

## Frontal Sinus Foreign Body Post Facial Injury

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**Received:** January 04, 2023; **Published:** January 09, 2023

### Abstract

We report a case of a 25-year-old male who presented with a head injury after a fall at home. A CT scan showed a depressed fracture of the left frontal bone with a hemo-sinus. During the surgical exploration of the injury, a foreign body was found in the frontal sinus. The patient underwent a frontal bone graft and repair of the laceration and was discharged from the hospital three days later without complications.

**Keywords:** *Paranasal Sinus; Foreign Body; Facial Injury*

### Clinical Presentation

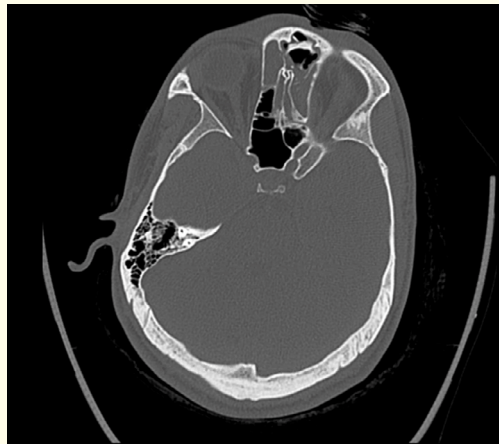
A 25-year-old male presented with a frontal head injury due to a fall at his home. He denied loss of consciousness, vomiting, dizziness, neck pain, or any other complaints. He has no past medical history and is not on regular medications. On examination, he was alert with Glasgow Coma Score (GCS) of 15. There was a laceration estimated 7.5 cm in length and a curvilinear, U-shaped wound with a base in the left eyebrow overlying an open fracture of the frontal sinus. There was no associated rhinorrhea, no active bleeding from the wound, with normal eye assessment, and no other obvious injuries.

The patient underwent computerized tomography (CT) scan (Figure 1 and 2) showing a depressed fracture of the left frontal bone with hemo-sinus. The patient underwent open reduction of the left frontal bone fracture by the oral maxillofacial surgery team and was found in a foreign body (Figure 3) in the frontal sinus, which was thought to be bony fragments in the CT scan. The patient had repair of his laceration and frontal bone graft with screws (Figure 4). He was discharged from the hospital three days post-operation with no complaints and no cerebrospinal fluid (CSF) leak.

### Description

Paranasal foreign bodies (FBs) in adults are extremely rare, and approximately 70% of these cases are related to surgical treatments after dental problems. In contrast, others are associated with some form of facial injury, which is in our case [1]. Frontal region fractures represent the minor common injuries affecting the facial skeleton, with an incidence of 5 - 15% [2]. However, the fatal potential of these injuries is much greater than other facial fractures, because of their anatomical proximity to the cerebral structures. FBs may cause ophthalmic or rhinologic complications, including diplopia, blurred vision, nasal blockage, or CSF rhinorrhoea. FBs detected in the paranasal sinus may consist of different materials, such as wood, glass, plastic, metal, and bullets [3]. A thorough neurologic examination and ap-

appropriate CT scan imaging are critical, as around 1/3 of all foreign bodies are initially missed [2]. If a CT scan does not reveal a suspected FB fragment, MRI should be carried out. FB detection with ultrasound imaging is also well recognized [4]. The management of these cases depends on the object's size, shape, composition, and location, as well as the degree and location of the external injury [3]. Although a treatment plan may be formed based on pre-op evaluation and CT scan findings, the surgeon should be ready to modify this plan based on the findings at the time of the exploration.



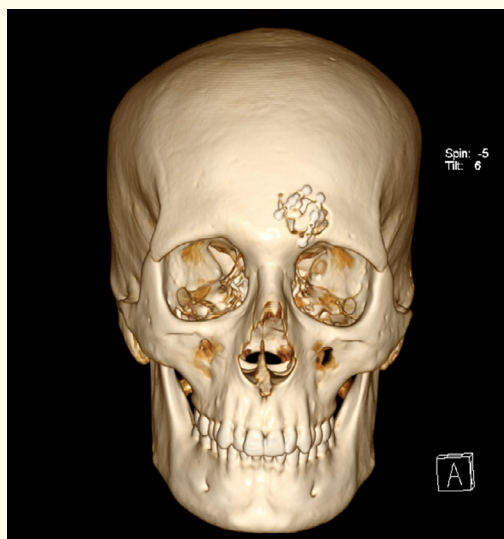
**Figure 1:** CT head without contrast showing depressed fracture of the left frontal bone with hemosinus.



**Figure 2:** 3D scan of the left frontal bone fracture.



**Figure 3:** Foreign body found in the left frontal sinus during operation, plastic in texture.



**Figure 4:** 3D scan post-operative with a frontal bone graft.

### Conclusion

This case warns us of the importance of maintaining a high degree of clinical suspicion so as not to miss FB, which could lead to severe complications, both extracranial and intracranial. The management of these cases depends on the characteristics of the FB, and the degree and location of the external injury. The treatment plan may need to be modified based on findings during the surgical exploration.

### Funding Support

No funding was required from this article.

### Competing Interests

None declared.

### Informed Consent

The authors have obtained patient's consent.

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**Volume 7 Issue 1 January 2023**

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