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ORIGINAL ARTICLE

Interactive anatomical teaching: Integrating radiological anatomy within topographic anatomy



Enseignement interactif d'anatomie : intégration de l'anatomie radiologique dans l'enseignement d'anatomie topographique

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Summary

Introduction. – Hours attributed to teaching anatomy have been reduced in medical curricula through out the world. In consequence, changes in anatomical curriculum as well as in teaching methods are becoming necessary. New methods of teaching are being evaluated. We present in the following paper an example of interactive anatomical teaching associating topographic anatomy with ultrasonographic radiological anatomy. The aim was to explicitly show anatomical structures of the knee and the ankle through dissection and ultrasonography.

Methods. – One cadaver was used as an ultrasonographic model and the other was dissected. Anatomy of the knee and ankle articulations was studied through dissection and ultrasonography.

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MOTS CLÉS

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Results. – The students were able to simultaneously assimilate both anatomical aspects of radiological and topographic anatomy. They found the teaching very helpful and practical.

Conclusion. – This body of work provides example of a teaching method combining two important aspects of anatomy to help the students understand both aspects simultaneously.

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Résumé

Introduction. – Le nombre d’heures attribuées à l’enseignement de l’anatomie diminue dans les différentes facultés de médecine dans le monde. En conséquence, des modifications du contenu de l’enseignement ainsi que de la méthode d’enseignement sont nécessaires afin d’adapter l’enseignement au nombre d’heures attribuées. Des nouvelles méthodes d’enseignement sont en cours d’évaluation. Nous présentons un exemple de méthode d’enseignement qui associe l’anatomie radiologique à l’anatomie topographique. L’objectif était d’expliquer de manière simultanée en échographie et en dissection l’anatomie des articulations du genou et de la cheville en exposant les structures par les deux modalités.

Méthodes. – Deux cadavres frais étaient utilisés : le premier servait comme modèle échographique et le deuxième était disséqué. L’anatomie des articulations du genou et de la cheville était décrite en dissection et en échographie.

Résultats. – Les étudiants étaient capables d’intégrer de manière simultanée l’anatomie spécifique à chaque modalité. Ils étaient globalement satisfaits de l’enseignement dispensé.

Conclusion. – L’intégration et l’association de l’enseignement d’anatomie radiologique par échographie avec l’enseignement d’anatomie topographique sont possibles. Cette association était appréciée par les étudiants.

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Introduction

Anatomy is one of the basic and fundamental sciences that medical and paramedical students need to understand for safe and effective care. Radiological anatomy is a more recent discipline that was born with the radiological medical specialty following Roentgen’s invention of X-ray in 1895. Ever since new and sophisticated radiological methods were invented: computed tomography (CT) scanner, ultrasonography (US), magnetic resonance imaging (MRI) and nuclear medicine. Interpretation of medical imaging requires not only basic anatomical knowledge but also modality specific radiological knowledge. Each imaging modality represents the same anatomical structure in different aspects and contrasts. We believe that associating topographic anatomy with radiological anatomy is a difficult task. The difficulty of such task resides in the discrepancy of terms employed to describe the same structure. Students usually fail to make such association.

Medical and paramedical curricula are evolving due to the pressure of a changing society and due to the emergence of new disciplines. Hours attributed to teaching anatomy have been reduced in medical curricula through out the world [1,2]. Classical methods of teaching rely on lectures and dissection. The latter is time-consuming and requires considerable resources. In consequence, some medical institutions attempted to replace dissection by other methods of teaching [1,3–5]. Providing the best quality learning experience to students while managing all the difficulties is a daunting challenge. It requires changing the way and the content of anatomical teachings. Therefore clinically

oriented teaching is unavoidable. This body of work provides an example of such teaching. We decided to apply topographic anatomy to ultrasonographic radiological anatomy in order to help physiotherapy students assimilate the correspondence between surface anatomy, palpatory anatomy and radiological anatomy.

Description**Course objectives**

The course was limited to the anatomy of knee and ankle especially the ligaments and intra-articular menisci. We presented nevertheless the myology of the entire lower limb with emphasis on their action and their biomechanical aspects. To help the students understand these aspects, we demonstrated the origins and insertions of muscles on a complete set of lower limb bones. Surface anatomy and clinical tests were also demonstrated.

Students

The course was destined to physiotherapy students. Theoretical knowledge was provided through lectures. To maximize the benefit from the course, we strongly recommended them studying the theoretical part beforehand.

Interactivity was obtained by limiting the groups to fifteen students. Questions were asked on each important anatomical structure.

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