C1 laminectomy for Chiari malformation

In 107 patients with Chiari type 1 deformity from the Severance Hospital, Surgical techniques were divided into four groups based on duraplasty or C1 Laminectomy usage. Among the study subjects, 38 patients underwent duraplasty and had their syrinx volumes measured separately on serial magnetic resonance imaging. A three-dimensional visualization software was used to evaluate the syrinx-volume decrease rate.

Bony decompression exhibited a mere 20% volume expansion of the lower half posterior fossa. C1L offered a 3% additional volume expansion, which rose to 5% when duraplasty was added (p=0.029). There were no significant differences in complication rate when C1L was combined with duraplasty (p=0.526). Syrinx volumes were analyzed in 38 patients who had undergone duraplasty. Among them, 28 patients who had undergone duraplasty without C1L demonstrated a 5.9% monthly decrease in syrinx volume, which was 7.5% in the remaining 10 patients with C1L (p=0.040).

C1 Laminectomy was effective in increasing posterior fossa volume expansion, both with and without duraplasty. A more rapid decrease in syrinx volume occurred when C1 Laminectomy was combined with duraplasty [1].

1)
Hwang JK, Park EK, Shim KW, Kim DS. Effectiveness of C1 Laminectomy for Chiari Malformation Type 1: Posterior Fossa Volume Expansion and Syrinx-Volume Decrease Rate. Yonsei Med J. 2023 Mar;64(3):191-196. doi: 10.3349/ymj.2022.0506. PMID: 36825345.