

Posterior Fossa Decompression with or without Duraplasty for Chiari type I Malformation with Syringomyelia

- Children with Chiari type I malformation (CM) and syringomyelia (SM), a ‘rare disease’, may suffer debilitating pain, spinal deformity, neurological deficits (myelopathy, weakness, sensory loss, and impaired gait), and a diminished quality of life (QOL) [1-3]. CM+SM is treated with neurosurgical decompression of the craniovertebral junction with either of two technical variations: 1) posterior fossa decompression with duraplasty (PFDD), the gold standard operation, which involves intradural microsurgical dissection and duraplasty; or 2) 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 QOL.

Specific Aim 1: Determine if PFD is associated with fewer surgical complications and less harm to patients than PFDD

Specific Aim 2: Determine if PFD provides non-inferior clinical improvement and syrinx regression compared to PFDD