

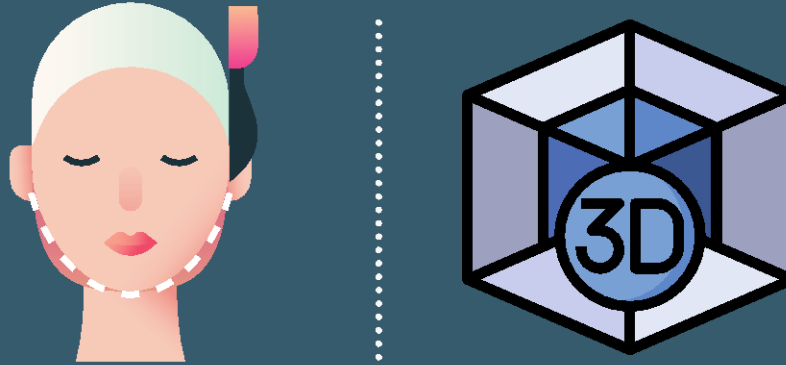
Virtual 3D Reduction of Displaced Mandible Fractures

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Objective

Assess the process and feasibility of virtual 3D reduction of displaced mandible fractures for preoperative planning.



Methods

Virtual reduction of displaced, non-comminuted fractures of the mandible using preoperative CT scans.

10 patients, eight with 2 major fragments and two with 3 major fragments. Fracture types included parasymphyseal (80%), angle (20%), body (10%), ramus (10%), and condylar (30%).

Results

Virtually reduced mandibles matched extremely well to the surgically reduced mandibles in 3D space. The mean distance between vertices was 0.52 ± 0.24 mm and the root mean square (RMS) was 0.61 ± 0.09 mm.

Virtual surgical planning allows for enhanced visualization of the operative field and can yield mandibular models which are remarkably similar to surgically reduced mandibles, with the advantage of being able to manipulate the fragments freely to maximize bony contact and alignment.

