

Incorporation of Dissection Task-specific Questions in a Medical Anatomy Course

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Background

In recent years, scheduled time for anatomy instruction at the Virginia Tech Carilion School of Medicine has been reduced to allow for the inclusion of newer topics and the use of alternative teaching approaches. Changes in the anatomy curriculum designed to address these time restrictions have included the elimination of live lectures, of specific course objectives and a deletion of cadaver laboratory dissection-related objectives and tasks. We describe here a successful effort to address challenges associated with a reduction in scheduled curricular time for the teaching of human anatomy in our medical education curriculum.

Introduction

Among the challenges associated with a reduction in scheduled class time is the loss of time for direct faculty-student interaction. In an effort to maintain the value of limited laboratory dissection time, we developed a series of short answer questions attached to individual dissection tasks described in our VTCSOM Anatomy Guide & Workbook that students are expected to answer as they progress through each laboratory dissection session. Questions focus on the importance the dissected structures in the performance and interpretation of the general physical examination.



The responsibility for presenting these questions to the dissection team, and for finding the answers for each question, rests with the “reader” and “researcher” members of the team. Print and electronic resources are available in the laboratory to aid in finding answers to the questions. Gentle reminders to answer the questions are provided by the anatomy faculty circulating among dissection stations during the laboratory session. Approximately 60% of the individual dissection steps listed in the VTCSOM Anatomy Guide & Workbook are associated with a question.

Our goals in using the open-ended question format were to 1) facilitate a student-led activity in which two members of the dissection team (i.e., reader and researcher) are responsible for



searching available resource material for answers or explanations to questions linked to the anatomical structures being identified in the cadaver by the dissectors for that day; 2) to focus attention, not simply on identifying a particular structure or relationship, but more importantly, on the clinical relevance of the dissected structures and relationships; 3) to provide an opportunity for peer teaching within the dissection team; and 4) to encourage the demonstration of knowledge in a format that will be required during the clerkship and elective years, namely, responding to open-ended questions rather than to questions styled in the multiple-choice format.

Results

Several positive outcomes were achieved as a result of the addition of task-specific focused self-assessment questions. First, students appreciated the guidance provided by the questions in focusing their time and study efforts on anatomical content, not immediately obvious to learners in their first course in human anatomy, but nonetheless important for future coursework as well as examination preparation. Of comparable value was the establishment of a defined role for the reader and researcher. Typically, those students actually performing the dissection tasks are actively working during the scheduled laboratory session, with the other group members sometimes feeling less involved in the class activity.

By assigning a specific activity with a specific objective to the reader and researcher, those individuals now become integral members of the dissection team. Serving as peer teachers, their efforts often bring information specific to the needs of the group at the time. Involving students in the group as peer teachers also facilitates progress through the dissection activities when faculty may be involved with other groups. Though we do not have objective evidence in support of the use of these questions in terms of examination performance, we are gratified by the positive student comments regarding their perceived value.

This activity has value in other small group laboratory-based curricula with limited faculty interaction. The success of this activity is based on the relationship of the italic question asked to the specific laboratory activity to which it is attached.

Discussion

Student success in the preclinical curriculum (during which knowledge of the basic medical sciences is acquired and is most frequently assessed and evaluated) is by means of forced choice questions, commonly structure as multiple-choice questions. An advantage of this format is that allows for an objective and quantitative determination of what students have learned. The basic task with these types of questions is to recognize the correct or best answer from a list of choices provided by the question writer. Depending on the skill of the test question writer, forced choice questions can reliably measure knowledge of information acquired by memory as a result of exposure to that information, or the ability of the student to apply knowledge in certain, selected settings.

However, success in the more clinically focused parts of the curriculum requires additional knowledge and skills which are, in this setting, assessed more commonly by means of open-ended questioning by faculty based on interactions with patients in various clinical settings. For example, in the operating room, students are not likely to be asked “which of the following vessels do you think we ought to tie off before removing this organ,” but rather open-ended questions such as “Which nerve do you think has been injured in this patient?” This more common method of knowledge assessment during the clinical years requires the student to recall information needed to answer a question or synthesize a solution to a problem rather than simply recognize an answer from a very limited assembly of choices.

A major objective of including a set of open-ended, task specific questions in the laboratory dissection component of our anatomy course is to provide opportunities for learning and for demonstrating that learning in a way that closely mimics the way in which learning will be assessed during a latter time in the curriculum. We believe that the use of these types of assessment questions achieves this objective.



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