Dr Tang and colleagues respond

Permalink
https://escholarship.org/uc/item/1zx3w7nd

Journal
Radiology, 168(1)

ISSN
0033-8419

Authors
Tang, John S
Gold, Richard H
Bassett, Lawrence W
et al.

Publication Date
1988-07-01

DOI
10.1148/radiology.168.1.284-c

Peer reviewed
usually visualized as a wedge-shaped configuration, and its attenuation is usually higher than that of true space-occupying lesions. Therefore, uneven opacification of liver parenchyma would be correctly diagnosed after much experience with AP-CT.

In any case, I think that the readers of Radiology may find it difficult to understand the low sensitivity of AP-CT because the contrast between the lesions and liver parenchyma is most definite on AP-CT scans compared with those seen on DS-CT and EOE-CT scans, as shown in Figures 3 and 4. I hope that Miller et al. reevaluate their data after clarifying their diagnostic criteria and performing AP-CT in many more cases.

References

Dr Miller responds:
I thank Dr Matsui for his letter. He has extensive experience in evaluation of the liver for metastatic disease and has clearly read our article (1) carefully. He raises some interesting points.
1. The criteria used for interpreting all three studies were the same. We looked for focal areas of decreased attenuation. Obviously nonmalignant lesions were not counted. Equivocal lesions were considered positive; if subsequently shown to be benign histologically, they were considered false positive. In Figure 3, the cyst was not identified as a false-positive lesion on DS-CT or EOE-CT scans because it was not detected among the background of low-attenuation vessels. The area of fibrosis was considered a false-positive lesion on EOE-CT scans. Because of the nature of the study, radiologists interpreting individual scans did not have access to results of any other imaging studies. As Dr Matsui notes, correlation with other imaging studies is usually extremely helpful and may allow exclusion of some false-positive lesions.
2. Just as Dr Matsui has extensive experience in the use of AP-CT, we have extensive experience in the use of EOE-CT and DS-CT. We have in fact demonstrated that the sensitivity of DS-CT and EOE-CT decreases for lesions under 1.5 cm in diameter (1-3), but in this study opacification of the hepatic vasculature during AP-CT did not increase sensitivity or decrease the false-positive rate compared with those achieved with DS-CT or EOE-CT.
3. I agree that uneven opacification is a major problem with AP-CT. It is noteworthy that this does not occur with DS-CT or EOE-CT. While flow-related defects are usually wedge-shaped, they need not always have this configuration, as shown in our Figure 5. Obviously, extensive experience with AP-CT is helpful, but some lesions will always be a problem. Incidentally, we were quite careful not to wedge the tip of the angiographic catheter or direct it into a side branch of the superior mesenteric artery.

Dr Matsui concludes that the reader might find it difficult to understand the low sensitivity of AP-CT because lesion-liver contrast is very high as shown in our Figures 3 and 4. I would stress that these figures show false-positive lesions and not tumor. This was proved histologically, and I think Dr Matsui's comment reiterates our point that AP-CT has an unacceptably high false-positive rate. It is for this reason, and not because of their sensitivity, that we prefer DS-CT and EOE-CT for the evaluation of hepatic metastases.

References

Donald L. Miller, MD
Department of Diagnostic Radiology
National Institutes of Health
Building 10, Room 1C-660
Bethesda, MD 20892

Musculoskeletal Infection of the Extremities: Evaluation with MR Imaging

From: James A. Scott, MD
Edwin L. Palmer, MD
Department of Radiology
Massachusetts General Hospital
Boston, MA 02114

Editor:
We were puzzled by several of the conclusions drawn by Tang et al (1) in their article in the January 1988 issue of Radiology, which described magnetic resonance (MR) imaging findings in musculoskeletal infection of the extremities. As the authors noted in their Results section, the experiment lacked several design features necessary to evaluate sensitivity and specificity meaningfully. It is therefore surprising to see the conclusion drawn that "MR imaging had high sensitivity and specificity in the detection of active infection in bone, even in cases of chronic osteomyelitis with or without previous surgery or fracture." The article provided no information from which this conclusion can be drawn. No statistically meaningful conclusions can be drawn from the data presented because of the described limitations in experimental design (2).

The authors stated that both T1- and T2-weighted images are necessary to evaluate musculoskeletal infection because of the nonspecific appearance on T1-weighted images. Thus, the three patients studied with only one pulse sequence should presumably have been excluded from consideration, since it is unclear how a diagnosis for these patients was reached on the basis of MR imaging data. In cases in which surgical proof was lacking, correlation with clinical course and other available imaging studies was used as "proof" (method not described). This is a major problem in favor of the authors repeatedly referred to the limitations of these procedures. The abstract indicated that "MR images provided more accurate and detailed information regarding the extent of involvement than did radionuclide bone scans, computed tomographic scans, or standard radiographs." No information about pathologically proved extent of disease was provided. Clearly, the method being studied cannot be presented as its own proof.

While these results are interesting, they do not support modification of currently accepted protocols for the evaluation of osteomyelitis.

References

Dr Tang and colleagues respond:
We thank Drs Scott and Palmer for their response to our article. We agree with them that our results, although promising, are only preliminary and require confirmation by studies on a larger scale and with a more standardized protocol. We also agree that the limitations of our study prevent us from making a meaningful determination of the sensitivity and specificity of MR imaging in the diagnosis of osteomyelitis.

We are not promoting MR imaging, but merely exploring a potential clinical use. We realize that more data are needed about its efficacy in the diagnosis and...
management of osteomyelitis. Because MR imaging is relatively nonspecific, we have always emphasized the need to interpret its findings in the light of those of other imaging modalities, especially plain radiography.

John S. Tang, MD
Richard H. Gold, MD
Lawrence W. Bassett, MD
Leanne L. Seeger, MD
Department of Radiological Sciences
University of California Los Angeles
School of Medicine
Los Angeles, CA 90024

Transthoracic Needle Aspiration Biopsy: Evaluation of the Blood Patch Technique

From: Edgar L. Surprenant, MD
Department of Radiology
Pacific Hospital
2776 Pacific Avenue
Long Beach, CA 90806

Editor:
In their article in the January 1988 issue of Radiology, Bourgoin et al (1) reported their incidence of pneumothorax after transthoracic needle aspiration biopsy performed with a coaxial system. They reported that pneumothorax occurred in 28.8% of the patients (15 of 52) in whom the blood patch technique had been used (group A) and in 34.1% (30 of 88) of those who underwent biopsy without this technique (group B). Chest tube insertion was required in 7.7% of the first group and 9.1% of the second. The authors concluded that, in their series, the blood patch technique failed to affect the frequency of postbiopsy pneumothorax.

Our first 55 biopsies performed with the blood patch technique in 50 patients were reviewed. Pneumothorax occurred in only three of the procedures (5.5%), and chest tube insertion was not needed in any of the cases. No patient experienced significant hemoptysis or any other complication.

Our technique is similar to that used by Bourgoin et al. A preliminary chest radiograph was obtained. A coaxial needle system with a 19-gauge introducing needle and a 22-gauge aspiration cannula was used for all biopsies. The patients were not sedated before the biopsy. After installation of a local anesthetic, the 19-gauge needle was directed toward the target during quiet breathing. The pleura was punctured only once. Upon completion of the biopsy, 5–10 mL of autologous clotted blood was injected through the introduc-