



ON-LINE FIGURE. Real-time flow-assessment software used in this study. Anatomic images are on the left and PBI, real-time CSF flow, and physiologic data are on the right. On the sagittal 3D T2-weighted image, the *blue lines* show the axial extent of the PBI cylinder with the *red line* denoting the level of flow assessment (C1 vertebral level). A corresponding axial T2 reconstruction is seen below, which was used to determine the area of the CSF flow channel (area of thecal sac minus area of spinal cord/tonsils). Three panels on the right show the following: PBI axial position (y-axis) versus time (x-axis), with the gray-scale corresponding to the value of the phase (*top*). The real-time CSF flow waveform with time is on the x-axis, flow is on y-axis (*middle*), physiologic data (*bottom*) with respiratory motion are in green (arbitrary units), and heart rate is in red (beats per minute [BPM]). In this patient with CMI, decreased magnitude of the CSF flow waveform is apparent after the coughing period (seen as reduced amplitude in the CSF waveform after haphazard respiratory motion).