

## SHORT COMMUNICATION

### Some variations of case-based techniques for the teaching of undergraduate pathology

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#### Abstract

The challenges to the teaching of undergraduate pathology include adapting to the ever-evolving medical curriculum and the emergence of new teaching technologies. Nevertheless, pathology remains the crucial bridging medical discipline, with the pathology teacher playing an important role in consolidating the basic medical sciences and leading in the clinical disciplines. In this report, variations of case-based teaching of undergraduate pathology are discussed. These can be used in pathology lectures, tutorials and practical sessions, both traditional and computer-based. They contribute to the pathology teacher's repertoire of teaching tools and help add relevance and zest during class.

**Key words:** CPCs, case discussion, medical education, tutorials, lectures, practicals

Undergraduate medical curricula around the world have been in constant evolution. Pathology as a subject is either taught as the traditional module on its own or is increasingly integrated with other medical disciplines in a systems/problem-based curriculum.<sup>1</sup> Regardless of the form it takes, pathology will remain the crucial bridging medical discipline.<sup>2</sup> Case-based teaching has been one of the cornerstones of pathology teaching as it has been for medical education in general. In this short report, various forms of case-based teaching of pathology applicable under different classroom settings are presented.

**End-of-lecture case discussions** are not new but probably rarely used. They introduce spontaneity by allowing class participation. Held over 10-15 minutes, a relevant clinical problem is introduced. As the clinical and investigational scenario of the case is revealed, a few key issues are raised and students invited to contribute opinions. It is often a pleasant surprise that students who had been asleep during the lecture will be aroused at this stage. When selected, most students rise to the occasion, although there may be some who would feel challenged by being put under the spotlight. Encouragement should be given generously and this helps create a relaxed environment. The case discussion should require

the application of information provided by the lecture and also preferably introduce additional information or concepts not covered in the lecture, thereby complementing the latter. As an example, following a lecture on infections of the central nervous system, including an overview of prion diseases, a case discussion on variant Creutzfeld-Jacob Disease (vCJD) would serve to emphasize the salient clinicopathological features of prion disease in general, as well as to highlight the unique epidemiological and clinical features of vCJD.

The interactive nature of **tutorials** lends itself well to the use of case-based discussion as a teaching tool. In the most usual way, such cases could be introduced as an unfolding clinicopathological problem (*vide supra*). An alternative is to assign a few chosen students an important disease entity each at the beginning of the class. Confidentiality of the diagnoses will be kept by the individual students until at some point during the class, when each of them would take turns to present the clinical, investigational and pathological features of their assigned disease - without revealing the diagnosis - in a typical patient. The rest of the group is then asked to suggest their diagnoses and a short discussion follows. This part of the session can take the form of a quiz to add some

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liveliness. The third type of case-based discussion is a classroom *clinicopathological conference* (CPC). Classroom CPCs can be used as part of a tutorial, e.g. during the last 15 minutes. A panel of students is selected and they would discuss a hypothetical patient during the CPC. Each student in the panel would role-play a specialist, including the pathologist, and have his or her turn to present different aspects of the patient's care. Importantly, although the tutorial session centres on an area in pathology, the exercise would have highlighted the importance of medical teamwork as well as of pathology in the overall scheme of good medical care.

*Practical sessions* traditionally involve the demonstration of slides to highlight the link between histomorphology and disease manifestations. More recently, practical sessions using computer-based technology have been introduced in some medical schools.<sup>3</sup> During these sessions, histological differential diagnoses should be emphasized to the students, a practice similar to what takes place at postgraduate pathology slide seminars. Being able to recognize important diseases from gross and/or histological examination remain key to success at the objective structured practical examination (OSPE) component of undergraduate pathology assessment. The degree of sophistication in the discussion of differential diagnosis during the practical session should be commensurate with the standard expected at the undergraduate level. For example, when demonstrating a slide case of invasive ductal carcinoma of the breast, a comparison slide each of fibroadenoma and fibrocystic change could also be shown and the most striking distinguishing features pointed out.

Teachers of undergraduate pathology face the challenges of adapting to changes in the medical curriculum and the emergence of new teaching technologies. Nevertheless, as the practice of Medicine is fundamentally people-centred, there will always be a special place for the personal teacher-student mentorship in medical education, including the teaching of pathology. The teacher of pathology is aided by a repertoire of teaching tools. In this report, variations of case-based teaching of pathology are highlighted as versatile educational tools that can help enhance our classes.

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