

NEWER TEACHING TOOLS- DIGITAL EDUCATION, E- LEARNING, AND HOLISTIC APPROACH IN TEACHING OF GROSS AND MICROSCOPIC FEATURES OF ANATOMICAL AND PATHOLOGICAL SPECIMEN FOR MBBS STUDENTS

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ABSTRACT

Background: Our experience show that most of the student of MBBS cannot answer properly the questions related to gross-microscopic feature when asked by the examiners. This is due to conventional method of teaching like only lectures method, which is not suitable for clearing of concepts in anatomy and pathology subjects. **AIMS:** To assess the impact of New teaching tools- Digital education, E- learning, and holistic approach in teaching of gross and microscopic features of specimen for MBBS students. **MATERIALS AND METHODS:** In first one hour, each group was taken power point presentation and related question answer. In next one hour there were taken gross specimens in both way like mounted specimen and photographs and microscopic features with digital trinocular microscope with computer and smart television live motion slide projection. Assessment was done by teachers of Medical College by three mock tests like Viva, Multiple Choice Questions and Short assay questions with routine internal assessment. Also comparison was made with regards to presence or absent of students and successive three mock tests and internal assessment. **RESULT :** New teaching tools- Digital education, E- learning, and holistic approach in teaching of gross and microscopic features of specimen increased percentage of passing student in mock tests, routine internal assessment and average attendance of students significantly. **CONCLUSION :** This newer method increased interest, clear the concept and removing phobia regarding gross-microscopic features with increased attendance of students in practical classes. This was reflected by significantly increased performance of student in both internal and external examinations.

KEYWORDS : Digital education, E- learning, holistic approach

INTRODUCTION

Anatomical and Pathological specimens include tissue, block and slide derived from surgical procedure, autopsies and Cytopathology testing. (1)

Study of gross and microscopic feature of anatomical and pathological specimen is very useful for the student in their practical and theoretical examinations.

Our experience shows that most of the students of MBBS cannot answer properly the questions related to anatomical and histopathological gross-microscopic feature when asked by the examiners.

Our medical college is in peripheral of the state. So many important specimens are not available for

student teaching purpose. For countering that part we introduce newer teaching method in which we are using available specimen, photographs of specimen, histopathological slide in both live motion and photographs. So we explained all feature of anatomical and pathological specimen better.

MATERIALS AND METHODS

Total 150 students of first year MBBS student and 141 students of second MBBS were divided into 4 groups under the leadership of tutors and assistant professors. 60 practical classes in anatomy and 56 practical classes in pathology were taken for 1 years study period. In first one hour, each group was taken power point presentation and related question answer. In next one hour there were taken gross specimens in both way like mounted specimen and photographs and microscopic features with digital trinocular microscope with computer and smart television live motion slide projection. For this newer teaching method we were used Orient trinocular microscope, 5.2.1 version of trinocular microscope software, Lenovo all in one computer system, Hi-Tec ultra smart television in pathology and anatomy department. (Photograph 1, 2, 3)

Assessment was done by teachers of Medical College by three mock tests like Viva, Multiple Choice Questions and Short assay questions with routine internal assessment. Also comparison was made with regards to presence or absent of students and successive three mock tests. Result of internal assessment also compare with that of previous two batches. Mock tests were taken at the end of every month.

OBSERVATIONS AND RESULTS

Attendance rate of students was increased significantly from last two years of both Anatomy (94.67%) and Pathology (93.61%) practical classes. (Table 1-2) In first 2-3 session mildly increase attendance rate but after it that was increased attendance rate significantly. All the students found it more interesting and answered the questions comfortably on microscopic and gross feature related to gross anatomical and pathological specimen. The performance was good in all the three successive mock tests and comparison of all three mock tests in 1st MBBS (anatomy) and 2nd

MBBS (pathology) given in Table 3-4. When regular internal examination taken as traditional method of both years students, they were score very good in both gross and microscopic table viva as compare with previous years internal examinations. (Table: 5-6)

DISCUSSION

In most of the medical college specimens are shown to the in large group with any audio-visual aids. Thus students were imbibed inadequate information and face difficulties in facing questions in external examinations. It is general consensus about better learning in small groups related to better understanding, critical and creative thinking, problem solving skills (2,3) and better student satisfaction (2,4,5,6) but not in terms of factual knowledge and assessment scores (2,7,8) The present study is based on Digital education, E- learning, and holistic approach. It is already explained in several study that small group discussion provide good environment to achieve higher standard in medical education. (2,9) It was also established that exchange of views, activation of prior knowledge, engagement at higher cognitive level are very much fruitful in deeper learning and better academic achievements by students. (2, 10, 11) E- learning through digital pathology and anatomy can be defined as the electronic capture, management, analysis and distribution of gross and microscopic specimens. (12)

Increased performance of student in both internal and external examinations because of applying newer teaching methods like Digital education, E- learning, and holistic approach in teaching of gross and microscopic features.

