

# BEYOND 48 HOURS: SUCCESSFUL SUPERIOR ORBITAL FISSURE DECOMPRESSION AFTER TRAUMATIC SPHENOID WING DISLOCATION

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## Targeted superior orbital fissure decompression can restore function when performed more than 48 hours after trauma.

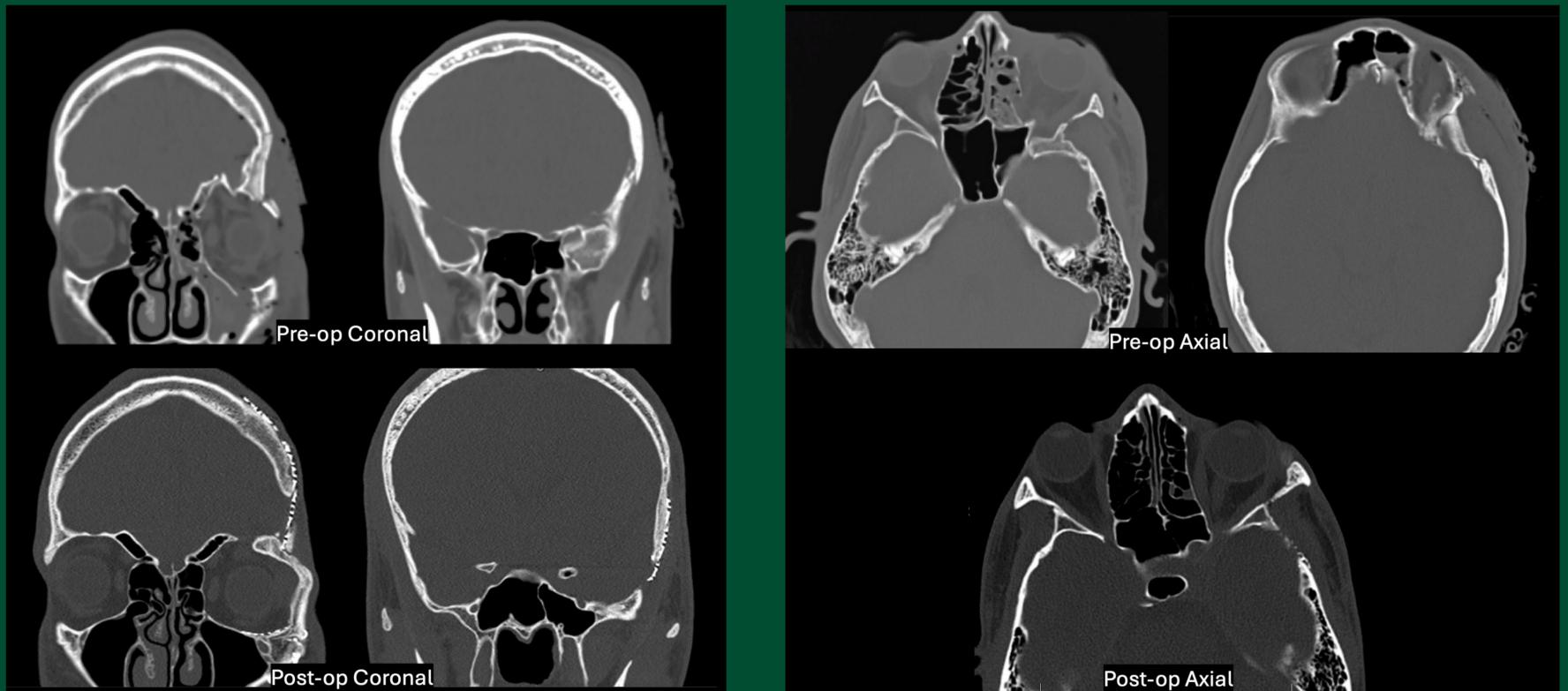


Figure 1. Preoperative coronal and axial non-contrast CT scans showing multiple orbital fractures with dislocated left greater sphenoid wing displaced into SOF. Additional fractures of the lateral-superior orbital rim and frontal sinus were present. There was no evidence of optic canal compromise. Postoperative coronal and axial non-contrast CT scans showing bone flap with mesh augment.

### INTRODUCTION

- Superior orbital fissure (SOF) compression can result from lateral orbital and greater sphenoid wing fracture
- These can produce ophthalmoplegia via injury to cranial nerves (CN) III, IV, VI, and V1.

### CASE DESCRIPTION

- Previously healthy **16-year-old male** presented after **un-helmeted motorized-scooter crash** into fire hydrant.
- Upon arrival, patient was **hemodynamically stable** with **GCS 15**, Intraocular pressure (IOP) was 32 mmHg.
- Neuro-ophthalmic exam showed **complete left ophthalmoplegia** (CN III, IV, VI).
- Non contrast CT demonstrated multiple fractures.
- Diagnostic angiography excluded carotid-cavernous fistula.

### SURGICAL TECHNIQUE

- Surgery was performed under general anesthesia with Mayfield fixation and bicoronal exposure.
- Interfascial temporalis dissection and **left frontotemporal craniotomy** were performed.
- Greater sphenoid wing was thinned, with subsequent circumferential decompression of SOF.
- The **concomitant frontal sinus injury** was treated as well. The sinus was cranialized with layered **DuraGen** and a **vascularized periosteal graft**.
- Lateral orbital rim was reduced and rigidly fixated with **matrix plates and screws**.
- The bone flap was augmented with a mesh.
- Plastic surgery repaired the orbital floor.
- No intraoperative complications occurred.

### POSTOPERATIVE COURSE

- Patient was transferred in stable condition.
- Immediate postop findings included successful SOF decompression and restoration of orbital rim alignment without CSF Leak.
- **No operative complications** were recorded.
- **CN dysfunction fully resolved** by one-month postoperatively.
- **Patient continues to do well at two-years.**

