



Cadaveric Temporal Bone Dissection and Alternatives in Otolaryngology Training

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The dissection of the cadaveric temporal bone is an integral part of an ENT surgeon's training, because of the complicated anatomy, vital neurovascular structures, and organs located in it. The advancement in technology and incorporation of innovative techniques, compel even a skilled surgeon to practice a new method on the cadaveric temporal bone, as the steps mentioned about the new techniques in textbooks or research articles may not be as detailed as required [1].

Observing and assisting the experienced surgeon in OT is a great method of learning in surgery residents, however most otologic procedures, demand drilling of the temporal bone for access to the middle or inner ear. The drilling involves the coordination of the eyes, hands, and foot movements. The technique is meticulous and entails precision, so needs repeated dissection and practice [1]. All training institutes in the country should create a temporal bone laboratory in their setup to offer the necessary skill and expertise to budding otologists [2]. The factors like scarcity of cadaveric temporal bones, the cost to establish and maintain labs, and overburdened doctors may limit the implication of this idea.

Ways Ahead

To collaborate with anatomy department

As at some setups of Anatomy departments, temporal bone interiors are not dissected at the undergraduate level, so these bones may be harvested and a temporal bone collection may be initiated by preserving them in formalin with proper details and records about age, gender, and history of the cadaver. As there is already a scarcity of cadavers in the anatomy department of medical institutes, the general public should be aware and

motivated to pledge body donation [1]. The bones procured for organ donation, which is not suitable for use, should be added to the temporal bone collection.

To use animal temporal bones

To overcome the mismatch of availability and requirement of cadaveric temporal bones, animal models of pigs, cattle, or sheep may be used [3]. However, the usage of animal bones is not without limitations, as they are not an exact replica of human temporal bones, but better than simulators [4].

To use simulators

The use of simulators, for teaching, is the next viable training mode. Synthetic replicas of temporal bone made of acrylic resins, silicon, and other materials are available in the market [4]. The cost of these simulators, lack of actual tissue feel, and no exposure to anatomical variations are the major drawbacks of their usage. The Augmented reality and virtual dissection table may also be considered for understanding the anatomy of temporal bones in virtual cadavers [5].

Undoubtedly, learning the three-dimensional complex anatomy of the temporal bone is the stepping stone to successful ear surgery. Thus it is highly recommended that there should be a temporal bone lab at every set-up for inculcating the best skill and training among budding surgeons and better surgical outcomes. One cannot escape the reality that animal models, synthetic replicas, and virtual reality may adjunct the cadaveric temporal bone dissections, but may not replace them.

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