

## OTORHINOLARYNGOLOGY ULTRASONIC SURGERY: NEW AREAS FOR EXACT AND SAFE INTERVENTION

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**Background:** Surgical missions in low- and middle-income countries (LMICs) face significant hurdles in maintaining high-quality care within ENT (head and neck surgery). Modern portable technologies, specifically point-of-care ultrasonography (POCUS) and piezoelectric surgery, offer transformative solutions. While POCUS facilitates real-time diagnostics in imaging-restricted areas, piezosurgery provides a precise, low-trauma alternative to conventional mechanical instruments like drills and chisels, reducing risks of thermal damage and bleeding.

**Aim:** To evaluate the clinical effectiveness and safety of piezoelectric tools (piezotomes) in rhinosurgery and to refine surgical protocols for maxillary sinus procedures and septoplasty.

**Methods:** A clinical evaluation was performed at Samarkand State Medical University involving 25 patients (15 septoplasties and 10 cystectomies). The study compared piezotomes against traditional tools, measuring intraoperative blood loss (Fromme-Boezaart scale), bone manipulation precision, and overall surgical time. Data were processed using Stata 18. Results: Findings indicated a statistically significant decrease in intraoperative hemorrhage when using the piezotome. The technology offered superior osteotomy control and reduced vibration, which protected adjacent soft tissues.

Although the irrigation system requires constant aspiration, the overall traumatic impact was markedly lower than with standard techniques.

**Conclusion:** The integration of ultrasound technologies—both diagnostic and surgical—marks a significant advancement in otorhinolaryngology. Piezosurgery, though still emerging in sinus interventions compared to dentistry, demonstrates clear advantages in safety and blood loss reduction.

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