RE: Evaluation of Hepatic Hemangiomas with Diffusion Weighted Imaging

Ferhat Cuce, MD¹, Ali Kemal Sivrioğlu, MD²,
Emre Karaşahin, MD³, Güner Sönmez, MD⁴

¹Department of Radiology, Van Military Hospital, Van 65050, Turkey;

²Department of Radiology, Aksaz Military Hospital, Mugla 48100, Turkey;

³Department of Obstetrics and Gynecology, Van Military Hospital, Van 65050, Turkey; ⁴Department of Radiology, GATA Haydarpaşa Training Hospital, İstanbul 34040, Turkey

Dear Sir,

We are pleased to read the interesting article by Nam et al. (1) published in the November/December issue of the 2012 Korean Journal of Radiology. The authors examined the correlation between the apparent diffusion coefficient (ADC) value of hepatic cavernous hemangiomas with enhancement patterns.

Since we have a special interest on the subject (2-4) of diffusion magnetic resonance imaging (2-4), we would like to contribute to the evaluation of hepatic hemangiomas with diffusion weighted imaging (DWI).

In the results section, the authors have mentioned about the findings on hemangiomas, which have low ADC values and take on low contrast media. We find this as a valuable contribution to the literature and our practice, as hemangiomas which have low ADC values and take on low contrast media are not common (5, 6).

The authors have found a statistically significant difference between the compared b values at the well contrasted hemangiomas using b 50, 400 sequence. If

it could have been possible to use smaller b values, the statistically significant difference between ADC values, noted by the authors, would have been even more significant.

When b is smaller than 200, the sequences are more sensitive to perfusion rather than diffusion. In evaluating hemangiomas with good contrast, using DWI sequences, which have b values sensitive to perfusion ($b < 200$), has been suggested in the literature (5, 6). Additionally, a DWI sequence with $b < 200$, known as a blackblood sequence, is superior to the T2 sequence in the determination of hemangiomas and metastases (6).

Finally in the last paragraph, the authors mentioned that hypervascular solid tumors can be distinguished by their low ADC's from the rapidly enhancing hemangiomas showing high ADCs. Here, it is not very clear whether malignant or benign (or both) hypervascular solid tumors are discussed, and this may cause confusion to the reader. To further clarify this subject, it might have been better to mention that the benign hypervascular solid tumors have relatively higher ADC values than the malignant, as one would see in focal nodular hyperplasia (FNH). In FNHs, there are higher ADC values than the malignant hypervascular solid tumors (however, ADC values of FNH and hepatocellular carcinoma can overlap [6]); yet, these ADC values are still lower than the rapidly enhancing hemangiomas when b values larger than 200 are used (5).

REFERENCES

1. Nam SJ, Park KY, Yu JS, Chung JJ, Kim JH, Kim KW. Hepatic cavernous hemangiomas: relationship between speed of intratumoral enhancement during dynamic MRI and apparent diffusion coefficient on diffusion-weighted imaging. *Korean J Radiol* 2012;13:728-735
2. Sonmez G, Cuce F, Mutlu H, Incedayi M, Ozturk E, Sildiroglu O, et al. Value of diffusion-weighted MRI in the differentiation of benign and malign breast lesions. *Wien Klin Wochenschr* 2011;123:655-661
3. Sonmez G, Sivrioğlu AK, Mutlu H, Ozturk E, Incedayi M, Karaman B, et al. Is it possible to differentiate between hydatid and simple cysts in the liver by means of diffusion-weighted magnetic resonance imaging? *Clin Imaging* 2012;36:41-45
4. Sonmez G, Sivrioğlu AK, Ozturk E, Mutlu H. Placental insufficiency and apparent diffusion coefficients. *Radiology*

Received November 21, 2012; accepted after revision February 5, 2013.

Corresponding author: Ferhat Cuce, MD, Department of Radiology, Van Military Hospital, İskele Street, Van 65050, Turkey.

• Tel: +90536 8515475 • Fax: +904322220244

• E-mail: ferhatcuce@hotmail.com

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

2011;261:333; author reply 333-334

5. Taouli B, Vilgrain V, Dumont E, Daire JL, Fan B, Menu Y. Evaluation of liver diffusion isotropy and characterization of focal hepatic lesions with two single-shot echo-planar MR imaging sequences: prospective study in 66 patients.

Radiology 2003;226:71-78

6. Taouli B, Koh DM. Diffusion-weighted MR imaging of the liver. *Radiology* 2010;254:47-66