



Letter to the Editor

Minimally invasive posterior fossa decompression in Chiari I malformation

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Dear Editor,

I have read with interest the article “*Minimally invasive posterior fossa decompression with duraplasty in Chiari malformation type I with and without syringomyelia*” published by Caffo *et al.* on Surgical Neurology International.^[1]

Minimally invasive techniques are increasingly used across all neurosurgical subspecialties and they can play a crucial role in the achievement of better surgical outcomes.

Minimally invasive techniques have been described for the treatment of Chiari malformation, and the results are promising.^[2-5]

Caffo *et al.* report the results of a retrospective series of 26 patients affected by Chiari I malformation, reporting improvement rates of 76.9% and complication rates of 23%. They have divided their patient cohort into two groups depending on the presence of syringomyelia.

A few questions arose reading this article. First and foremost, the title of this article deserves some scrutiny. The authors have carried out in all cases a midline incision, from 1 cm above theinion down to the level of the spinous process of C2; they have then performed a 3 × 3 cm suboccipital craniectomy and removed the middle third of the posterior arch of C1. This is a relative standard technique, and the question arising is what is minimally invasive in this approach. Notwithstanding that an adequate decompression is paramount to ensure a good surgical outcome in patients affected by Chiari I malformation, it is known that this is achievable with minimally invasive techniques^[2-5] and while the authors must be commended for sharing their results, I find debatable the fact that no emphasis has been given to how their approach is felt to be minimally invasive.

Secondly, while the choice to divide this series into two groups based on the presence of syringomyelia is interesting, it is less clear how their approach has impacted on the outcomes, particularly if we consider that they have adopted the same surgical technique in both groups. In fact, it is well known that the presence of syringomyelia is observed more frequently in patients with a greater degree of tonsillar herniation or additional malformative features, as seen in Chiari 1.5, and indeed, patients can often be more symptomatic. The authors have documented 80% of clinical improvement in patients without syringomyelia and 72.7% improvement in patients with syringomyelia. The difference is perhaps not significant,

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but the question arising is whether their “standardized” surgical technique plays a role in this difference.

Finally, the lack of data regarding length of stay or patient-centered outcomes also deserves some scrutiny, particularly if we consider that minimally invasive techniques primarily aim to reduce complication rates, length of stay, and postoperative pain.

I do believe that a more tailored approach should be considered for patients affected by this condition, whereby the degree of decompression could be planned based on the degree of cerebellar descent and the characteristics of the cerebrospinal fluid (CSF) dynamics at the craniocervical junction. Indeed, it is a standard practice in many centers to obtain pre- and post-operative CSF flow studies, as this can provide valuable information for the surgical planning.

The pathophysiology of Chiari malformation is controversial and even more its management. Indeed, as clinicians, we strive to achieve symptomatic relieve and we do believe that minimally invasive techniques can play a crucial role in this.

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Conflicts of interest

There are no conflicts of interest.

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