



its in Safety Code 6 and other international standards (as were measured in the schools), then our conclusion seems justified.

To clarify another point, we made no attempt in this study to compare the measured levels of radiofrequency radiation to background radiation levels. Although it is true that the radiofrequency radiation levels measured in our study are much higher than naturally occurring (background) levels, this is necessary to make a radio system function properly.

Finally, with reference to Cridland's last remark, it has been known for some time that the physical properties and effects of x-radiation and radiofrequency radiation on matter are vastly different. As Cridland implies, ionizing radiation (x-rays) at low intensities possess sufficient energy to directly break chemical bonds in material such as DNA. This is not the case with the radiofrequency radiation investigated in this study, which possesses a photon energy at least 6 orders of magnitude lower than that of x-rays.

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#### Reference

1. Thansandote A, Gajda GB, Lecuyer DW. Radiofrequency radiation in five Vancouver schools: exposure standards not exceeded. *CMAJ* 1999;160(9):1311-2.

## Imaging errors

I have read with interest the recent *CMAJ* series on tuberculosis. As a radiologist, however, I feel compelled to comment on the article on extrapulmonary tuberculosis.<sup>1</sup>

Fig. 1 does not show left mid-ureteral narrowing and upper tract dilatation. It shows multifocal right ureteral disease and irregularity of the urinary bladder wall. There may be upper urinary tract dilatation, but this is mostly obscured.

Fig. 2 does not show narrowing of the L3-L4 disk, nor does it show a filling defect in the intrathecal contrast. The narrowing is at L4-L5, where there are changes associated with discitis. The intrathecal contrast shows extrinsic compression on the thecal sac at this level; a filling defect implies an intrathecal abnormality.

Fig. 3 does not show miliary nodules. These may be present on the original film but are not evident on this poorly reproduced image. A magnified view of one portion of the lung, carefully reproduced, would be necessary to show miliary nodules.

Fig. 4 shows a destructive process within the bone rather than inflammation of the meninges. The meninges are not seen on bone-windowed CT images. Inflamed meninges can generally be seen only on contrast-enhanced MRI scans.

Given the importance of imaging to modern diagnosis, and the ease with

which high-quality images can be made and reproduced in the electronic era, there is no excuse for poor reproductions and errors such as these. The title page affirms that this article has been peer reviewed; I assume that none of these peers has expertise in imaging. Perhaps *CMAJ* would be better served by ensuring review of diagnostic images by a radiologist before publication.

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#### Reference

1. Fanning A. Tuberculosis: 6. Extrapulmonary disease. *CMAJ* 1999;160(11):1597-603.

#### [The author responds:]

John Clark is correct that the imaging of the tuberculous lesions would have been much more accurately described had an expert in imaging been involved at the point of peer review.

In Fig. 1, the narrowing at mid ureter is indeed obscured. The changes in the right ureter are in fact present, but they were less obvious in the initial illustration than the obstructed left ureter. In Fig. 2, the error in calling the lumbar lesion 3-4 instead of 4-5 was mine. In Fig. 3 the miliary lesions were apparent in the film but lost definition in the printing process. In Fig. 4 the bone lesion is indeed the most obvious one.

Clark points out the critical importance of imaging in the diagnosis of tuberculosis. Without daily interaction with radiologists I would be unable to function. Would that I had consulted them in the final drafting of the paper.

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## Dialysis patients with tuberculosis

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