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PERSONAL VIEW

Directile dysfunction

PAUL LEE
University of New South Wales, Australia

I was overwhelmed by a flood of emotions when I asked an enthusiastic question on vitamin D "How does vitamin D deficiency increase the risk of fractures?" to my class of medical students, and it plunged silently 1 m before it reached the students" desks, drowning just distal to the blank and sleepy eyes of 21 young future doctors, without a trace (or response). Not only did it feel like a brutal defeat of my "teaching skills", but the moment also brought back vivid memories of medical school; when I was a medical student, I was constantly *amazed* by my lecturers' sedating spells, and thus had the ambition to improve the future of medical education, for I strongly believed there had to be a better and more interesting way to teach junior medical students even the driest of topics, aka the Krebs cycle.

The recent decade witnessed significant revolution to medical education. Traditional didactic lecture-based teaching is increasingly replaced by problem- or scenario-based learning. Students are encouraged to engage in independent research into different problems or scenarios (such as "muscle pain in an 84-year-old smoker"), and acquire knowledge spanning different disciplines of medicine through the trigger of one problem. For example, the above "scenario" may encompass an introduction to skeletal muscle anatomy, physiology, as well as clinical diagnostic evaluation of myalgia, and the psychosocial impact of chronic pain in the elderly. The tutor's role is to facilitate the discussion among the students after their independent reading and several introductory lectures on a particular topic. While this approach encourages all-rounded thinking, the vastness of some scenarios and the lack of a strong foundation of background knowledge can leave discussants confused and the facilitator frustrated.

In the role as a "facilitator", tutors are discouraged to provide direct answers to questions. However, responses such as "That is a great question. Why don't you investigate more about the relationship between myalgia and vitamin D deficiency and tell us next week" can also lack direction and feel dis-satisfying. Instead of providing didactic answers, I advocate the provision of "a map" to students (Figure 1). In other words, students are given an overview of how the clinical problem (myalgia in an 84-year-old smoker, i.e., their "current location") relates to principles (muscle anatomy and physiology, i.e., "the origin"). Understanding what is *normal* facilitates the dissection of potential etiologies (mechanisms of disease, i.e., *directions from current location*), which, in turn, leads to the formulation of a focused history and examination in order to evaluate differential diagnoses (i.e., *the destination*). The map is completed by superimposing the psycho-social impact of the clinical problem on the patient (i.e., *the journey*).

Such a map is not at all representative of the entire clinical problem. It does, however, help the student gain in perspective and facilitates self-directed research in the different topics (or locations, i.e., "study-stops"). The advantage of such a map-directed learning is its ability to facilitate self-directed research without losing focus and perspective, or neglecting potentially important areas. It also encourages integration of principles with mechanisms of disease and clinical medicine. Instead of "thorough" clinical history taking and examination in the absence of thinking (Figure 2a), students are encouraged to "synapse" what they have heard from patients with their interpretation to reach a meaningful working diagnosis (Figure 2b).

Medical students have generally been "high-achievers" throughout their academic adventures. There is the unspoken expectation imposed both by authorities and subconsciously by themselves that "they should know all." Uncertainties can be regarded as a "deficiency" and usually prompts more dedication to study. While such an attitude may promote self-innovation and personal development, it can perpetuate a fear of uncertainties and inability to accept unknowns. Unfortunately as we travel further in our medical career, we realize medicine in the real world does not always agree with knowledge and experience. I have forgotten how many times symptoms and signs in patients do not agree with medical textbooks; "Gold standard tests" frequently fail; and "standard treatments" not uncommonly disappoint.

Both students and junior doctors can be reluctant to accept "medical knowledge failures." Even physicians sometimes feel compelled to provide answers to all patients' problems. This is especially evident in physician examinations when trainees will endeavor to explain all symptoms and signs, and provide the "perfect" treatment plan for all patients. What trainees do not realize is that examiners do not always have answers to the questions they pose, as medicine in reality is filled with dilemmas and uncertainties. For example, it is a much more mature approach for a trainee to discuss the difficulty in balancing the benefit of steroid therapy with the risk of osteoporosis, rather than an unbalanced decision to support one or another. A single perfect solution is sometimes a phantom of the medical opera. It becomes a self-destructive act in an examination when trainees refuse to acknowledge the unknowns and impose a "golden treatment plan" on the patient (and the examiner) when clearly there is none.

Correspondence: P. Lee, Department of Endocrinology, St. Vincent's Hospital, Garvan Institute of Medical Research, Sydney, New South Wales, Australia. Tel: 61 2 9295 8486; fax: 61 2 9295 8481; email: p.lee@garvan.org.au

