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3D imaging

Computed Tomography in the Orange Coast Radiology Department has gone “3-dimensional“. Upgrades to our existing Vital Images software have enabled many new exciting CT applications and enhanced several already proven ones.

We now apply Computer-Aided Detection (CAD) to every chest CT we perform at Orange Coast. This new software package evaluates the lungs prior to radiologist review. Potential lung nodules are flagged to focus the radiologist’s attention to even very small possible nodules (as small as 3-4 mm). Once a pulmonary nodule is found, computer evaluation generates a profile of the nodule including its size, volume and density. If a prior CT chest is available on PACS, this is automatically reviewed by the program and calculations made to evaluate potential growth. Doubling times are then calculated in these cases. A similar program evaluates lung CTA for possible pulmonary emboli. Such tools greatly enhance the radiologists ability to accurately characterize nodules and examine for subtle change in size. This should significantly enhance the oncology program at Orange Coast and is offered at no additional cost.

CT Angiography (CTA) has been offered at Orange Coast for many years as a highly effective and integral tool in evaluation of arterial disease. For patients with suspected renal artery stenosis (renal CTA), suspected mesenteric ischemia (mesenteric CTA), or cerebral infarction or TIA (circle of Willis CTA), CTA is a non-invasive means to evaluate for vascular stenoses without the risk of conventional angiography. CTA is also used to confirm preoperative carotid stenoses (carotid CTA) or in the evaluation of AAA (aortic CTA for pre-stent graft evaluation). 3D and volume rendered images are created by our technologists and radiologists immediately after scanning and transferred to STENTOR PACS for review in your office.

Similar 3D rendering techniques are used to generate virtual images of other structures as well. This can be particularly useful for orthopedic studies, in surgical planning or in the post-op patient. Thin section CT imaging significantly limits metallic artifact from pins and other hardware. Images can be freely rotated, manipulated and even joints virtually “disarticulated” to examine articular surfaces. Please stop by for a demo. 3D reconstruction can be ordered with any orthopedic CT scan.

CT “virtual” colonoscopy (CTC) is a safe, rapid screening tool. It uses air insufflated via a rectal tube while in the CT scanner. No IV contrast is required and the overall CT procedure is accomplished in a few minutes. Recent software upgrades at Orange Coast have allowed processing of the data in a “virtual” endoscopic view with selected images and cine sequences of the reconstruction downloaded to STENTOR PACS. Several recent large studies have reported accuracies in detecting polyps similar to standard optical colonoscopy. They suggest that CTC may play a more important role in the screening of certain patients. These patients might include those with significant risk of standard optical colonoscopy (i.e sedation risk, tortuous colon, etc). CTC can be very helpful in evaluating the remainder of the colon in incomplete colonoscopy or perhaps provide interval screening in high risk patients.

These new and improved software applications add a new dimension of service for our patients at Orange Coast Memorial. Please do not hesitate to call Dr Wasley or any of the radiologists at 378-7520 with any questions you may have regarding these applications.