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Perspective

Disruption of Anatomy Dissection Practical in COVID-19 Pandemic: Challenges, Problems and Solutions

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Background

We are undergoing crisis for humanity with corona virus disease (COVID-19) causing extensive damage to life and its aspects. Moreover we do not know how this will unfold in near future. All the academic classes are suspended during nationwide lockdown to alleviate the propagation. It is high time to rethink ways to deliver quality medical education under restriction of social isolation and absenteeism in real time teachings and discussions. We propose, based upon our experiences, replacement of didactic gross anatomy dissection with handmade dissection videos and its implications. It has its own challenges which could be overcome with planned directives based upon current experience.

What is the magnitude of problem?

In this gloomy environment of forced absenteeism, reluctance in study plans and procrastination requires counseling for emphasizing the importance of tight declining schedule and benefits of timely curriculum for covering huge syllabus. Traditional methods of face-to-face educational didactics, lectures and chalk talks has been compromised like no other time in past. Use of education technology at a mass scale for economically deprived countries, limited availability of techno friendly medical educators and adaptation of student to newer teaching techniques was already restrained in pre-pandemic time. Also, the alignment of new teaching format with amount of content and duration of topic coverage, necessary and safe enough to train for effective practice of problem-based learning warrants reorganizing available resources. From student's perspective, accommodation and fooding concerns in lockdown, poor internet access with intermittent disconnection, lack of high-end laptops and absenteeism are major concerns, which precluded us from live streaming of gross anatomy dissection. Also, it is to be ensured that changes in teaching style have positive impact on amount and depth of concerned knowledge.

Why dissection is irreplaceable?

Cadaveric dissections are not a trivial activity and have tremendous ethical consideration with regards to the great souls who donated their body for medical education. Gross anatomy teaching of structures of the human body is fundamental to health professional education. Vast content of this subject was taught classically via didactic pedagogy. Cadaveric dissection and preserved model studies create simulation for surgical field.[1] It is a preliminary stage for foundations of Patho-anatomy and rehearsal for surgical orientation. Schematic illustration of dissection can adversely lead to student turning into information recipient only instead of becoming active learner implying thinking, reflecting and discovering at individual interest level.[2] Successful accomplishment of dissection tasks generates motivation, self-confidence and esteem.[2]

What are the aims of new teaching design?

Three essential steps were aimed for a new teaching design:

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1. To provide relevant self recorded videos and PowerPoint presentations to maintain scheduled curriculum as far as possible with reference to pre-defined academic calendar and timings of classes.

2. A declarative preconditioning about the new changes in dissection demonstration plans was given to a small number of class representatives for discussion with peers. Additionally, co-ordination amongst peer faculties were made to prevent overlaps in schedule.

3. Record and discuss non-verbal communications inputs of students through social media for quality control in every next video shooting.

What were the methods for faculty and content developments?

Using departmental simple camera with gimbal handled by academic media staff of the institute at anatomy dissection laboratory in compliance with administration orders, we focused on creating few short and easy videos with small file size (<250MB) of 15-20 minutes for every dissection topic.

How will dissection videos help?

Considering academic schedule pressure and vast syllabus, the problem was addressed through recorded videos on selected topics. Presently, with smart phones widely available and accessible, producing and sharing videos is quite easy. Videos improve learning as it enables the formation of mental image close to the real dynamic structures. Technological advancement has created the ability to view dissections or prosections without having to be physically present which has been viewed to be a valuable tool to anatomy education with the growing pressures affecting it.[1] Although in assessment, student can identify a structure and correlate clinical anatomy, yet the benefit of holistic trainings exceeds significantly when they dissect with peers while discussing therefore acquaintance with realistic pictures of dissected cadaver must not be missed with passing time.[1]

What are odds against not choosing from available open source?

