MONTHLY NEWSLETTER

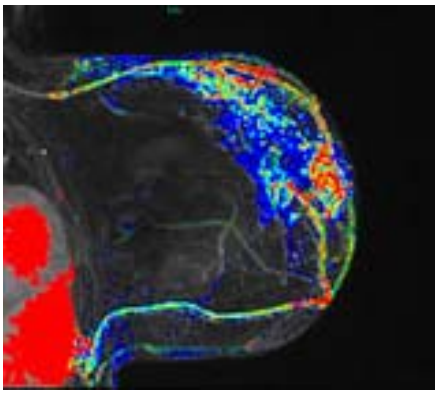
January 2006

NEW BREAST MRI SOFTWARE

Main Street Radiology has acquired *DynaCAD*, an advanced computer-aided detection system for Breast MRI. Installation is scheduled for January.

DynaCAD is a digital imaging work-station with an extensive set of computer-aided detection (CAD) tools for performing real-time image analysis and interventional procedure planning. Some of the advances this new technology provides are:

- **Reduction of motion artifacts.**
- **Interactive access to time-intensity curve data** (also referred to as enhancement curves).
- **3D color maps –** a color-coding system that visualizes tissues according to their similarity to known tumor properties, resulting in detailed 3D color images of areas in the breast with abnormal characteristics.
- **Improved calculation of target coordinates for MRI-guided interventions.**



(Image from dyncad.com)

Breast MRI: Common Indications

- Abnormality seen on one mammographic view only
- Unknown primary cancer with negative mammography and ultrasound
- Discordant mammographic and sonographic findings
- Atypical mammographic and sonographic features
- Nipple discharge
- Implants and silicone injections
- Evaluate extent of disease in biopsy proven breast cancer
- Follow response to chemotherapy
- BRCA 1/ 2 carriers

Current State of BREAST ULTRASOUND

While awaiting the outcome of an active protocol called the ACRIN Study 6666, which is investigating screening breast ultrasound, the American College of Radiology (ACR) indications for breast ultrasound include:

1- Identification/characterization of palpable and nonpalpable abnormalities and further evaluation of clinical and mammographic findings.
2- Guidance of interventional procedures.
3- Initial imaging for women under 30 and in lactating and pregnant women.

"Although the efficacy of ultrasound as a screening study for occult masses is an area for research, at the current time, **ultrasound is not indicated as a screening study**." Statement from the NCI pertaining to breast ultrasound is as follows: "Ultrasound is not used for routine breast cancer screening because it does not consistently detect certain early signs of cancer such as microcalcifications." In a position paper by the Society of Breast Imaging, one of the conclusions was, "screening breast sonography has not been shown to decrease mortality from breast cancer. At the present time, it is not the standard of care to offer or perform this examination." At MSR, we attempt to provide the most current and appropriate imaging for patients while taking special effort to work out specific problems. As such, ordering "**breast ultrasound as necessary**" in the absence of clinical symptoms allows us to image the patient most appropriately.

FLUSHING EVENING HOURS

Our downtown Flushing office at 136-25 37th Avenue is now open every Wednesday evening. CT, Ultrasound, Mammography and X-ray services are available to 8 pm, and MRI examinations are scheduled to 10 pm. We have also recently expanded our Flushing Saturday schedule, currently open from 8 am to 3:30 pm. Our Bayside offices will continue to provide services every weekday evening and Saturdays. We plan to open additional evening and weekend hours at all three of our offices as demands require.

CASE OF THE MONTH

URETERAL CARCINOMA

History: 67 year old male with microhematuria was referred to Main Street Radiology for a CT scan utilizing a "hematuria protocol".

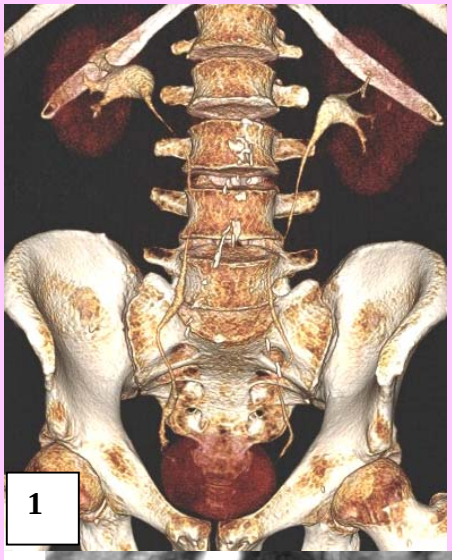
Findings: Focal distal ureteral stricture is identified on the 3D CT urographic images (Figures 1-3), with minimal hydronephrosis. An intralumminal mass is seen on the 2D coronal reformatted CT urographic image (Figure 4), compatible with ureteral transitional carcinoma.

