



Editorial

Cadaveric Dissection as Part of the Curriculum for Neurosurgical Residents!!

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Anatomy has been taught using different approaches including didactic lectures, practical sessions based on models, prosected materials, cadaveric dissection, and living anatomy sessions, as well as newer methods such as three-dimensional (3D) models and interactive computer-based software, body painting, radiological images, and holograms. Traditionally, cadaveric dissection had been the mainstream of delivering an anatomy curriculum in medical schools.

Currently various hands-on workshops have been held to learn the microneurosurgical anatomy with the help of a cadaver. An example of enriching experience where cadaveric brains are used to learn the sylvian fissure dissection, which is one of the most commonly used approach and has a very intricate anatomy and requiring acquired skills to do the same, is shown in ►Fig. 1.

History of Cadaveric Dissection

Human cadaveric dissection was practiced in Italy from the 13th century onward (mostly autopsies though). In France, it was officially conducted from the middle of the 14th century.¹ In 1340, human cadaveric dissections were made official at the University of Montpellier, and in 1407, the first sanctioned dissection took place at the University of Paris. By the beginning of the 15th century, cadaveric dissection became a regular event for teaching and learning anatomy in French universities.² The first recorded cadaveric dissection in India was performed at Calcutta Medical College in 1836 by Pandit Madhusudan Gupta (1800–1856).³

Importance of Cadaveric Dissection

Cadaveric dissections provide us with the opportunity to learn the human anatomy in a realistic and safe environment. In neurosurgery, due to the complexity of our surgeries, there is no scope for learning from our mistakes. Cadaveric

dissection provides the advantage of learning the anatomy in 3D relationship and also helps in improving our spatial perception. Further, this hands-on experience allows trainees to appreciate the tactile feedback and nuances of tissue handling, providing us confidence for decision-making during surgical procedures.

The philosophy of Prof. Rhoton, “We want perfect anatomical dissections, because we want perfect surgical operations,” as he eloquently instilled in his fellows and students, symbolizes a crucial purpose of specimen employment (Matsushima et al 2018).⁴ Although time-consuming and complex, conducting exquisitely detailed dissections and documenting these specimens in high-quality images and cutting-edge formats help in improving surgical skills and ultimately improve patient care. Integrating cadaveric dissection into neurosurgical training is fundamental to raise competent neurosurgeons.

Cadaveric dissection is not just a learning tool. It can be used as a teaching tool and as one of the modalities to plan novel surgical approaches in difficult and unique cases in a guarded environment. When we are planning a completely new procedure, executing the same approach on the cadaver beforehand will always provide more confidence and help refine the procedure. This has been incorporated into our practice with the help of augmented reality at present.

Cadaveric Dissection as Part of the Curriculum

As first-year MBBS students, we have been taught by well-educated and scholarly professors of anatomy. But the clinical application of the anatomy that we learned during the dissection classes can be enhanced when the anatomy knowledge has been augmented by learning the surgical importance of the same.

Hence, the surgical residents can be made to dissect and teach the undergraduate students. This not only helps the

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Fig. 1 Microsurgical dissection being taught at Neurofest by Neurological Surgeons Society of India (NSSI), hands-on sylvian fissure cadaveric dissection course for residents, Department of Anatomy, Jaipur National University, Jaipur.

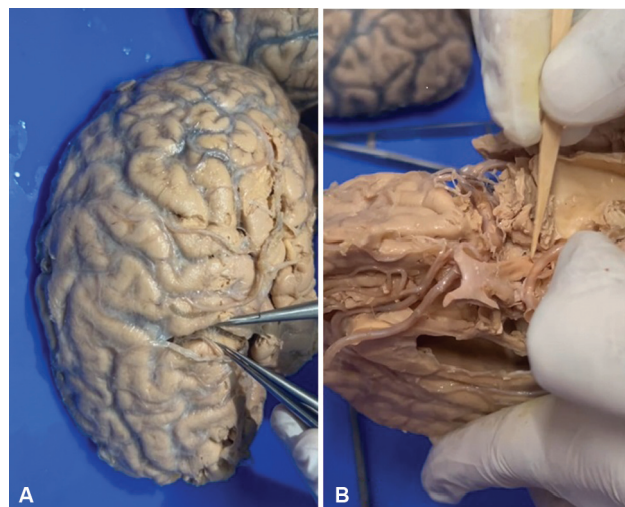


Fig. 2 (A, B) Sylvian dissection and skull base anatomy being taught to neurosurgical residents at NEUROFEST by NSSI, hands-on sylvian fissure cadaveric dissection course for residents, Department of Anatomy, Jaipur National University, Jaipur.

undergraduate students to improve their clinical knowledge and interest but also helps the surgical and neurosurgical residents to refine their surgical skills by dissection and better exploration, and rediscover the anatomy without causing any harm during the learning phase.

Learning microneurosurgical anatomy with the help of cadaveric dissection, in particular, is a fascinating learning experience. This can be learnt in either the anatomy cadaveric hall or the hands-on workshops conducted by eminent teachers. The images of sylvian dissection and skull base anatomy as taught to the neurosurgical residents in a cadaveric dissection workshop held at Jaipur National University are shown in ►**Fig. 2**.

Future Perspective

There is a decreasing trend of the use of cadaveric dissection as the primary modality of teaching in many medical schools due to the development of multimedia tutorials that are available via the Internet, and innovative approaches in some countries have reduced or substituted cadaver dissection practice with elaborate models, such as 3D modeling and virtual reality models.

Conclusion

Cadaveric dissection helps in better understanding of the anatomical relations, safe learning of the complicated neurosurgical anatomy, and training neurosurgical residents to be competent, efficient, and confident surgeons, and this should be included as a part of the curriculum.

Conflict of Interest

None declared.

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