

“Triple R” Tonsillar Technique for the Management of Adult Chiari I Malformation: Surgical Note

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Introduction

Chiari type I malformation is a congenital disorder that is characterized by the caudal extension of the cerebellar tonsils through the foramen magnum into the cervical canal and by a reduced posterior fossa volume.

Methods

We report our surgical technique of reposition, reduction or resection of the cerebellar tonsils for the management of Chiari I malformation. The procedure was performed in 22 adult patients, in three different centers, with a mean age of 37 years. Clinical complaints included headaches, nuchalgia, vertigo, and upper-limb weakness or numbness. Seven patients had cervical syringomyelia.

Results

The cerebellar tonsils were exposed through a dura mater–arachnoid incision at the occipito-atlantal space after a 0.5 cm rimming craniectomy of the occipital bone in all patients. In seven patients the tonsils were resected, in other seven were reduced by subpial coagulation and aspiration, and in the remaining eight patients the tonsils were repositioned after coagulating their surfaces. Three patients had also a posterior fossa arachnoid cyst which was fenestrated in two of them. All patients improved postoperatively.

Conclusions

Selective reposition, reduction or resection of herniated cerebellar tonsils may improve symptoms in adult patients with Chiari I malformation.

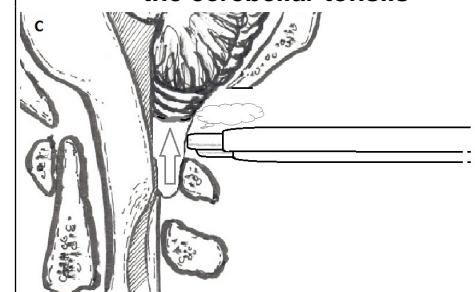
Learning Objectives

By the conclusion of this session, the participants will be able to adapt a previous technique of tonsillar resection in children and apply it with modifications in adult patients: i.e., removing the occipital bone rim and, depending on the intraoperative findings of tonsils consistency, performing a reposition, reduction or resection of the herniated tonsils.

Preoperative sagittal MR image showing cervical syrinx and Chiari malformation



Artist image showing the resection of the cerebellar tonsils



Postoperative MR image showing as a substantial reduction in the size of the syrinx cavity, after a tonsillar resection and posterior fossa arachnoid cyst fenestration.



References

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- 2) Galarza M, Sood S, Ham S (2007) Relevance of surgical strategies for the management of pediatric Chiari type I malformation. *Childs Nerv Syst*; 21:707–718