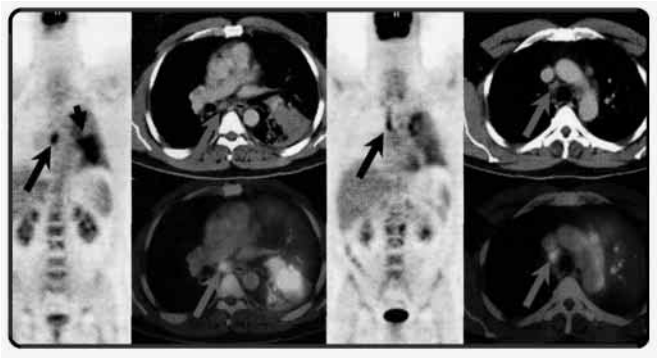
news

1.

Fluorocholine PET/CT aids prostate cancer staging and management

The power of F-18 fluorocholine (FCH) as a guide for the clinical management of prostate cancer is gaininig recognitiong. Dynamic whole-body PET/CT performed with F-18 FCH accurately assesses the extent of lymphatic involvement from prostate cancer, according to findings from two years of experience at the PET/CT center of Hospital of the Holy Sister in Linz, Austria. A study involving preoperative staging for 49 patients and postoperative follow-up for 61 patients found that the probe is equally adept at identifying bone metastases associated with prostate cancer. Results were presented in March by Dr. Warner Langsteger, director of nuclear medicine and endocrinology at Holy Sister, at the 2005 Academy of molecular Imaging meeting in Orlando, Florida.



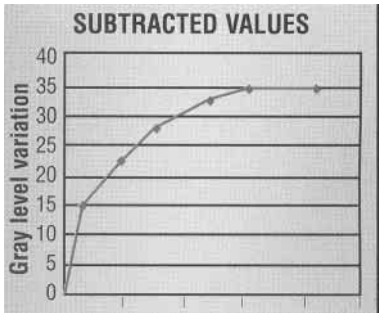
For staging, positive FCH PET/CT findings were generated for 16 of 18 cases confirmed with biopsy: 4% of the cases were downstaged mainly because of suspicious bone lesions that were negative for uptake on the FCH PET/CT scans, and 12% of the presurgical cases were upstaged. FCH PET/CT uncovered new bone metastases in four cases, and in two cases, it helped identify positive lymph node involvement. As a result, radiation therapy was prescribed for these patients, and surgery was canceled, Langsteger said. Langsteger was also encouraged about the probe's potential. The results of his study led him to conclude that dynamic PET/CT with F-18 FCH will become a valuable noninvasive diagnostic tool for prostate cancer, especially for differential diagnoses involving lymph nodes and the ureter. PET/CT may boost physiscian confidence, but the fusion imaging technique is basically equivalent to PET alone for staging or staging or restaging llymphoma.

Taken from Diagnostic Imaging Europe, James Brice, May 2005, p. 13-14

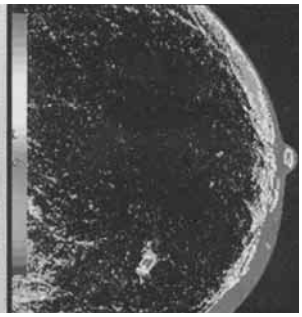
2.

Contrast gives the edge to digital breast scans

Conventional mammography also has limitation, however. Its performance can be less than optimal for imaging dense braest tissue and/or fibrocystic disease and in follow-up examinations after breast-conserving tharapy. The technology now available for full-field digital mammography (FFDM) examinations offers capability not provided by conventional screen-film systems. Contrast-enhanced digital mammography & CEDM) combines the adventages of contrast-enhanced imaging with those of FFDM. Two techniques are under development: dynamic CEDM and dual-energy CEDM.



Kinetic enhancement curve for lesion shows gradually increasing enhancement. Lesion proved to be invasive ductal carcinoma on histologic analysis



Parametric image of maximum enhancement gradient depict breast tumor as irregular enhancing mass

Clinical experience. Initial clinical use of these techniques is encouraging, confirming the ability of digital mammography to detect breast cancer angiogenesis. One study of dynamic CEDM in 22 patients scheduled for breast biopsies showed enhancement in eight out of 10 patients with histologically proven breast carcinoma. The two false-negative results corresponded to one case of ductal carcinoma in situ and one case of invasive ductal carcinoma. Among the 12 patients with a benign breast lesion, seven had no enhancement and five had nodular enhancement. These false-positive results corresponded to three cases of fibroadenoma and two cases of fibrocystic change with focal intraductal hyperplasia.

We have also examined dynamic CEDM. Our study concentrated on 20 patients with suspicious breast abnormalities, all whom had been reffered to our institution for surgical resection. Histologic analysis of surgical specimens showed 22 malignant tumors (bifocal tumor in two patients'. Sensitivity of dynamic CEDM for detection of braest carcinoma was 80%. Correlation between the tumor size and at histology and size of enchancement measured on substraction images was excellent (97%).

We had four flase-positive results, each corresponding to invasive ductal carcinoma.

We found that the median value of intratumoral microvessel density was higher in true positives (79.2 microvessels/mm^2) than false negatives (56.5 microvessels/mm^2), although the difference was not statistically significant (p=0.72). Kinetic curves of enchancement fromdynamic CEDM show that malignant tumors are generally characterized by early enchancement followed by a plateau or a gradually increasing enchancement. We observed only the typical MRI kinetic findings of malignancy - rapid enhancement and washout - in four malignant tumors.

Taken from Diagnostic Imaging Europe,
Clarisse Dromain, Fanny Jeunehomme, Robert Sigal, May 2005, p. 26-29.