Detailed Caption for Figures 16a and 16b:

The misalignment of the cervical vertebrae (C-1) found by the FONAR UPRIGHT® MRI in the MS patient when she was imaged upright was successfully treated by Dr. Scott Rosa, using the Atlas Orthogonal (AO) instrumentation. She is the first of the patients in the MS study that has been treated thus far. The patient is currently being maintained free of MS symptoms (vertigo and vomiting on recumbency) by weekly treatment with the AO instrument. The patient's symptoms, severe vertigo accompanied by vomiting when lying down, and stumbling from unequal leg length, ceased as treatment was being administered. Figure 16a shows the velocity maps of the flow of cerebrospinal fluid (CSF) in the upright patient before treatment. The maps are visualized in 3D pixels, known as voxels. Figure 16b shows the pixel velocity maps of the same upright patient immediately following treatment. Figure 16b reveals an overall reduction in CSF velocity and, most significantly, the distinct reduction in the number of CSF flow jets (red), which are velocity spikes in CSF flow. In addition, average CSF velocity was reduced in the patient following treatment, as indicated in the maps by a reduction in average peak height. The overall flow of CSF was also more homogeneous after treatment, as indicated by fewer peak height variations. The CSF pixel velocities of Figure 16 were computed and mapped by FONAR scientists-engineers Michael Boitano and Bob Wolf. The CSF flow measurements obtained immediately following successful AO treatment of the patient also exhibited a 28.6% reduction of the patient's CSF pressure.

Citation:
Dolar, M.T., Haughton, V.M., Iskandar, B.J. and Quigley, M. (2004) Am. J. Neuroradiol., 25:142 reported analogous reductions in CSF pixel velocities in Chiari I patients after surgical decompression.