 1 sec. The system has a 29-cm diameter aperture and is designed primarily for fast dynamic studies of the human brain in which image quality at high counting rate is especially important. This paper describes the results of performance tests, including energy (32%), temporal (1.5 nsec), and spatial (7.6–14.0 mm) resolution, linearity of PETT number contrasted to activity, crosstalk between slices, and other parameters. Examples of human images obtained with ^{11}CO-carboxyhemoglobin and ^{15}O-labeled agents also are shown. Advantages of the PETT VI contrasted to previous PETT scanners are discussed.

Implementation of Digital Subtraction Angiography with a Synchrotron X-ray Beam. H. D. Zeeman, E. B. Hughes, L. E. Campbell, R. Hofstadter, R. L. Kirk, T. J. Krolicki, J. Rolfe, J. P. Stone, S. Wilson, E. Rubenstein, A. C. Thompson, J. T. Walton. *IEEE Trans Nucl Sci* NS-29 No. 1:442–566, 1982

This paper reports initial results of studies using intense x-ray beams of tunable monochromatic, energies for imaging small concentrations of iodinated contrast material, using x-ray beams generated by the Stanford Synchrotron. A line-scanning system incorporating 30 Si(Li) detector elements at 1-mm intervals is described. Lucite step and wedge phantoms containing bone and 20:1 diluted Renografin were used to demonstrate system capabilities for suppressing noniodine contrast. Also shown are coronary artery images of an excised calf heart, into which a mixture of NaI powder and silicon-based dental impression paste had been infused. The authors claim that their system overcomes the principal difficulties associated with digital subtraction angiography and may make possible noninvasive coronary arteriography.

The Development of Mercuric Iodide Gamma-Radiation Detectors for Application in Nuclear Medicine. A. Levi, M. Roth, M. Schieber, S. Lavy, G. Cooper; *IEEE Trans Nucl Sci* NS-29 No. 1:457–460, 1982

Mercuric iodide is a semiconductor detector material with several potential advantages, including energy resolution superior to that of NaI(Tl) (by about a factor of 4–5), suitability for use at room temperatures, and efficient γ-ray stopping power. The authors report the results of performance testing of HgI_2 detectors, approx. 0.5-mm thick × 80-mm^2 active area, in phantoms and in clinical studies of regional cerebral blood flow (rCBF) by the Xe-133 inhalation techniques. They claim that rCBF measurements using HgI_2 detectors are more accurate than those obtained with NaI(Tl) detectors, due to the improved ability to reject scattered radiation with HgI_2, as well as its more efficient γ-ray detection characteristics.

Fetal Elevation: A New Technique for Placental Localization in the Diagnosis of Previa. T. G. Lee, J. Q. Knochel, M. G. Melendez, S. C. Henderson; University of Utah, Salt Lake City, Utah. *J Clin Ultrasound* 9:467–471, 1981

In the patient suspected of placenta previa in whom the placenta lies posteriorly, the overlying fetal parts often obscure and preclude identification of the lowest portion of the placenta. Gentle traction serves to elevate the fetus away from the area of the internal os allowing amniotic fluid to fill the space and render identification of both the os and the lowest extent of the placenta quite readily. Since the majority of patients with vaginal bleeding do not have placenta previas, correct identification of the internal os and exclusion of this condition will prevent unnecessary cesarean section. The authors suggest that the inability to lift the presenting fetal part may indicate that a placenta previa does not in fact exist. Representative sonograms and demonstration of the maneuver are provided.

Collateral Veins in Portal Hypertension: Demonstration by Sonography. A. K. Dokmeci, K. Kimura, S. Matsutani, M. Ohto, T. Ono, Y. Tsuchiya, H. Saisho, K. Okuda; Ankara University, Ankara, Turkey. *Am J Roentgenol* 137:1173–1177, 1981

Using a real-time system the authors examined 38 patients with collateral veins to the portal system. Using the percutaneous transhepatic portography as the standard, the rate of detection for sonography was 85% for the coronary vein, 100% for the paraumbilical, and 10% for the short gastric veins. In addition, sonography demonstrated a dilated paraumbilical vein in three cases in which it was not opacified at portography. Measurements of the diameter of the coronary vein by ultrasound correlated well with those of the portography studies. The authors suggest that real-time ultrasound represents a good initial screening device for the detection of collateral veins in suspected portal hypertension. Representative sonograms and correlative portograms are provided.

Pitfalls in the Ultrasonic Determination of Total Intrauterine Volume. M. Grossman, J. J. Flynn, D. Aufrichtig, C. R. Handler; University of California, Irvine Medical Center, Orange CA. *J Clin Ultrasound* 10:17–20, 1982

Several variations in methods of measuring total intrauterine volume can produce widely divergent results. Since the inner margin of the uterine wall is frequently difficult to define, the authors suggest measuring the outer margins despite the inclusion of the additional thickness of the uterine wall. The distended urinary bladder will change the uterine volume calculation, and the authors recommend that the measurements be done with the bladder empty. In addition, uterine contraction can foreshorten the longitudinal measurement and produce an essential source of error. A considerable amount of variability is inherent in the method and cannot be eliminated. Standardization of measurement techniques will, however, help to minimize these variations.

Medullary Nephrocalcinosis: Sonographic Evaluation. G. M. Glazer, P. W. Callen, R. A. Filley; University of California, San Francisco, CA. *Am J Roentgenol* 138:55–57, 1982

The authors present four cases in which focal areas of increased echogenicity were localized to the renal pyramids. In one case with shadowing, calcification was visible on the plain film. In the remaining three, no sonographic shadowing was evident and no radiographically detectable calcification was seen. The authors suggest that if increased echogenicity of the renal pyramids is present, nephrocalcinosis should be considered despite the absence of radiographically demonstrable calcification. The remainder of the cortex was sonographically normal in these cases.

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