

Diagnostic Breakthrough in Multiple Sclerosis with FONAR UPRIGHT MRI Leads to Noninvasive Treatment that Results in Symptoms of MS Patient Subsiding

FONAR Corporation (NASDAQ-FONR), The Inventor of MR Scanning™, reported today the cessation of symptoms in a 41-year-old female patient with multiple sclerosis following noninvasive treatment. The treatment was based on a recent major diagnostic breakthrough about the cause of multiple sclerosis achieved with the advanced FONAR UPRIGHT® MRI.

Melville, NY ([PRWEB](#)) November 02, 2011 -- FONAR Corporation (NASDAQ-FONR), The Inventor of MR Scanning™, reported today the cessation of symptoms in a 41-year-old female patient with multiple sclerosis following noninvasive treatment. The treatment was based on a recent [major diagnostic breakthrough about the cause of multiple sclerosis achieved with the advanced FONAR UPRIGHT® MRI](#).

Misaligned cervical vertebrae in the patient (specifically, the vertebrae in the neck known as C-1, C-2, and C3) were causing blockage of the flow of cerebrospinal fluid. The malrotations of these vertebrae were initially discovered and visualized by the FONAR UPRIGHT® MRI, which showed that the vertebrae were rotated 5-6 degrees from their normal alignment.

When the vertebrae were successfully realigned, the patient's symptoms subsided. The realignment was achieved by Dr. Scott Rosa, (Rock Hill, NY), using the noninvasive Atlas Orthogonal (AO) instrument, a device that can be used to tap the vertebrae back into normal alignment.

The patient is currently being maintained free of her MS symptoms, (vertigo and vomiting on recumbency) when recumbent, by weekly treatment with the AO instrument.

In the original study on which the diagnostic breakthrough was based, the Upright MRI further revealed that the cervical misalignments in the patient resulted in impairment of the flow of cerebrospinal fluid (CSF) on the posterior side of the spinal cord at the cervical joint between C-2 and C-3. When obstructed, the 500 cc of CSF generated daily within the ventricles of the brain cannot exit the ventricle and circulate normally down the spinal canal and return to the brain. The resulting buildup of CSF pressure gives rise to leakages of CSF fluid into the brain tissue surrounding the ventricles. The swelling in this MS patient (patient #8 of the recent study of CSF flows of 8 MS patients) was particularly pronounced in what are known as the posterior horns of the lateral ventricles. (Fig. 8, Damadian, R.V. and Chu, D., "The Possible Role of Cranio-Cervical Trauma and Abnormal CSF Hydrodynamics in the Genesis of Multiple Sclerosis" *Physiol. Chem. and Physics and Medical NMR*, September 20, 2011,41:1-17). The complete study in which the diagnostic breakthrough was reported can be viewed at www.fonar.com/pdf/PCP41_damadian.pdf

The CSF leakages visualized were connected directly to the MS lesions visible in the MRI scans (Fig. 8). It became apparent to researcher Dr. Raymond Damadian that these leakages might be the cause of the brain lesions of MS patients.

Following treatment of the patient's cervical malrotations, which was performed by Dr. Scott Rosa (Rock Hill, NY), Upright MRI scans, as well as X-rays obtained by Dr. Rosa, showed that the cervical malrotations had been restored to normal.

At the same time, the patient reported that her severe vertigo and vomiting in the recumbent (lying down) position had ceased and that her stumbling from unequal leg length had disappeared.

When her MS symptoms had ceased, velocity maps (Fig. 16a & 16b) of the CSF flow through the spinal canal in the cervical area showed a striking reduction in the average velocity of the CSF fluid through the cervical area of the spinal cord, when compared to the CSF velocities before treatment (Fig. 16a). The flows are exhibited in graphs that record the velocity of the fluid in the flow pixels of the velocity maps. Notice the marked reduction in the number of high velocity CSF flow jets (red) after treatment, as compared with the number present prior to treatment. The high speed jets are caused by blockage of the flow of the CSF fluid, which compensates for the obstructions with increased flow rates in the unobstructed regions.

The reduction in the average velocity of CSF jets in the spinal canal corresponded with the patient's report that her MS symptoms had ceased. Concurrent with the CSF velocity measurements (Figs. 16a and 16b), a quantitative determination of the patient's CSF flow revealed that a 28.6% reduction in the patient's CSF pressure accompanied the cessation of her MS symptoms.

See attached Figure (Fig 16a and 16b) for this release:
Or visit www.fonar.com/news/110211.htm

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.

[About FONAR](#)

FONAR (NASDAQ:FONR), Melville, NY, [The Inventor of MR Scanning™](#), was incorporated in 1978, and is the first, oldest and most experienced MRI company in the industry. FONAR introduced the world's first



commercial MRI in 1980, and went public in 1981. Since its inception, nearly 300 recumbent-OPEN MRIs and 150 UPRIGHT® Multi-Position™ MRI scanners have been installed worldwide. FONAR's stellar product is the UPRIGHT® MRI (also known as the Stand-Up® MRI), the only whole-body MRI that performs Position™ imaging (pMRI™) and scans patients in numerous weight-bearing positions, i.e. standing, sitting, in flexion and extension, as well as the conventional lie-down position. The FONAR UPRIGHT® MRI often sees the patient's problem that other scanners cannot because they are lie-down only. The patient-friendly UPRIGHT® MRI has a near-zero claustrophobic rejection rate by patients. As a FONAR customer states, "If the patient is claustrophobic in this scanner, they'll be claustrophobic in my parking lot." Approximately 85% of patients are scanned sitting while they watch a 42" flat screen TV. FONAR is headquartered on Long Island, New York.

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