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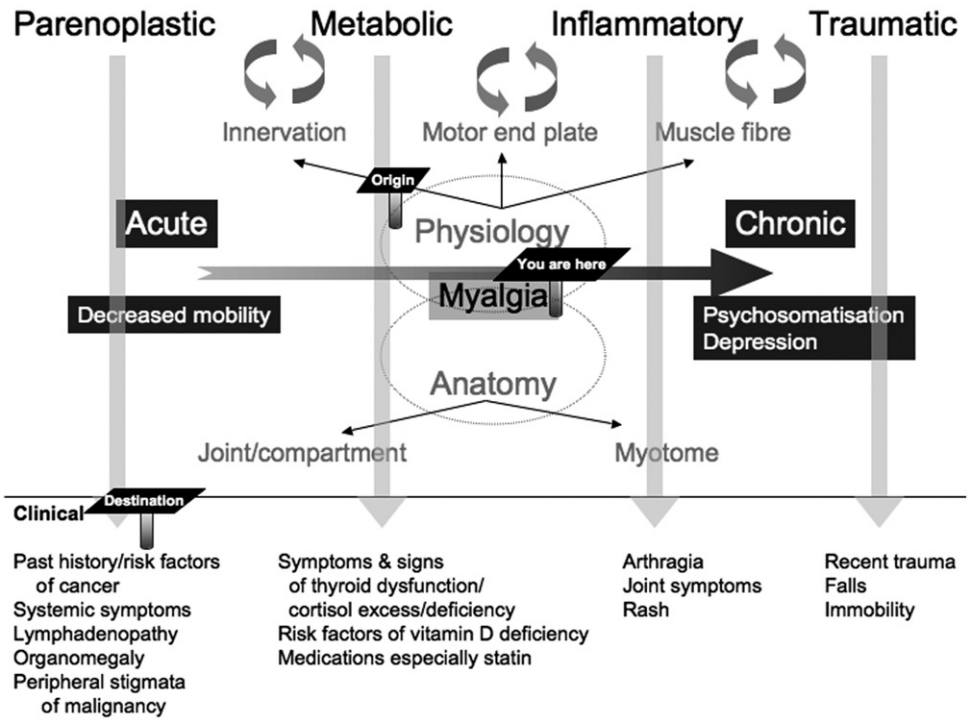

Figure 1. The "map" for "an 84-year-old smoker with muscle pain".

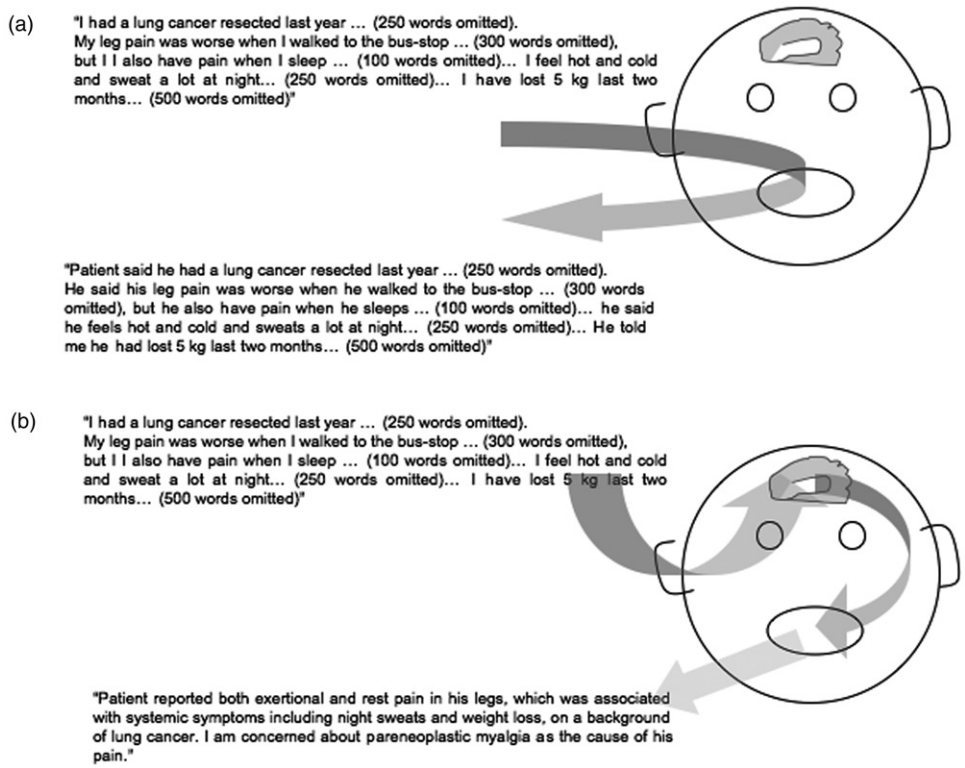

Figure 2. Schematic diagram of (a) aural–oral approach and (b) cerebral–oral approach to history taking.

Recognizing and accepting the uncertainties is most relevant to a practicing clinician. While I strive to diagnose and treat all my patients' problems, I increasingly recognize the limitations of our knowledge. What I have learnt is the limitations of "my map", which does not give me directions to every destination, and sometimes there may be unexplored routes yet to be discovered. However, as a doctor, I have learnt that being able to acknowledge such uncertainties are most important. In the last few years of my training, I view "I don't know' as the most difficult, yet sometimes

most important answer, to patients, and their families. When those difficult moments arise in clinical practice, I bring my "map" with me and share it with them. Often, the worst nightmare in the battle with a disease is sometimes not the disease itself, but the uncertainty surrounding the diagnosis, course, and prognosis of the condition. It is overwhelming and frightening for the patients and their family to wander in the dark, not knowing what to expect. However when I share with them my map, highlighting where we are, where we are heading, and where the limits of my map (and hence the uncertainties are), it can be most therapeutic.

Every student, trainee, and doctor should carry with them such a map when they see a patient. A map reinforces our knowledge and leads us to explore unknown territories, but most importantly, it reminds us that sometimes guiding patients through their illness may be more therapeutic than prescribing a new medication. Recognizing directile dysfunction in medicine is the first step in finding new directions.

Notes on contributor

PAUL LEE is an endocrinologist and research scholar at the Garvan Institute of Medical Research in Sydney, Australia.