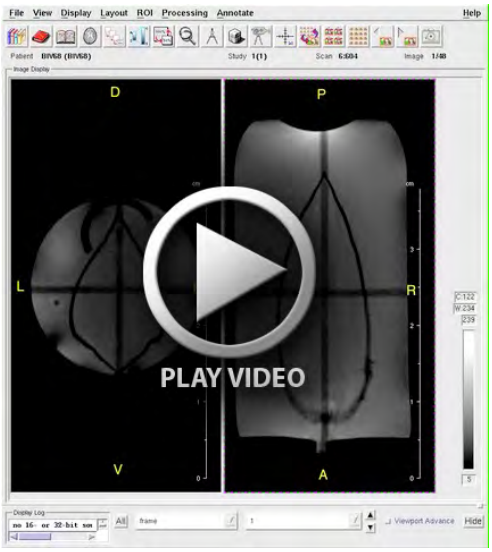
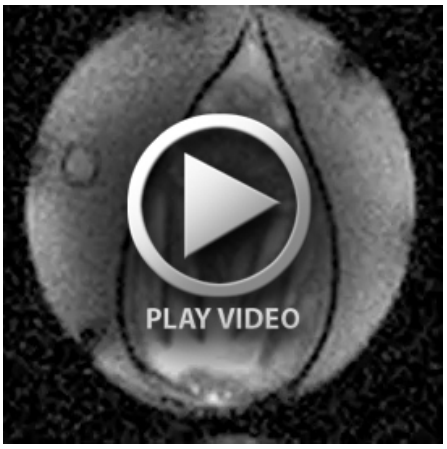
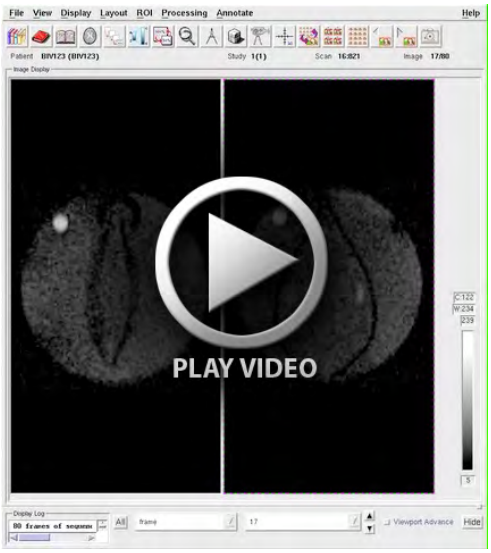


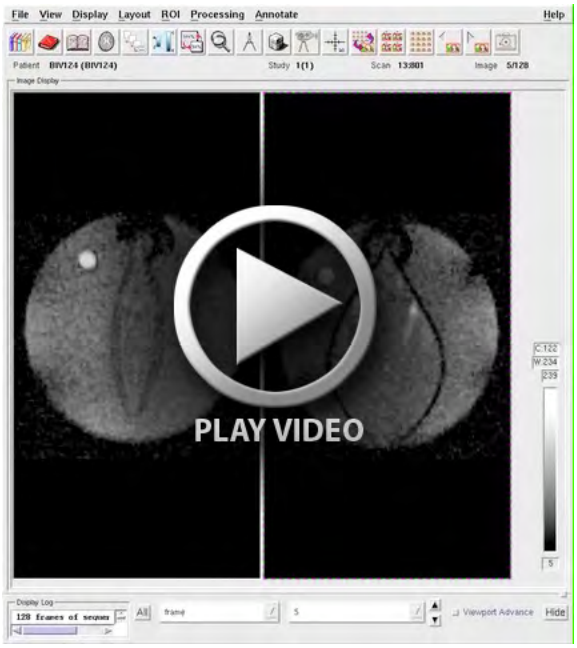
Movie S1. Transverse and horizontal T_{1w}-MR images of *M. galloprovincialis.* Images were measured every 2.55 min for 81.6 min (32 images).



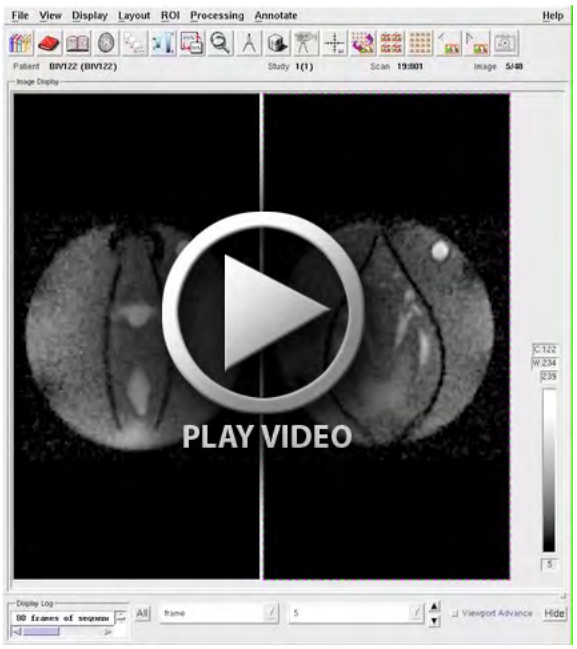
Movie S2. Continuous water flow in the mantle cavity of *M. galloprovincialis*. Transverse T_{1w}-MR images were obtained every 1.92 s for 64 images (122.9 s). Slice position is 1 mm posterior from the AV valve.



Movie S3. Opening process of the water flow in the mantle cavity of *M. galloprovincialis*. Transverse T_{1w}-MR images were obtained every 1.92 s for 48 images from -18.2 s to 72.0 s. Slice positions are 1 mm and 12 mm posterior from the AV valve. Changes in area of the water flow in the inhalant and exhalant siphons and the interlaminal cavities are shown in Fig. 7B.



Movie S4. Rapid changes in the water flow in the mantle cavity during a slow closing process of *M. galloprovincialis*. Transverse T_{1w}-MR images were obtained every 1.92 s for 102 images from -4.8 s to 181.4 s. Slice positions are 1 mm and 12 mm posterior from the AV valve. Changes in area of the water flow during the first open/close process in the inhalant and exhalant siphons and the interlaminal cavities are shown in Fig. 8B.



Movie S5. A short closure process of the water flow in the mantle cavity of *M. galloprovincialis*. Transverse T_{1w}-MR images were obtained every 1.92 s for 32 images from -39.4 s to 20.2 s. Slice positions are 1 mm and 12 mm posterior from the AV valve. Changes in area of the water flow in the inhalant and exhalant siphons and the interlaminal cavities are shown in Fig. 9B.