A 39-year-old female patient with thoracic syringomyelia underwent routine magnetic resonance imaging (MRI) and 3 T MRI to investigate the value of retrospectively cardiac-gated cine steady-state free precession (SSFP) MRI in the preoperative and postoperative diagnosis of arachnoid membranes in the spinal subarachnoid space. Therefore, 3T MRI included sagittal and transverse retrospectively cardiac-gated cine balanced fast-field echo (balanced-FFE) sequences both preoperatively and after microsurgical lysis of arachnoid adhesions and expansive duraplasty. Arachnoid membranes were detected and this result was correlated with intraoperative findings and the results of routine cardiac-gated phase-contrast cerebrospinal fluid (CSF) flow MRI. Retrospectively cardiac-gated cine SSFP MRI enabled imaging of arachnoid membranes with high spatial resolution and sufficient contrast to delineate them from hyperintense CSF preoperatively and postoperatively. The images were largely unaffected by artifacts. Surgery confirmed the presence of arachnoid adhesions in the upper thoracic spine. Not all arachnoid membranes that were seen on cine balanced-FFE sequences caused significant spinal CSF flow blockages in cardiac-gated phase-contrast CSF flow studies. In conclusion, retrospectively cardiac-gated cine SSFP MRI may become a valuable tool for the preoperative detection of arachnoid adhesions and the postoperative evaluation of microsurgical adhesiolysis in patients with idiopathic syringomyelia [1)].

1)
Gottschalk A, Schmitz B, Mauer UM, Bornstedt A, Steinhoff S, Danz B, Schlötzer W, Rasche V. Dynamic visualization of arachnoid adhesions in a patient with idiopathic syringomyelia using high-resolution cine magnetic resonance imaging at 3T. J Magn Reson Imaging. 2010 Jul;32(1):218-22. doi: 10.1002/jmri.22207. PubMed PMID: 20575079.