TITLE: Posterior Fossa Decompression with or without Duraplasty for Chiari type I Malformation with Syringomyelia (PFD vs. PFDD)

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RESEARCH PROJECT DESCRIPTION

This study is in collaboration with The Washington University and will randomize surgical treatment options for children with Chiari I Malformation and Syringomyelia. Children with Chiari type I malformation (CM) and syringomyelia (SM), may suffer debilitating pain, spinal deformity, neurological deficits (myelopathy, weakness, sensory loss, and impaired gait), and a diminished quality of life. CM+SM is treated with neurosurgical decompression of the craniovertebral junction with either of two technical variations: posterior fossa decompression with duraplasty (PFDD), the gold standard operation, which involves intradural microsurgical dissection and duraplasty; or extradural posterior fossa decompression (PFD), in which the dura is not opened.

The central hypothesis of this proposal is that, compared with PFDD, PFD will be associated with fewer surgical complications and less harm to patients, yet will provide non-inferior clinical improvement and syrinx regression. With a more favorable risk profile and non-inferior clinical outcomes, patients undergoing PFD will experience superior quality of life. A prospective, cluster randomized controlled trial of PFD versus PFDD will be conducted in order to test this hypothesis. Medical students would have the opportunity to collect data, potentially observe a surgical decompression, and assist with transmission of research data between institutions.