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Teaching Beyond the Grayscale: Rethinking Radiology in Undergraduate Medicine

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Teaching radiology at undergraduate level in India is often limited to passive methods, such as viewing PowerPoint presentations with a large number of cases projected onto screens.[1] However, studies and experience show that students tend to forget these cases within days, making the approach largely ineffective. The broader challenge in medical education remains student engagement—without actively involving students in the learning process, long-term retention and understanding suffer. Moreover, despite radiology's critical role across all specialities—clinical and paraclinical—it is still taught very minimally.[1,2] The approach often reduces radiology to merely viewing grayscale images, far removed from the real-world intricacies of interpretation, differential diagnosis, and patient-centered imaging decisions.[1]

There is a noticeable lack of standardization in the way radiology is taught across medical colleges in India, leading to vast difference in the skill levels of graduating students. Radiology deserves recognition as core subject with compulsory postings not just electives.[1,2] Although current curricula attempt to integrate radiology with anatomy, pathology, and clinical subjects through its vertical and horizontal approach, it offers only a superficial overview.[3] This becomes problematic because the majority of MBBS graduates will go on to become clinicians who will regularly refer patients for imaging, although many of them lack even basic knowledge of appropriate modality selection or imaging protocols.[4,5] This gap becomes evident in day-to-day practice, where requisition forms are often vague or inappropriate, reflecting poor understanding of radiological pathways and patient safety considerations.[2,4]

To address these shortcomings, it is essential to implement a standardized, structured radiology curriculum at the undergraduate level. In collaboration with the National Medical Commission (NMC), the Indian Radiological and Imaging Association (IRIA) can draft a standardized curriculum specifying not only on interpretation skills but also differential diagnosis, imaging protocols, structured reporting, and patients' safety. With radiology evolving exponentially—from advanced imaging modalities to artificial intelligence—teaching methodologies must evolve in tandem. Introducing interactive, case-based and AI-assisted tools through IRIA's eLearning platform can greatly enhance engagement and comprehension.[1,5] There is strong need to shift from time-based, didactic learning to student-centered, skill-oriented, and patient-focused competency-based medical education that emphasizes formative assessment, feedback, ethics, communication, and preparing "physicians of first contact" for community needs. Ultimately, the goal should be to capture student attention through modern, multidisciplinary, and clinically relevant teaching methods, so that radiology becomes integral and impactful part of their medical education.

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