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Does piezo-surgery provide greater improvement in patient outcomes compared to conventional osteotomy in rhinoplasty? findings from a meta-analysis of randomized controlled trials

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Statement of the Problem: Rhinoplasty is a common plastic surgery procedure with evolving surgical techniques. This systematic review and meta-analysis compare the outcomes of piezosurgery versus conventional osteotomy in rhinoplasty, focusing on postoperative edema, ecchymosis, complications, pain, and operative time.

Methods: A comprehensive search of six databases and registries yielded 12 randomized controlled trials (RCTs) comparing piezosurgery (292 cases) to conventional osteotomy (338 cases) in rhinoplasty patients. Examined outcomes included postoperative edema, ecchymosis, complications, pain (using the Visual Analogue Scale - VAS), and operative time. Subgroup analyses were done based on assessment timepoint, surgical approach (external, internal), and outcome grade. The risk of bias was evaluated using the revised Cochrane tool.

Results: Piezosurgery showed a significant reduction in the degree of postoperative edema (2nd and 7th postoperative days) and ecchymosis (2nd, 4th, and 7th postoperative days). The external approach in piezosurgery demonstrated greater benefits for both outcomes. Piezosurgery was associated with a significant reduction in overall complications, especially mucosal injuries, compared to conventional osteotomy, with no significant difference regarding postoperative hemorrhage. A significant reduction in pain scores and the need for analgesia was observed with piezosurgery. No significant difference was found in operative time between piezosurgery and conventional osteotomy, despite substantial heterogeneity in the data.

Conclusion: Piezosurgery in rhinoplasty is associated with reduced postoperative edema, ecchymosis, and complications, as well as less postoperative pain compared to conventional osteotomy. These findings suggest that piezosurgery offers significant benefits in patient outcomes, with similar operative time between both techniques. This study underscores the potential advantages of piezosurgery in rhinoplasty, recommending its consideration in surgical decision-making.

Biography

Alaa Safia, born on March 19, 1989, in Israel, embarked on his journey in the field of medicine with an unwavering commitment to excellence. He earned his Degree in General Medicine from the esteemed National University of Moldova, named after Nicolae Testemitanu, on June 15, 2016, marking the beginning of his illustrious medical career. Currently serving as an ENT Resident at Ziv Medical Hospital in Safed, Israel, Dr. Safia has proven himself to be a dedicated and accomplished medical professional. His contributions to the medical community are diverse and impactful, encompassing clinical research, detailed case reports, engaging presentations, and invaluable work experiences. Dr. Safia's commitment to advancing healthcare and his passion for research make him a respected and influential figure in the field of medicine.

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