

INNOVATIVE SURGICAL TOOL FOR APPLICATION OF BONE WAX IN NEUROTOTOLOGIC AND SKULL BASE SURGERY

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Value Proposition: *Novel instrument designed to improve application of bone wax during ear and lateral skull surgeries.*

Technology Description

Researchers at Washington University in St. Louis have developed a novel surgical tool for bone wax application. Surgeries of the ear and lateral skull base frequently require the use of bone wax to seal off small vessels and to repair or prevent leakage of cerebrospinal fluid. Application of bone wax to the hard, wet, and irregular surface of the bone is challenging with conventional instruments due to the tendency of the wax to slip off the bone and the narrow surgical corridors of the lateral skull base.

This invention is comprised of a rigid core with a coating of softer material over the ends and is small enough to utilize in the narrow surgical corridors required for lateral skull base surgery and other otologic surgeries, effective at applying bone wax to the irregular porous and often wet surface of open bony air cells, and rigid enough to allow precise application and the appropriate amount of force when applying bone wax.

Stage of Research

Proof of concept - Tested several combinations of 3D printed materials in cadaveric temporal bones simulating surgical conditions.

Publications

Smetak, Miriam, et al. A Novel Tool for Application of Bone Wax in Neurotologic and Skull Base Surgery. The American Society of Mechanical Engineers. August 2024. <https://doi.org/10.1115/DMD2024-1045>.

Applications

- Skull base and neurotologic surgery

Key Advantages

- Uses rigid core and softer material for precise application
- Smaller instrument

- Can apply bone wax to irregular, wet surfaces

Patents

Patent application filed

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