

Accepted Manuscript

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PII: S0020-1383(17)30268-1

DOI: <http://dx.doi.org/doi:10.1016/j.injury.2017.04.039>

Reference: JINJ 7204

To appear in: *Injury, Int. J. Care Injured*

Accepted date: 18-4-2017

Please cite this article as: Alinasab Babak, Qureshi Abdul Rashid, Stjärne Pär. Prospective Study on Ocular Motility Limitation Due to Orbital Muscle Entrapment or Impingement Associated with Orbital Wall Fracture. *Injury* <http://dx.doi.org/10.1016/j.injury.2017.04.039>

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Prospective Study on Ocular Motility Limitation Due to Orbital Muscle Entrapment or Impingement Associated with Orbital Wall Fracture

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ABSTRACT

Introduction: The recommended urgent surgical management of ocular motility restriction due to orbital muscle entrapment or impingement associated with orbital wall fracture needs to be elucidated.

Aim: To evaluate the importance of the time from injury to surgery for the outcome in ocular motility and diplopia, the time lapse of ocular motility, diplopia and hypesthesia recovery.

Material and Methods: Patients with entrapment or impingement of orbital contents due to orbital wall fracture were followed up prospectively over 1 year regarding ocular motility, diplopia, hypesthesia and cosmetic deformity.

Results: 21 patients (10 entrapments and 11 impingements) were included and treated surgically. The median time from injury to surgery was 36 (8-413) hours for the entrapment group and 168 (48-326) hours for the impingement group. The median time from study inclusion to surgery was 0 (0-1) days for the entrapment group and 1.0 (0.2-4.8) days for the impingement group. All the patients had ocular motility limitation and diplopia at the inclusion. Ocular motility improved gradually and was normal at final visit. Diplopia resolved gradually in all patients except in two with non-disturbing diplopia, at the final visit. Forced duction test was positive in 90% of the patients in the entrapment group and 70% in impingement group. At final visit, hypesthesia was found in none of the patients in the entrapment group but in 4 patients in the impingement group.

Conclusions: In this, the first prospective long term follow up of orbital wall fractures with ocular motility restriction, we did not find any significant correlation between the time from injury to surgery and the outcomes in ocular motility and diplopia. An entrapment requires surgery as soon as possible; however, the surgical reduction is at least as important as surgical timing. Surgery should be delayed until it can be performed by an experienced surgeon. Ocular motility restriction causing diplopia due to impingement is not an ophthalmologic emergency and surgery is recommended if the diplopia and ocular motility has not improved over time. Clinical examination of ocular motility and not CT scan findings is crucial to determine whether a limitation of ocular motility exists or not.

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