

Mechanisms of orbital blowout fracture: a critical review of the literature.

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Abstract

OBJECTIVE:

The aim of the present study is to critically review relevant literature regarding the mechanism of blowout fractures of the orbit and provide an answer to the question: Can one theory adequately explain the mechanism of orbital blowout fractures in the light of present day knowledge?

MATERIALS AND METHODS:

A computerised literature search using MEDLINE was conducted for published articles on orbital blowout fractures. Mesh phrases used in the search were: orbital blowout fractures AND mechanisms; orbital blowout fractures AND theory; orbital wall injury AND mechanisms. Only relevant articles were selected for the review.

RESULTS:

The physical mechanism of orbital blowout fracture has been a subject of debate for years by maxillofacial surgeons, ophthalmologists, plastic surgeons, otolaryngologists and orbitologists. However, only 3 mechanisms of injury have been proposed namely: "hydraulic" theory, "globe-to-wall" theory and "bone conduction" theory. Most of the theories of orbital blowout fractures have been confirmed through brilliant experiments and hypothetical explanation/analysis of clinical and radiologic findings, and each one appears to fit according to the different type of trauma received.

CONCLUSIONS:

Based on contemporary evidence, one theory may not adequately explain all types of fractures completely or be responsible exclusively in a given case for the pattern of fracture observed. Blowout fractures of the orbit could therefore be due to a combination of 2 or more mechanisms.