

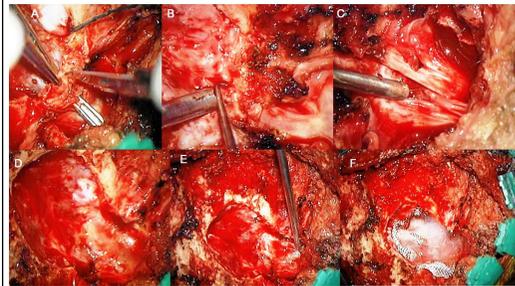
Introduction

This study was conducted to evaluate our results of surgically treated patients for Chiari malformation-I (CM-I) with and without syringomyelia.

Methods

The medical records of all the patients undergoing posterior fossa decompression (PFD) were analysed. Extradural decompression with thinning of the sclerotic tissue and splitting of outer dural layer was performed in patients without syringomyelia. Duraplasty was performed in patients with syringomyelia.

Figure 1

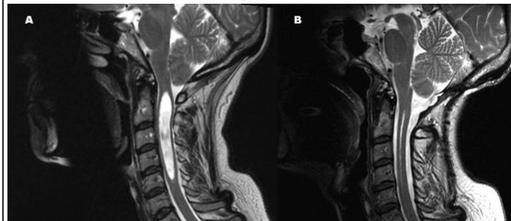


(A–F) Intraoperative images showing: (A) thick sclerotic band is thinned and removed at the cervicomedullary junction; (B) extradural removal of the sclerotic band; (C) opening of outer dural layer; (D) a small nick was created inadvertently on the inner dural layer; (E) the dural nick was sutured and (F) surgical and surgifoam are placed over the dura and hemostasis perfected.

Results

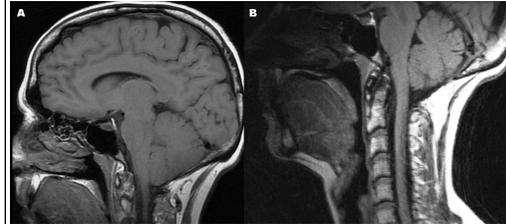
8 males and 34 females with a mean age of 33.8 years were included. The most common presenting symptoms were headache, and/or tingling and numbness. CM-I with syrinx presented in 5/41 patients. PFD without durotomy was performed in 29/41 patients. The mean duration of preoperative symptoms was significantly longer in the duraplasty group (4.6 versus 1.7 years, $P = 0.005$, OR = 0.48, CI = 0.29–0.8).

Figure 2



(A) Pre-operative MRI T2-image showing cerebellar descent and a cervical C1–C4 syrinx and (B) postoperative 1-year follow-up MRI T2-imaging after suboccipital decompression, C1 laminectomy and duraplasty, demonstrating an artificial cisterna magna, rounded shape of tonsil and reduction in syrinx size.

Figure 3

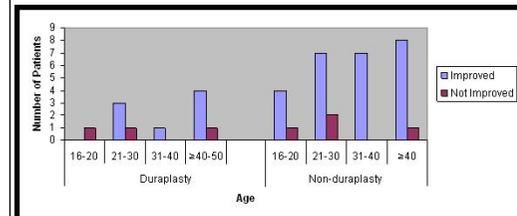


(A) Pre-operative MRI T1-image showing cerebellar descent and (B) postoperative MRI demonstrating T1-imaging after suboccipital decompression, C1 laminectomy without dural opening, demonstrating a cisterna magna and rounded shape of tonsil.

Complications were significantly associated with duraplasty ($P=0.004$, OR=0.5, CI=0.3–0.8) with longer duration of hospital stay ($P = 0.03$, OR = 2.7, CI = 1.1–6.8). Patients had an overall complication rate of 6/41 (15%). The overall improvement rate was 36/41 (84%); 12% (5/41) were stable; and worsening of symptoms were evident in 5% (2/41).

Unfavorable outcomes were associated with prior CM decompression ($P = 0.04$, OR = 14, CI = 1.06–184). One patient had a recurrence a year after the PFD with duraplasty.

Graph 1



Correlation Between Age and Improvement

Conclusions

This study reports the association of duraplasty with longer duration of hospital stay and higher complication rate. Surgical outcomes with extradural decompression of the posterior fossa are favorable in patients with CM-I without syringomyelia. Intradural intra-arachnoid decompression is favorable for patients with syringomyelia and history of prior PFD. Hence, duraplasty is not necessary except in certain conditions, particularly syringomyelia.