



# Cranioplasty

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**Abstract**

Cranioplasty is the surgical repair of a bone defect in the skull resulting from a previous operation or injury. There are different kinds of cranioplasties, but most involve lifting the scalp and restoring the contour of the skull with the original skull piece or a custom contoured graft made from material such as Titanium (plate or mesh), Synthetic bone substitute (in liquid form), Solid biomaterial (prefabricated customized implant to match the exact contour and shape of the skull).

Received: Oct 16, 2024

Accepted: Nov 19 2024

Published Online: Nov 26, 2024

Journal: Annals of Neurology and Neurosurgery

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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**Keywords:** Cranioplasty; Custom contoured graft; Titanium; Synthetic bone substitute; Prefabricated customized implant.

## Introduction

Cranioplasty is a surgical operation on the repairing of cranial defects caused by previous injuries or operations, such as decompressive craniectomy [1,2]. It is performed by filling the defective area with a range of materials, usually a bone piece from the patient or a synthetic material [3,4].

## Etiological Factors

S. No	Book Picture	Clinical Picture
01	Tumour	Absent
02	Trauma	Fall from height resulted in acute SDH with temporal contusion
03	Bony Lesion	Absent
04	Infection	Absent
05	Fits for 10 years	Absent

## Uses/benefits of cranioplasty:

Cosmetic value.

Protection to brain.

Regulation of CSF and cerebral blood flow dynamics, along with normal intracranial pressure.

Improvement of neurological function in some patients.

Reduces occurrence of headaches caused by injury or previous surgery.

## Case presentation

A 22year old male got admitted on 17/2/23 as a case of FFH with LOC. On admission NCCT head documented right acute SDH with temporal contusion. Patient was operated as a case of right decompressive craniotomy with evacuation of



**Cite this article:** Rasheed R, Suhail Jogi M. Cranioplasty. Ann Neurol Neurosurg. 2024; 3(1): 1013.

SDH with craniotomy defect. On 25/9/2023 patient was readmitted for autologous cranioplasty under general anaesthesia. Followed by patient's readmission for removal of infected bone flap with debridement of infected tissue on 11/11/2023. Now, patient is admitted for mesh cranioplasty. His vital signs are.

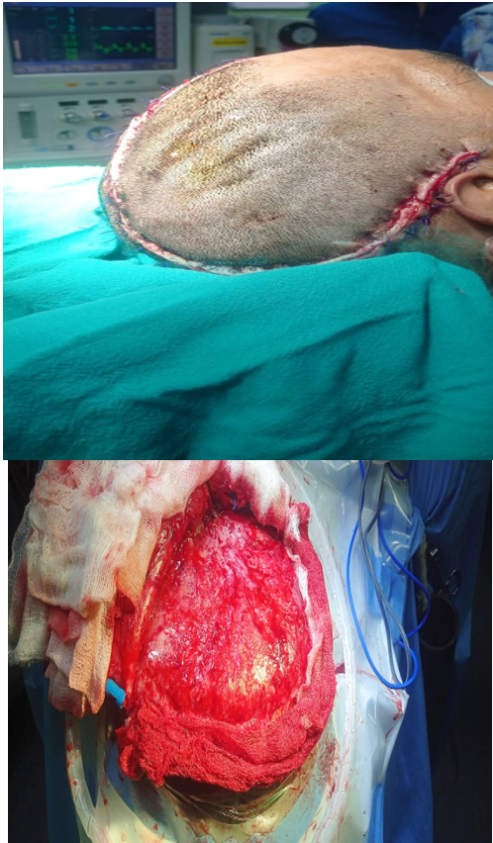
**Temperature:** 98.4degree Fahrenheit.

**Pulse:** 80 beats/minute.

**Respiration:** 20 breaths /minute.

**Bp:** 120/84mmHg.

Patient is not having any significant past history other than trauma 4.



**Figure 1**

**Prognosis:** Cranioplasty is an operation with a complication risk ranging from 15 to 41 percent. Male patients and older patients are groups with higher rates of complication [5,6]. Complications occurring after cranioplasty include.

Bacterial infection.

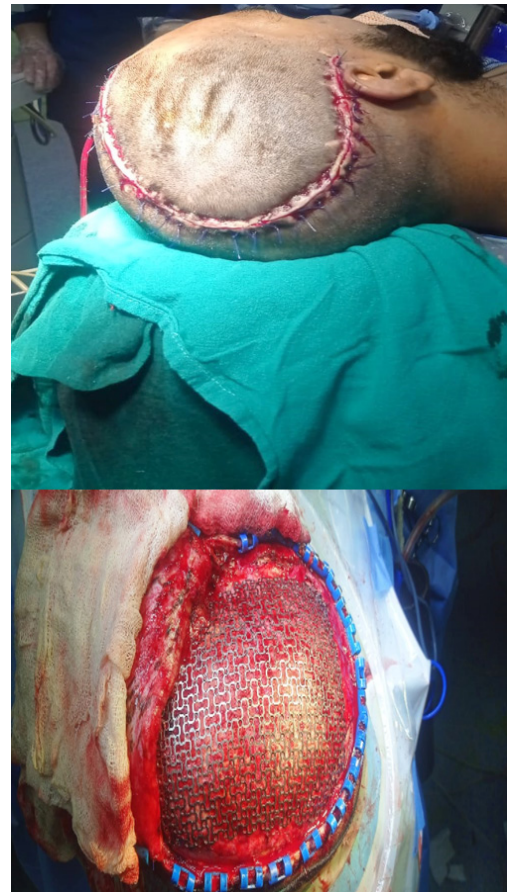
Bone flap resorption.

Wound dehiscence.

Hematoma

Seizures

CSF leakage.



**Figure 2**

The risk of bacterial infections in performing cranioplasty ranges from 5 to 12.8 percent. Using titanium, whether being custom- made or using a mesh, is associated with a lower infection rate, on the other hand materials such as methyl methacrylate and autologous bone is associated with a higher infection rate.

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