



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Disponible en ligne sur

ScienceDirect
www.sciencedirect.com

Elsevier Masson France

EM|consulte
www.em-consulte.com



EDITORIAL

Anatomy examination amidst COVID-19 pandemic: Need of the hour

Examens d'anatomie pendant la crise COVID: les nécessités actuelles



The anatomists are already working on virtual teaching from almost a year, there is still uncertainty about the Covid-19 pandemic and no-one can predict that, how and when the humans will enter into much awaited pandemic free world. Though vaccines are being administered to people in many countries. However this process will take a long time to vaccinate the whole populations. The identification of some new strains like 'U.K. strain' of Corona Virus further obscure the future scenario of post-pandemic era. Thus it's the peak time to work in saving the academic year of students and conduct the examinations and to promote them to the next level. The difficulty bumped into Anatomists is "How to conduct exams during this pandemic?" To answer this problem and to cater the fact that traditional written and practical examinations may be hard to conduct, an alternative assessment plan may be framed by Anatomists.

Written Anatomy examinations

In the traditional written examination, the students come to examination hall, write-down their responses to each question. The answer sheets are manually checked and graded by the faculty. However, during this pandemic crisis, the written examination may be conducted via online platform with modified question paper format i.e. by means of very short answer type or multiple choice questions instead of traditional short answer or long essay questions.

Practical Anatomy examinations

The traditional steeple chase examination method in which prosected specimens, viscera or bones with marked areas, radiological images, surface-marking on cadaver are kept, seems tough to manage especially in the set-ups where

large batches of students are involved. It is suggested that rather than cancellation of practical-based examinations, anatomists must try to assess students' practical skills and knowledge using other robust methodologies via online practical exams [1]. The practical exams had been conducted by means of online platform using different methods like computer-simulated or illustrated images because of lack of cadaveric material, at some settings during pre-pandemic era [2–5]. The responses were reported to be comparable to the traditional format [4]. However considering the experience of students who appeared for online Anatomy exams during the pandemic, more than 60% had inclination preference for traditional anatomy examination method [6]. One must realize that virtual Anatomy teaching and conducting the exams online in the current crisis situation is a stop-gap solution and expectantly will not be a permanent switch [7].

As traditional written examination has its own disadvantages like; time consuming, prone to bias or error and sometimes hard to read the unclear language and handwritten responses [5]. Also keeping in view, the already existing shortage of cadavers which has been further affected because of halted body donation program in most of the institutes globally due to COVID-19 pandemic, demands some newer methods for practical exams as well [8]. So rather than considering this pandemic as an obstacle for conducting exams, anatomists should consider it as an opportunity to create newer ways for exams and share their experiences for different adopted methods. As is rightly said, "Necessity is the catalyst for innovation" [3].

Future guidelines

The examiners and examinees need to evolve and adapt to this paradigm change, as this virtual system creates the need

<https://doi.org/10.1016/j.morpho.2021.05.001>

1286-0115/© 2021 Elsevier Masson SAS. All rights reserved.

for computer literacy and typing skills. For the same, some mandatory module may be framed and implicated for future Anatomy faculty and students. The anatomy departments are proposed to upgrade their prosected specimens, images, microanatomy slide pictures, required question banks for conducting effective online examinations [6]. Though non-traditional examination methods may have some glitches however the progression of students to next level and timely addition of new front-line medical team to our system without missing a year, is the need of the hour.

Disclosure of interest

The author declares that she has no competing interest.

References

- [1] Brassett C, Cosker T, Davies DC, Dockery P, Gillingwater TH, Lee TC, et al. COVID-19 and anatomy: Stimulus and initial response. *J Anat* 2020;237:393–403.
- [2] Bergman EM, Prince KJ, Drukker J, van der Vleuten CP, Scherpbier AJ. How much anatomy is enough? *Anat Sci Educ* 2008;1:184–8.
- [3] Inuwa IM, Al Rawahy M, Taranikanti V, Habbal O. Anatomy ‘‘steeplechase’’ online: necessity sometimes is the catalyst for innovation. *Anat Sci Educ* 2011;4:115–8.
- [4] Inuwa IM, Taranikanti V, Al-rawahy M, Habbal O. Anatomy practical examinations: how does student performance on computerized evaluation compare with the traditional format? *Anat Sci Educ* 2012;5:27–32.
- [5] Krippendorf BB, Bolender DL, Kolesari GL. Computerized grading of anatomy laboratory practical examinations. *Anat Sci Educ* 2008;1:220–3.
- [6] Sadeesh T, Prabavathy G, Ganapathy A. Evaluation of undergraduate medical students’ preference to human anatomy practical assessment methodology: a comparison between online and traditional methods. *Surg Radiol Anat* 2021;43:531–5.
- [7] Evans DJ, Bay BH, Wilson TD, et al. Going virtual to support anatomy education: A stop gap in the midst of the COVID-19 pandemic. *Anat Sci Educ* 2020;13:279–83.
- [8] Singal A, Bansal A, Chaudhary P. Cadaverless anatomy: Darkness in the times of pandemic Covid-19. *Morphologie* 2020;104:147–50.

A. Singal

Department of Anatomy, All India institute of Medical Sciences, 151001 Bathinda, India

E-mail address: anjali.singal@rediffmail.com

Available online 6 May 2021