By this study due to assess the impact of New teaching tools- Digital education, E-learning, and holistic approach in teaching of gross and microscopic features of Anatomical and Pathological specimen for MBBS students. To increased interest, clear the concept and removing phobia regarding gross-microscopic features in anatomy and pathology with increased attendance of students in practical classes. To increased performance of student in both internal and external examinations.

The students participated with interest, because of better understanding with live slide projection,

mounted specimen and photographs with detailed student-teacher questions-answers. In contrast during earlier classes, students were given only lectures on anatomical and histopathological gross and microscopic features during study of anatomy and pathology which was not convenient for students of 1st and 2nd year MBBS.

When both gross and microscopic feature are taught at different time than students are facing more difficulties to correlate all things. So by using all these tools learning becomes very interesting and fruitful. Same types of studies have been taken over at Anatomical Pathology Department in an Australia Teaching hospital for five-year period (13) and at MGM Medical College, Kishanganj, Bihar, India. (14) All studies had same result as compare to our study.

CONCLUSION

This newer method increased interest, clear the concept and removing phobia regarding gross-microscopic features in anatomy and pathology with increased attendance of students in practical classes. This was reflected by significantly increased performance of student in both internal and external examinations. It also served the purpose of our training medical education technology in relation to group discussion, e-learning, digital educations and intra subject integrated teaching.

REFERENCES

1. Whiley M. Use of Anatomical Pathology Specimen for Research. Clinical and Statewide services. (Approver/s) Document Number: 24719V3, 2009; 1-6.
2. Hameed S, Khalid T, Aslam S, Ahmad M, Wattoo F. Small group discussion-impact on student's test score in an undergraduate pathology course. *Journal of University Medical and Dental College* 2013;4(1):17-21
3. De Jong Z, van Nies JA, Peters SW, Vinak S, Dekker FW, Scherpbier A. Interactive seminars or small group tutorials in preclinical medical education; result of a randomized controlled trial. *Bio Med Central Medical Education* 2010;10:79
4. Kitchen M. Facilitating small groups: how to encourage student learning. *Clin Teach* 2012;9(1):3-8.
5. Schmidt HG, Rotgans JI, Yew EH. The process of problem-based learning: what works and why. *Medical education* 2011;45(8):792-806.
6. Pal R, Kar S, Zaman FK, Jha DK, Pal S. Assessment of impact of small group teaching among students in community medicine. *Indian Journal of Community Medicine* 2012;37(3):170-73.
7. Khan I FA. Problem-Based Learning Variant: transition phase for a large institution. *Journal of Pakistan Medical Association* 2001;51:271.
8. Tayyeb R. Effectiveness of Problem based learning as an instructional tool for acquisition of content knowledge and promotion of critical thinking among medical students. *Journal of the College of Physicians and Surgeons Pakistan* 2013;23(1):42-6.
9. Nandi PL, Chan JNF, Chan CPK, Chan P, Chan LP. Undergraduate medical education: comparison of problem-based learning and conventional teaching. *Hong Kong Medical Journal* 2000; 6(3):301-6.
10. Jones RW. Teaching and learning in small groups: characteristics, benefits, problems and approaches. *Anaesthesia and intensive care* 2007; 35:587-92.
11. Steinert Y. Student perceptions of effective small group teaching. *Medical Education* 2004;38 (3):286-93.
12. Brian K Chiu, Kim Solez, Consolato M Sergi. Digital pathology for E-learning and digital education—a review. *Journal of Information Technology and Application in Education* 2014;3(4):164-168.
13. Zardawi IM, Bennett G, Jain S, Brown M. Internal quality assurance activities of a surgical pathology department in an Australian teaching hospital. *Journal of Clinical Pathology* 1998; 51(9):695-699.
14. