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Journal of Acute Disease

journal homepage: www.jadweb.org



Document heading doi: 10.1016/S2221-6189(14)60090-1

## Craniectomy size, mortality, outcome and complications: a short summary

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### ARTICLE INFO

#### Article history:

Received 13 Jan 2015

Received in revised form 15 Jan 2015

Accepted 18 Jan 2015

Available online 26 Jan 2015

#### Keywords:

Craniectomy

Size

Outcome

Mortality

Complication

### ABSTRACT

The craniectomy is an important surgical management for the problem of acute neurological disorder. It is widely practiced by neurosurgeons around the world. The technique for craniectomy is various and there are many new reports concerning on the size of craniectomy. In this short article, the authors discuss on the important topics about neurosurgery “craniectomy size, mortality, outcome and complications.”

## 1. Introduction

The craniectomy is an important surgical management for the problem of acute neurological disorder. It is widely practiced by neurosurgeons around the world. The technique is completely called “Decompressive Craniectomy (DC)” This technique is indicated for elevating intracranial pressure that is unresponsive to conventional treatment modalities[1]. Howard *et al.* noted that improving patient selection and optimizing timing of this procedure

may further improve outcome in these very severely brain injured patients[2]. Gautschi *et al.* noted that if intracranial pressure can not be controlled by conservative treatment methods, a DC is a possible treatment option in selected patients to reduce intracranial pressure[3]. Hence, it is no doubt that craniectomy is a useful neurosurgical procedure for management of acute problem. However, the remained consideration is on the technique for craniectomy. Indeed, the technique for craniectomy is various and there are many new reports concerning on the size of craniectomy. In this short article, the authors discuss on the important topics about neurosurgery “craniectomy size, mortality, outcome and complications.”

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## 2. Craniectomy size, mortality, outcome and complications

First, the authors will discuss on the previous report on “craniectomy size, mortality, outcome and complications[4].” The interesting recent publication is “The effect of craniectomy size on mortality, outcome, and complications after decompressive craniectomy at a rural trauma center [4].” Sedney *et al.* noted that size may be significantly related to improved mortality within our group and no significant improvement in outcome was seen[4]. Chung *et al.* recently reported a new craniotomy technique with an increased craniotomy size and mentioned that it was safe and effective[5]. In fact, Zweckberger *et al.* concluded that surgery should be performed within 48 h after the onset of symptoms and the size of the craniectomy should be at least 12 cm as a minimum[6]. Giroto *et al.* also reported that better functional recovery according to Glasgow Outcome Scale, which is statistically significant, was observed in patients who underwent DC where the area of craniectomy was larger than 25 cm<sup>2</sup>, within the first 24 h from the time of injury[7].”

However, it is against by Takeuchi and Nawashiro that the optimal size and proper technique are main determinant of success[8]. In fact, the size should not have any effect on the treatment outcome but the important factors should be underlying neurological status, evacuation and patient care[9]. Limpastan *et al.* reported that early decompressive craniectomy in patients with higher Glasgow Coma Scale may result in better functional outcomes[9]. Howard *et al.* also noted that improving patient selection and optimizing timing of this procedure may further improve outcome[10]. The importance of “time to surgery” on outcome is also reconfirmed by Kim *et al.*[10]. Nevertheless, some reports also indicate no effect of “time to surgery”. For example, Curry *et al.* found only the effect of age but not “time to surgery, volume of infarction, or craniectomy size[11].”

## 3. Conclusion

The craniectomy size should be considered case by case. It is still the controversial issue on the optimal size of craniectomy.

## Conflict of interest statement

The authors report no conflict of interest.

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