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LETTER TO EDITOR

Reply to: Cadaverless anatomy: Darkness in the times of pandemic Covid-19



L'anatomie sans cadavre : les ténèbres aux temps de la pandémie au Covid-19

Dear Editor,

We read with interest, the article titled 'Cadaverless anatomy: Darkness in the times of pandemic Covid-19', which is published in Morphologie. This article authored by Singal et al., [1] has discussed about the teaching of anatomy subject in the pre pandemic and post pandemic eras. The colleges and universities are closed due to COVID-19 to maintain the social distancing and prevention of spread of infection of this communicable disease. COVID-19 had impacted the medical education globally and students are finding hard to acquire the knowledge of basic sciences subjects [2]. Studying anatomy by dissecting the donated cadavers will not be possible in this period of pandemic COVID-19 [3]. It is true that, students also lost access to other modalities like anatomical models, museum specimens, dried bones and histology slides [1]. We agree that, questions arise about the current medical education and the future careers of medical students. It is unfortunate that these questions are not answerable [4]. Medical colleges may not accept the bodies during this pandemic and in the future as well, because suspicion arises if the donor is a carrier of COVID-19. It is not possible to test the cadaver for COVID antigen, because the screening kits are not sufficient in the present scenario even for the living people [1]. It is also real that the negative laboratory test may not rule out the possibility of COVID-19 infection [5].

In this situation of COVID-19, online platforms are helping the students to some extent. The lecture classes and practical teaching are done with the workplace chat and video meetings, but still the teaching and learning are seriously affected. In 2003 pandemic, the severe acute respiratory syndrome also, the web-based learning was successful in

providing the education which the students received [6]. However, the absence of practical teaching due to COVID-19 will have long lasting impact in the knowledge of students. We are sharing some of the good practices that helped us overcome these limitations in anatomy teaching at our institution. The theory classes were lecture captured and live streaming was done on online platform. These lectures were interactive with related case based discussion. The cadaveric wet specimens were demonstrated with video recording. The small group teaching in the online platform helped students clarify their doubts and strengthen their understanding of the subject. The students raised the questions in the small group teaching, which was performed through the Microsoft teams' software. These questions were clarified by the teachers and are illustrated by the clinical vignettes and case based learning. The case based study can motivate the students in learning the clinical relevance of the structure, which they are studying. The study of anatomy was made more interesting by creating Google forms with pictures in the multiple choice and short answer questions and also case based discussion and online quizzes during webinars. The best examples of our online assessment included clinical vignettes of thyroid swelling, carcinoma prostate metastasising to the central nervous system through the Batson's plexus, perineal swelling, cryptorchidism and culdocentesis procedure to reach the pouch of Douglas. The objective structured practical examination included uploading of cadaveric images in the google form, like images of testis with epididymis, sacral plexus, perineal body, uterus, rectouterine pouch of Douglas, ischial spine, female bony pelvis, suprarenal gland, thyroid gland, ovary, uterine tube, seminal vesicle, vas deferens, hypophyseal fossa, vaginal part of cervix, prostate gland and broad ligament of uterus. These cadaveric images had 2 questions each, the students should finish one question and then go to other questions. All the questions were compulsory and students can't go to next question without answering the initial question. These assessments were successful in checking the student's knowledge about 'knows how' and 'shows how' competency levels.

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Online learning allows the medical students to choose their self-directed learning at home in their convenient time [7], since recordings are available. Hall and Border [7] suggested that it is essential that the instructional design of video resources should have alignment with the principles of the cognitive theory of multimedia learning. This can minimize the cognitive load, which is the strain placed on a student's working memory. The three dimensional anatomy can also be learnt by using the virtual dissection table like, the anatomage. These softwares are more technically advanced and can help the students in understanding the virtual anatomy better. It is important to make sure that the students should reach the application level of Bloom's learning taxonomy as per the competency based medical curriculum. But it may be difficult to provide perception of real structures in a virtual software or video, because the spatial orientation and visualization of neurovascular structures will not be as clear as in the routine cadaveric dissection [1]. Singal et al., [1] is correct that the cadaveric dissection skills the fingers and hands of students, who can may become surgeons in the future. Cadaverless anatomy learning may have negative impact in the skill of a budding surgeon [1].

The COVID-19 pandemic social distancing has created a challenge to the undergraduate anatomy faculty. We the faculty of anatomy should try to meet the needs of our students not just by utilizing the available online resources, but by taking a step forward in creating content and resources that will satisfy the needs of our curriculum. We thank the authors Singhal et al., [1] for providing us the information about accepting the bodies for anatomy teaching in the post COVID era and their ethical and logistic issues. We also thank the editorial team of 'Morphologie' for this wonderful publication.

"Anatomy is far from stationary, either in its facts or in improve-ments in the method of their presentation; hence any work which would faithfully reflect the existing position of the science must be revised at comparatively frequent intervals" (Gray, 1897)

Disclosure of interest

The authors declare that they have no competing interest.

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