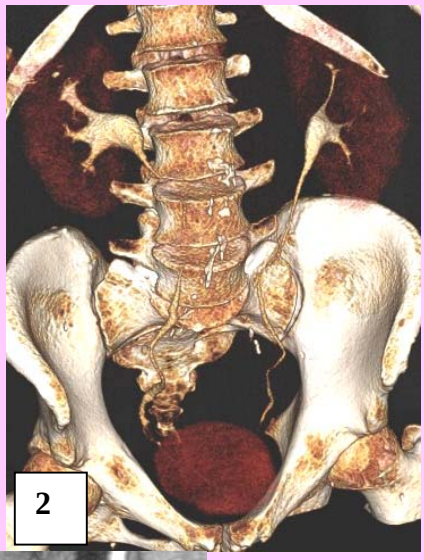
Discussion: With a 16-detector spiral CT, 3D volumetric imaging can be obtained. There are numerous applications which have revolutionized medical imaging. In studying the urinary tract, "CT urographic" images of the ureters surpass the diagnostic capabilities of IVP and routine CT (*AJR* 2005;184:1873-81).

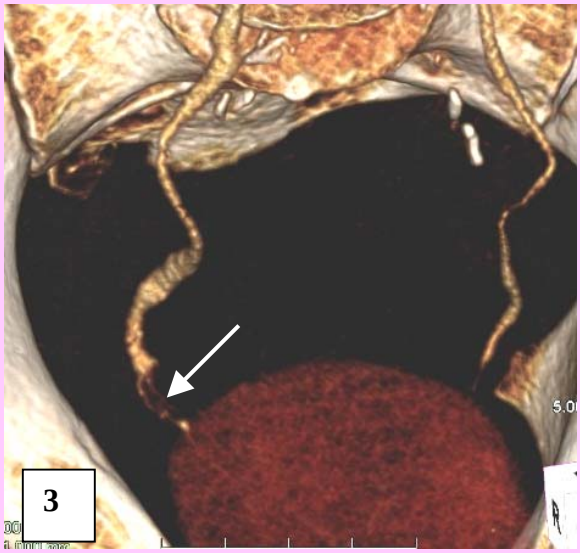
At MSR, "hematuria protocol" CT routinely involves the acquisition of 3D CT urography images, as well as the traditional pre- and post-contrast thin section images of the kidneys. This protocol enables the most comprehensive non-invasive imaging of hematuria patients with a single study, surpassing ultrasound and IVP.

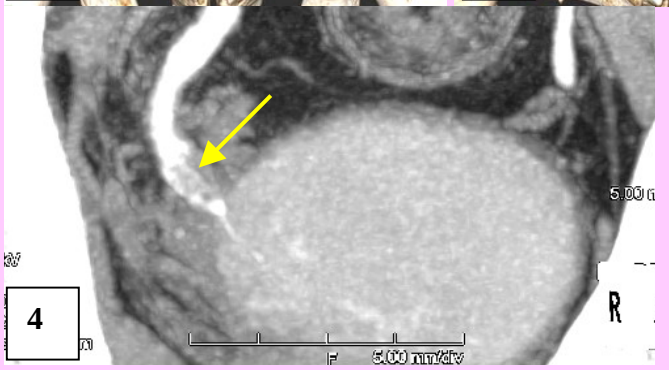
Traditionally, CT has been accepted as the most accurate test for detecting renal masses. However, CT had limited utility in evaluating for causes of hematuria affecting the collecting systems and ureters. With the advent of CT urography, disease processes such as transitional carcinoma of the upper urinary tract and papillary necrosis can be accurately assessed.

MSR is the first facility in Queen with a 16-detector spiral CT, and one of the few centers in the New York area to routinely perform hematuria-protocol CT with CT urography.









Figures 1 and 2: Frontal and oblique 3D CT-urographic images demonstrate minimal right sided hydronephrosis.
Figure 3: Magnified oblique 3D CT-urogrphic image shows a distal right ureral stricture (arrow).
Figure 4: A filling defect (arrow) is seen within the distal right ureter on the 2D coronal CT-urographic image, compatible with transitional cell carcinoma