There are reasons as why not to choose and recommend nonspecific You-tube videos, as they seriously fail in delivering the complex learning process.[2] The most envisaged hazard in open source information is potentially inaccurate content '*Heads that know how to think or heads full of information*'. [2] Also the social media can be useful virtual outlet but lack depth and organization to reliably transmit.

Why teachers should proactively make videos?

There is a dynamic in communication between teachers with students in particular explaining details of the content. Faculty involvement in dissections facilitates association between theoretical concept and practical implications. Positive affective relationship can be generated by dialogues at table side.

Faculty's considerations

It lies in brisk orientation of teachers as well as students to adapt with online learning stages. Teacher shyness to acclimatize to new format, with nil face to face interaction was a matter of concern, hence dealt with peer interaction and sharing feedbacks. Also, videos used for education will vary for every teacher; the reason being, preparedness, promptness, and creating interest in the session. With decreased cadaver availability and time-consuming dissections, videos are placed as possible solution.

Student's consideration

We should try to modify student perception for acceptance of changes in traditional methods and motivate them with interesting presentation. Also, they can be encouraged to interact digitally for queries and feedback. In new arrangement of dissection, there is a requirement to adapt to sensitize for viewing the video guides on practical procedure of prosected specimens for adequate exposure to anatomical content as a replacement to pedagogical approach of student participation in dissection process.

What are long term future correlates of the contents as a carry forward of this crisis scenario?

Although short videos are not exact replacement of hands-on practical training, yet it does not add up much to pre-existing workload and can be suitably used in revision strategies at times of doubt in entire curriculum when suitably stored. As the specialist is involved, the videos can be customized to learning

conclusion, and ethical knowledge bank of the faculties of the institute. Pressure on educators to respond earliest in crisis nowadays, need to be replaced by strategic view in a long term. The quality and length of self recorded videos as a preparatory tool needs long term audit to produce optimum contents at professional level. We also call for comparing examination and assessment outcome of traditional vs. newer method in short term and long-term assessment. Cohort for analysis of feedback provided by students can be taken up in case futuristic curriculum demands replacement of didactic lectures with audio-visual trainings. The current scenario scrutinizes the options of developing and integrating student teacher interaction as a component of video, thereby incorporate problem-based learning.

Where will temporary scenario might lead to based upon upcoming evidences, shall it change the entire time-honored study design?

Lack of trained faculties able to lead a dissection task, acquisitions and maintenance of corpses, has prompted to go for alternative methods like model and software.[1] It has been hypothesized that future of gross anatomy education will see replacement of text books with videos filled with explanation of morphological variations and clinical relevance adherent with problem based learnings.[3] Under lights of evidences, automation, virtual reality and 3D- visualization seems potentially inciting the age old didactic teachings.[3] However, the classification of recommendation and level of evidence is still not available, so presently anatomy videos how so ever promising still falls in ambit of poorly defined role in anatomy education. Even complete exclusion of cadavers from teaching program is pointed, however without established evidences of benefits, the prospect remains obscure[3] Few years down the lane, professionally created tracks of audio-visuals will be accountable and scholarly values will be citable much in congruence with evidence based medicine video journals.[4]

Potential recommendations and conclusions

This new format does not deny the traditional instructive hegemonic model, but rather puts up the ways of overcoming them in present where its applicability is compromised. Still the challenges that remain are focused on effort regulation, goal settings, self-monitoring of understanding, time management and help seeking. Hence, we recommend faculty development through acquaintance with professional technologies and student skills enhancement by balancing between traditional 'directed self-learning' to 'self-directed learning'. We conclude with advocating dissection in anatomy is inevitable for medical education. Although tedious, new variations in teaching methodology will up bring critical thinking, investigative acumen and integrative approach in students. Any lack will be disadvantageous. Even in the ongoing crisis, dissection videos should be taken as a clinical practical cycle followed by interactive discussion of students amongst themselves and with the teacher. We emphasize on triad of development, implementation and evaluation. Together the educator and students can craft tailored podcast and goodwill.

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