Surgical treatment of hemifacial spasm via microvascular decompression of a large, ectatic vertebral artery

Megan M Bauman, Lucas Carlstrom, Michael J Link.

Affiliations below.

DOI: 10.1055/a-2244-1143


Conflict of Interest: The authors declare that they have no conflict of interest.

Abstract:
Hemifacial spasm is a neuromuscular disorder caused by compression of the facial nerve at the nerve root entry zone, often due to ectatic or aberrant vasculature. Pathologic compression of the nerve:brainstem interface results in involuntary, paroxysmal contractions of ipsilateral facial muscles that may cause considerable impairments in quality of life. For those with severe symptoms, have positive imaging demonstrating vascular compression, or who fail other management modalities, microvascular decompression offers potential definitive treatment. Traditionally, non-absorbable packing agent is used to pack between the nerve and offending vascular structure. However, for large and more complex arterial structures, simple non-absorbable padding is often not sufficient.

In this operative video, we demonstrate microvascular decompression for intractable hemifacial spasm in a 52-year-old female using a specialized sling tacked to the petrous dura for management of a large, ectatic vertebral artery. Following a standard left retrosigmoid craniotomy, an atheromatous ectatic vertebral artery was identified. We fashioned a bovine pericardium sling around the vessel and used a permanent aneurysm clip to secure it to an incision portion of petrous dura. We subsequently identified potential additional facial nerve root compression by AICA and PICA branches, which were elevated and secured using Teflon felt packing. Following elevation of all three vessels, the lateral spread response resolved. At 2 weeks postoperatively, the patient reported substantial relief in her hemifacial spasms and endorsed highly improved quality of life.

The patient consented to the procedure as shown in this operative video.

Corresponding Author:
M.S. Megan M Bauman, Mayo Clinic, 200 1st St SW, 55905-0002 Rochester, United States, bauman.megan@mayo.edu

Affiliations:
Megan M Bauman, Mayo Clinic, Rochester, United States
Michael J Link, Mayo Clinic, Neurologic Surgery, Rochester, United States
Surgical treatment of hemifacial spasm via microvascular decompression of a large, ectatic vertebral artery

Megan M.J. Bauman, M.S.1,2, Lucas P. Carlstrom, M.D., Ph.D.1, Michael J. Link, M.D.1,3,4

1Department of Neurologic Surgery, Mayo Clinic, Rochester, MN, United States of America
2Mayo Clinic Alix School of Medicine, Mayo Clinic, Rochester, MN, United States of America
3Department of Otolaryngology, Mayo Clinic, Rochester, MN, United States of America
4Corresponding Author:
Dr. Michael J. Link, M.D.
Mayo Clinic, Department of Neurologic Surgery
200 1st Street SW
Rochester, MN, 55905
Link.michael@mayo.edu

Abstract:
Hemifacial spasm is a neuromuscular disorder caused by compression of the facial nerve at the nerve root entry zone, often due to ectatic or aberrant vasculature. Pathologic compression of the nerve:brainstem interface results in involuntary, paroxysmal contractions of ipsilateral facial muscles that may cause considerable impairments in quality of life. For those with severe symptoms, have positive imaging demonstrating vascular compression, or who fail other management modalities,1-4 microvascular decompression offers potential definitive treatment.5,6 Traditionally, non-absorbable packing agent is used to pack between the nerve and offending vascular structure. However, for large and more complex arterial structures, simple non-absorbable padding is often not sufficient.
In this operative video, we demonstrate microvascular decompression for intractable hemifacial spasm in a 52-year-old female using a specialized sling tacked to the petrous dura for management of a large, ectatic vertebral artery. Following a standard left retrosigmoid craniotomy, an atheromatous ectatic vertebral artery was identified. We fashioned a bovine pericardium sling around the vessel and used a permanent aneurysm clip to secure it to an incision portion of petrous dura. We subsequently identified potential additional facial nerve root compression by AICA and PICA branches, which were elevated and secured using Teflon felt packing. Following elevation of all three vessels, the lateral spread response resolved. At 2 weeks postoperatively, the patient reported substantial relief in her hemifacial spasms and endorsed highly improved quality of life.

The patient consented to the procedure as shown in this operative video.

Key words: Hemifacial spasm; ectatic vertebral artery; microvascular decompression; retrosigmoid; skull base

Operative Video: https://www.dropbox.com/scl/fi/i8yeyh60os462andi4tq7/Hemifacial-Spasm_12-12-23.mp4?rlkey=k0ry0aa53ovg7cdd15er8fk1u&dl=0

Submission statement: This abstract and operative video demonstration are original and have not been submitted elsewhere in part or in whole.

Financial Support: None

References: