Asian Journal of Surgery (2019) 42, 972–973

Available online at www.sciencedirect.com

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journal homepage: www.e-asjsur.com

LETTER TO EDITOR

Applications of coronal incision in craniofacial fractures: A case series study

KEYWORDS
Coronal incision;
Comminuted craniofacial fracture

To the editor,

How to manage a complicated zygomaticomaxillary complex (ZMC) fracture well is challenging for all surgeons. Inadequate reduction of ZMC fracture leads to asymmetrical facial contouring, diplopia, enophthalmos, facial numbness, and limited mouth opening. Coronal incision is another practical method and has a low complication rate in approaching craniofacial fracture. The open field not only makes the reduction of all comminuted fractures well but also decreases the requirements for accessory instruments. It showed good results in frontal sinus fractures,[1] complicated ZMC fractures,[2] naso-orbito-ethmoidal (NOE) fractures,[3] and orbital deformities.[4]

This was a retrospective review at a single medical center between September 2014 and October 2018. Of the patients with facial fractures, 25 patients were treated with open reduction internal fixation (ORIF) under coronal incision. The mean age at surgery was 42.3 years. Informed consent was obtained from the patients for publication of this case report and accompanying images.

In this case series, the indications for ORIF under coronal incision were enophthalmos induced by previously comminuted ZMC fracture in two cases, comminuted ZMC fracture with zygomatic arch segmental fracture in 15 cases, frontal sinus fracture in four cases, and type II or III NOE fracture in four cases.

The study group included 17 men and eight women, with a mean age of 42.3 years. The mean operative time, length of hospital stay, and mean follow-up duration were 233.6 min (range: 180–504 min), 9.2 days (range: 4–16days), and 12.5 months (range: 2–33 months), respectively. Bilateral symmetry can be seen in the postoperative follow-up imaging.

During the short-term follow-up, two, four, and three patients had frontal branch injury, scalp paresthesia, and widened incisional scar, respectively. The patients with suspicious nerve injury underwent acupuncture weekly, and the symptoms improved after three months. During the long-term follow-up, four patients had alopecia along the incisional scar, of which three resulted from a previous widened incisional scar (Table 1).

Case Report: A 30-year-old male patient had traffic accident-induced right comminuted ZMC fracture and enophthalmos. The patient underwent bi-coronal, transconjunctival, and buccogingival incision followed by ORIF of the zygoma. The fracture site of the zygomatic arch, frontozygomatic (FZ) suture, and orbital rim were repaired using microplates; and the lateral buttress of the maxilla was repaired using a mini-plate. The orbital floor fracture was repaired using a titanium mesh. Fig. 1 shows well and symmetrical alignment of bilateral zygoma postoperatively.

Table 1 Complications.

	Number of cases	Incidence
Short-term complications (<6 months)		
Frontal branch injury	2	8%
Scalp paresthesia	4	16%
Widen incisional scar	3	12%
Long-term complications (>6 months)		
Alopecia along incisional scar	4	16%

Abbreviations: ZMC, zygomaticomaxillary complex; NOE, naso-orbito-ethmoidal; ORIF, open reduction internal fixation; FZ, frontozygomatic.

https://doi.org/10.1016/j.asjsur.2019.07.004

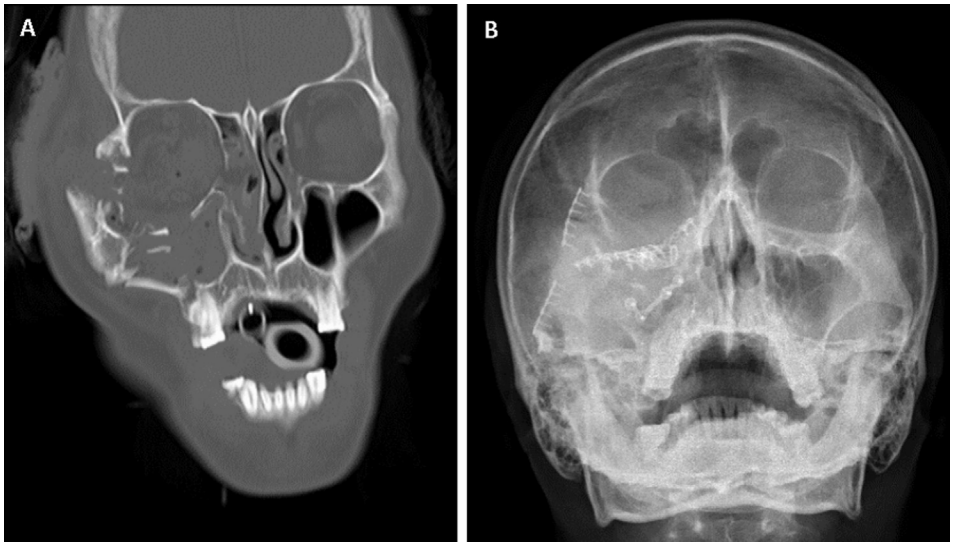

Figure 1 **A.** Pre-operative coronal view of the computer tomography scan in a 30-year male patient showing right comminuted zygomaticomaxillary complex fracture. **B.** Postoperative Water's view showing symmetrical bilateral zygoma.

In conclusion, coronal incision could reduce comminuted craniofacial fracture well, but may have a risk for frontal branch injury, scalp paresthesia, widened incisional scar, and alopecia.

Conflict of interest

The authors declared no competing interests.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.asjsur.2019.07.004.

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1 July 2019
Available online 22 July 2019

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