

Evaluation of an Innovative Computer-Assisted Sagittal Split Ramus Osteotomy to Reduce Neurosensory Alterations Following Orthognathic Surgery

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Background: Sagittal Split Ramus Osteotomy (SSRO) can be associated with postoperative neurosensory disturbances. This study aimed to evaluate the effectiveness of computer-assisted SSRO in reducing the incidence and severity of neurosensory alterations, using a surgical guide fabricated by computeraided design and rapid prototyping (to guide bone cutting lateral to the inferior alveolar nerve).

Methods: A prospective double-blind, randomized controlled, clinical trial of computer-assisted SSRO vs conventional SSRO (assigned in a split-mouth design) in eight patients, mean age 23 (range 18–30) years, who participated in one session preoperatively and three sessions at 1 week and 1, 3 and 6 months postoperatively. At each session, subjective oral sensation was scored and quantitative sensory tests were performed. Neurosensory changes were compared between the two sides.

Results: The results showed that on the computer-assisted SSRO sides, patients had lower postoperative abnormal thresholds for the Semmes–Weinstein monofilaments on lower lip and chin ($p < 0.05$ at 3 months) and for the two-point discrimination on lower lip ($p < 0.05$ at 1 week) and chin ($p < 0.05$ at 6 months), with fewer abnormal self-reported changes in lower lip sensation ($p < 0.05$ at 1 week) after surgery.

Conclusions: these findings imply that computer-assisted SSRO is associated with better levels of neurosensory function after surgery.

Biography:

Dr. Alaa Hussein is a Specialist in Oral and Maxillofacial Surgery with over 11 years of experience. He is currently a Specialist and the Head of Oral and Maxillofacial Surgery Department at Istishari Arab Hospital. Prior to joining Istishari Arab Hospital in Ramallah, Dr. Hussein worked at the Arab American University – Jenin as the head of oral and maxillofacial surgery department/faculty of dentistry. Dr. Hussein graduated from the Faculty of Dentistry from the Arab American University - Israel. Then he continued his specialized training in Oral and Maxillofacial Surgery at Jordan University Hospital - Jordan.