

Are your MRI contrast agents cost-effective?  
Learn more about generic Gadolinium-Based Contrast Agents.



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*Reply:*

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**REPLY:**

**W**e appreciate the comments made by Drs Vossough and Melhem and wish to clarify the techniques described in our article.

We acknowledge your comment that 3D driven equilibrium pulses are not typically relevant to or applied in balanced steady-state free precession (bSSFP), which is a gradient recalled-echo sequence. By the use of this term in the title, we did not mean to imply a technical equivalency but simply included the 3D driven equilibrium radiofrequency reset pulse in this setting because of its use in similar indications, such as the evaluation of drop metastases or vestibular schwannomas on a Philips platform.

While your comments about bSSFP, off-resonance banding artifacts, long TRs, and the 2-pass phase alternation strategy for mitigating phase-shift errors and banding are well taken, FIESTA sequences do work well, in our experience, for the evaluation of drop metastases. We found that these artifacts are less troublesome when using a TR of 5.288–5.948 ms on our 1.5T Signa scanner (GE Healthcare, Milwaukee, Wisconsin). In fact, our study includes cases with FIESTA and does not include cases with


the longer 2-pass FIESTA-C version. On the 3T Tim Trio (Siemens, Erlangen, Germany) scanner platform, however, the TR of 11.69 ms is quite long for a bSSFP scan, especially at 3T in which the phase cycling of the different signal pathways will be increased, and this was the very reason why the 2-pass CISS approach was used.

Our article provides accurate parameters and sequence designations for both the CISS and FIESTA sequences used on all patients included in our study.

In our article, we highlighted the utility of the bSSFP sequence as an adjunct to the postcontrast T1-weighted images of the spine for the detection of drop metastases in pediatric patients with primary brain tumors. While newer thin-section imaging techniques may potentially improve the diagnostic yield of postgadolinium T1 imaging for the evaluation of drop metastases, we believe the bSSFP sequence will remain very useful, particularly in the setting of nonenhancing and small drop metastases.

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