

Clinical Anatomy Teaching: An Active and Engaging Strategy in Anatomy Curriculum

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Human anatomy is one of the fundamental disciplines of medicine for undergraduates. Anatomy is considered as the foundation for the development of medical knowledge and also one of the basic pillars of clinical training for centuries. Gross anatomy not only provides basic morphological features of different structures in human body but also gives an opportunity for reflection on the fundamental values of life and death, i.e. in a simple way it teaches importance of human life. Anatomy also helps to develop understanding for different functions of the body and how both structure and function can be modified by disease.¹

Anatomy teaching traditionally consisted of approximately 500 hours of teaching that includes interactive lectures, practical classes, small groups teaching and demonstrations. (for gross anatomy, microscopic anatomy, embryology, osteology, and radiological anatomy).²

Over the past several years, concerns have emerged that medical graduates may not be acquiring adequate anatomical knowledge. This is largely attributed to a reduction in teaching time. With limited contact hours available, there is a pressing need to prioritize what aspects of anatomy are essential for safe and effective clinical practice.

The most important component for undergraduates in medical education is retention of anatomical knowledge for safe and effective clinical practice. Without strong understanding of human anatomy, future doctors may struggle to diagnose and treat patients effectively, leading to potential risks in clinical settings. Anatomy lectures are the main

preferred methods for learning and teaching anatomy apart from demonstrators led small group sessions, self-directed study and computer assisted study.³

Medical students in their first two years do not have any clinical knowledge which usually lead to less retention of gross anatomical structures. Integrating anatomy teaching with clinical components such as medical imaging, case-based learning, and clinically oriented modules significantly enhances long-term knowledge retention and clinical competence among medical students.⁴ More teaching emphasis should be placed on specific anatomical areas including lymphatic drainage and dermatome innervation there is a strong need for greater clinical emphasis in anatomy teaching during preclinical years.⁵

Anatomy education, views of anatomists and students have been regularly surveyed all over the world focusing basic anatomical knowledge in clinical settings.⁶ In contrast to this one of the research projects among medical graduates from United Kingdom, revealed that approximately half of the graduates were using greater than 70% of their anatomy education that they already had been taught during course study of medical practice. It was reported by most of the medical students that due to their extensive preclinical curriculum they do not follow the culture to study clinical relevance of anatomy even they refrain themselves from clinical anatomy.⁷

Clinicians considered role of anatomy in clinics as very important especially during physical

examination, interpreting radiological images and peer communications. Boundary between theoretical anatomy concepts and their real world application can result in poor development of clinical reasoning skills, poor spatial comprehension and lack of ability to meet challenges of clinical practice.⁸ Several studies have demonstrated that integrating clinically relevant material such as imaging interpretation and based discussions, improves student engagement and enhances long term retention of anatomical knowledge.⁹ The views gathered from study of University of Nottingham and the Trent Deanery in Nottingham, United Kingdom medical students, junior doctors to establish what core anatomical knowledge they feel as a medical students. All were strongly agreed that one of the foundational skills for students should be the ability to interpret modern diagnostic images. This reflects the evolving landscape of clinical practice, where imaging plays a crucial role, and signals that anatomical education must directly support these practical skills. Teaching strategies play a pivotal role in retention of anatomy knowledge. Graduates who experienced PBL, integrated and hybrid teaching programs in which students study clinical applications of identifying anatomical structures in clinical case-based discussions retained clinical anatomy for long duration than those who were taught through only traditional anatomy as a lecture in which students are taught about different anatomical structures, their relations, and neurovascular supply.^{10,11}

Retrieval of anatomical knowledge during clerkship, clinically relevant anatomical review is necessary for associated clinical cases. Curriculum designers, stake holders, anatomy faculty, module coordinators must design anatomy module with clinical applications in the form of case-based discussion, interpretation of images, students self-directed learning sessions which will encourage students to retain anatomical knowledge in their clinical years.¹² Integrating clinical context into anatomy education through imaging, case based learning and multidisciplinary teaching may

significantly improve knowledge retention and better prepare students for clinical practice.

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