

Commentary on the paper entitled "Is Anatomy dead?" by Dr. G. Tong

Pedro Mestres-Ventura

Department of Anatomy and Cell biology, Medical School, Saarland University, 66421 Homburg Saar (Germany)

The first section of this article deals with the teaching of macroscopic anatomy, while the second part discusses scientific developments, which have enlivened anatomy as a scientific discipline.

According to the author, the time allocated to the teaching of macroscopic anatomy within the curriculum has been progressively reduced during the past decades, in particular with regard to dissection. For example, 60 years ago much more time was reserved for dissection than is the case today. There were small student groups and internships covering almost all major regions of the body. However, a central question seems to be whether so much preparation technique is necessary in order to understand and know the anatomy of the human body.

Today in many medical schools, the whole body is still prepared, but – mostly due to lack of time – the quality of the preparations generally leaves much to be desired. Does this affect the quality of future doctors' work?

A further factor, according to Dr. Tong, is the Faculty of Anatomy. Research plays a major role in achieving success as an anatomist. This is mostly in the field of microscopy, molecular biology or other fields, but seldom in macroscopic anatomy. In addition, very few medical doctors are today interested in anatomy as a major professional field, a fact which has led to a notable lack of teachers with an adequate medical background knowledge. Thus, a gap has arisen which is being generally closed by appointing biologists and even chemists. Their competence in human anatomy is usually acquired through a short-term participation in pre-clinical courses for medical students. This has resulted in a sub-optimal situation, for which various remedies have been proposed. For example, as early as the 60s a program was proposed and

even implemented in some universities. It foresaw the recruitment of retired physicians, in particular surgeons, to teach anatomy to medical students. During my professional career as an anatomist, medical students repeatedly confirmed the differences between the anatomy lectures of a medical practitioner and those anatomists with no or only little medical background knowledge. In this respect, I fully agree with Dr. Tong in his assessment that this situation is very critical. The question is whether this situation might even significantly affect the quality of medical care.

The first semesters are not the only times when medical students and postgraduates are confronted with anatomy. In surgical subjects, radiology, even in pathology and forensic medicine, to name a few, there are situations in which anatomical knowledge is required, being either recalled or intentionally updated. In many anatomical institutes, such synergies are articulated by transforming departments – if not entirely at least partially – into Institutes for Clinical Anatomy. As already mentioned, anatomy is now very present in the clinical field. Maybe it would prove more effective to teach anatomy ad hoc throughout the medical career rather than aspire to having taught it in full at the very start of medical training. All these considerations show that anatomy is still very present, but that, not only is it itself changing, but its relationship to other medical disciplines is in flux.

It is disputable that conventional anatomy with corpse preparation has become irrelevant. Corpse preparation is important for surgical courses in which clinicians refine or even develop surgical techniques by means of corpse preparation or where imaging techniques are correlated. Also noteworthy in this context is that in some countries where the climatic conditions demand it, heavily air-conditioned preparation halls have been established, which are called multidisciplinary, as they are not only intended for first-semester medical

Corresponding author: Pedro Mestres-Ventura. Saarland University, Anatomy and Cell biology, Avgd. Josep Vidal i Barraquer, 9 43850 Cambrils. Tarragona. Spain
E-mail: pedro.mestres@uks.eu

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students but also for specialist training of physicians, etc. Nevertheless, the problem of body preservation can be found almost everywhere. In this context, Prof. Gunter von Hagens *Plastinationstechnik* should not be left unmentioned, even if the spectacular exhibitions of plastinated human bodies have caused varying and in part, strong reactions not only in society generally but also in scientific circles.

In the second part of the paper the author gives three or four examples, which he presents as proof for the “vitality” of anatomy. The first example is the discovery of a ligament in the knee joint not previously described. This, however, was made by surgeons. The second example deals with the examination of the ultrastructure of the sperm tail using modern electron optical methods – a study carried out by molecular biologists, biophysicists, etc. The third is a pronounced anatomical issue: the Allen Brain Atlas (Allen Institute for Brain Science, www.brain-map.org) and the Human Connectome Project (www.humanconnectomeproject.org), in which several universities and multidisciplinary research groups are involved.

If these three examples are classified as anatomy (although I doubt that the scientists involved ever called themselves “anatomists”), then it would seem that we are talking about a new kind of anatomy, whereby the term is used more for a structure in *senso lato* and the content associated with it is not only located in traditional anatomy departments, as was the case in the past. Indeed, many of these departments have, in the meantime, deleted the term anatomy from their department name. It is quite remarkable how far removed classical macroscopic anatomy is from this “new” anatomy.

I agree with Dr. Tong that anatomy is still alive, but it is evolving at a great pace and some of its typical characteristics may well fall by the wayside.