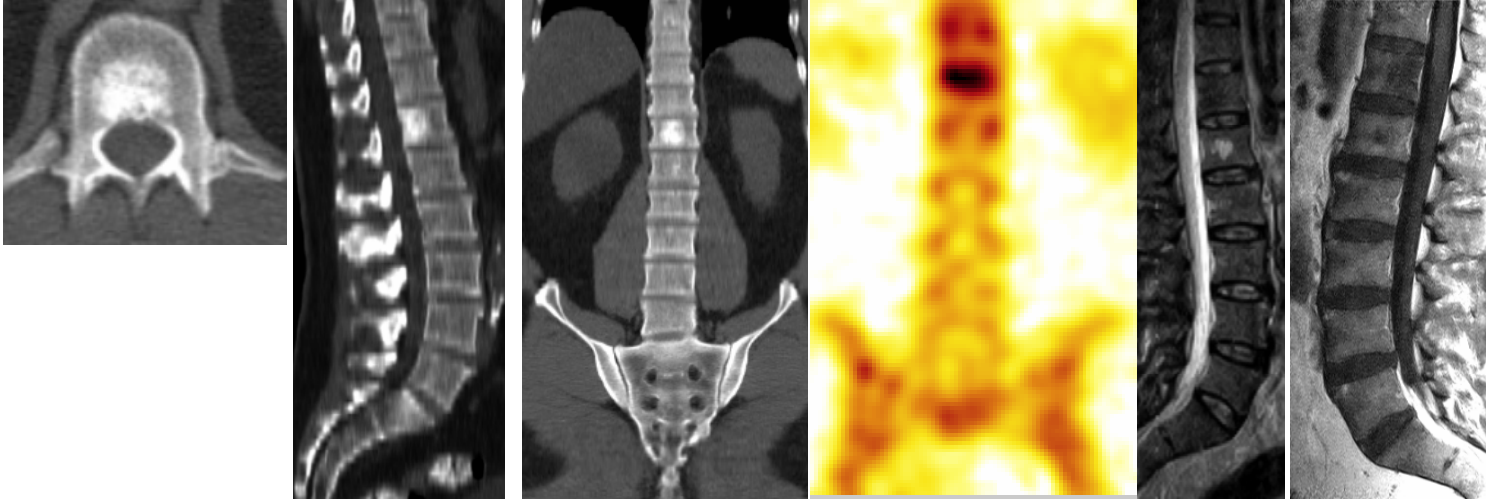




ADVANCED IMAGING CENTER  
**PHYSICIAN NEWS**

November 22, 1999

**INTERESTING CASE PRESENTATION**



**Fig. 1a**

**Fig. 1b**

**Fig. 1c**

**Fig. 2**

**Fig. 3a**

**Fig. 3b**

• **History:**

Mr. S.B. is a 60 y/o male who was referred to AIC for pelvic and back pain.

• **Imaging work-up:**

A **helical CT** of the abdomen/pelvis was ordered. Magnified axial image of T12 (Fig. 1a), sagittal reformation of the spine (Fig. 1b), and exquisite *curved coronal reformation* of the spine and sacrum (Fig. 1c), performed on an advanced 3D workstation, are shown here.

A **nuclear bone scan** with **SPECT** was ordered. A coronal SPECT image is shown here (Fig. 2).

An **MRI (open and high-field)** of the lumbar spine with and without contrast was ordered. Here shown are precontrast sagittal T2 (Fig. 3a) and postcontrast sagittal T1 weighted images (Fig. 3b).

• **Findings:**

The **CT** shows a sclerotic lesion in T12 vertebral body (Fig. 1). A subtle sclerosis was also noted in L1 (not well shown here).

The whole **body bone** scan (not shown) was unremarkable, but **SPECT** scan shows increased uptake in T12 vertebral body (Fig. 2).

The **MRI** shows hypointensity in T12 and L1 lesions on T1 weighted images (Fig. 3b) with hypointensity in T12 lesion and hyperintensity in L1 lesion on T2 weighted images (Fig. 3b). The post-contrast MRI images (including Fat Sat) did not reveal any significant enhancement (Fig. 3b).

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**INTERESTING CASE PRESENTATION (Cont'd)**

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• **Differential diagnosis:**

- Based on the **CT** findings, the DDX includes: (1) blastic metastasis (e.g., from prostate cancer in a 60 y/o male); (2) atypical sclerotic (involuted) hemangioma (the lesion does not have typical “corduroy” or “honeycomb” appearance of a typical hemangioma); (3) bone island; (4) other benign bone lesions (osteoid osteoma, osteoblastoma, etc.).
- Based on the **SPECT**, the DDX includes: probably all the above possibilities. A totally negative SPECT would have, however, virtually ruled out a malignancy -- not the case here.
- Based on the **MRI**, the DDX includes: actually the MRI is not typical for any of the above! Hemangiomas are typically bright on T1 images (due to presence of fat) and bright on T2 images and demonstrate enhancement (due to vascularity). These lesions have none of these characteristics. A sclerotic *non-vascular involuted* hemangioma may have altered signal characteristics and perhaps show no enhancement. A metastasis is also considered less likely due to lack of enhancement, although not totally excluded.

• **Recommendations:**

- A PSA level is recommended. If negative, follow-up CT in 3 months recommended.
- If PSA is positive, closer follow-up CT (in one month) or biopsy recommended.
- Due to lack of enhancement, the lesion is not very vascular and thus biopsy, if clinically warranted, would be relatively safe.
- Although exact histology is not possible in this case, if PSA turns out to be negative, the consensus is that these lesions are probably benign.\*

For any questions please call me personally at (661) 949-8111.

*Ray Hashemi, MD*

Ray H. Hashemi, M.D., Ph.D.

Director

\* This case was also submitted for review to Dr. William Bradley, Jr., M.D, Ph.D. (Professor of Radiology at UC Irvine and director of Long Beach Memorial MRI Center and one of the most prominent MRI radiologists in the nation), and to Dr. Donald Resnick, M.D. (Professor of Radiology at UC San Diego and one of the most prominent bone radiologists in the nation).