



Decompressive hinge craniotomy as an alternative for low-resource settings

La craneotomía descompresiva en bisagra como una alternativa para entornos de bajos recursos

Ernesto Enrique Horta-Tamayo^{1,2} <https://orcid.org/0000-0002-1292-1689>

Angel Jesus Lacerda-Gallardo³ <https://orcid.org/0000-0001-9171-2000>

¹Universidad de Ciencias Médicas de Holguín "Mariana Grajales Coello". Holguín, Cuba.

²Hôpital de Référence de Maradi. Maradi, Niger.

³General Teaching Hospital "Roberto Rodríguez". Morón, Ciego de Ávila, Cuba.

*Autor para la correspondencia. Correo electrónico: ernestoht@infomed.sld.cu

Dear Editor:

Much has been debated in recent decades about the role of decompressive craniectomy (DC) within the therapeutic algorithms for intracranial hypertension (ICH).⁽¹⁾

The DECRA trial showed that bifrontal DC for moderate ICH is not useful, while the RESCUEicp trial found that last-level DC for severe and refractory intracranial pressure (ICP) can significantly reduce the mortality rate, but is associated with a higher rate of disability.⁽²⁾

In the Cuban context, *Lacerda-Gallardo et al.*⁽³⁾ in a retrospective study of 230 cases, found a reduction below 20 mmHg in intracranial pressure in the immediate postoperative period in 50.9% of cases. Overall mortality was 28.7% per year.

Syndrome of the trephined, hygromas/subdural effusions, rebleeding of the hematoma or increased area of hemorrhagic contusion, cerebrospinal fluid leaks, and hydrocephalus are some of the complications associated with DC.⁽¹⁾

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In an analysis of 33 cases submitted to cranial reconstructive procedures by *Lacerda-Gallardo et al.*,⁽⁴⁾ 18% of the patients presented a syndrome of the trephyned and 15% showed complications associated with cranioplasty.

In this context, decompressive hinge craniotomy (DHC) arises, in an attempt to reduce these complications and avoid the need for deferred cranioplasty and higher hospital costs.⁽⁵⁾

However, this technique suffered some initial skepticism, given the possibility of its failure to effectively reduce ICP, which is apparently quite rare (around 2%), as published by *Layard Horsfall et al.* in a systematic review.⁽²⁾

In this regard, *Biroli et al.*⁽⁶⁾ in an experimental study, demonstrated that despite the fact that the volume added to the supratentorial space after DHC is less than that provided by a traditional DC, both are greater than the volume of brain herniation reported in the literature in the clinical setting. Therefore, theoretically it is a valid option in case of potentially evolutionary lesions and non-massive edemas, especially in developing countries.

The use of DHC in neurosurgical practice may be advantageous compared to traditional DC. For example, it may help control moderate cerebral edema while avoiding the need for future cranioplasty.⁽²⁾

The authors believe that in resource-limited settings, this is a value-added consideration.

In addition, axonal stretching is reduced and there are fewer complications typical of traditional DC (problems with CSF hydrodynamics, infection and resorption of the autologous bone flap).^(2,5,7)

Despite the fact that there is a wide variety of techniques to achieve a floating bone flap, using miniplates/titanium screws or sutures,⁽²⁾ authors consider that in low-income context, where the performance of beveled craniotomies with Hudson's trephine prevails, it is the "osteoplastic decompression" the most attractive. In this variant, the temporal muscle is used to partially secure the free bone flap.⁽⁷⁾

From the authors' point of view, DHC is an attractive alternative in settings with limited resources, with results equivalent to conventional DC, reducing classic complications and making subsequent cranial reconstructive procedures unnecessary. On the other hand, DHC could serve as an intermediary step between medical therapy and conventional decompressive craniectomy, in the lowest percentage of cases that require the latter, in the event of refractory ICH.



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Conflict of interests

The authors declare no conflicts of interest.

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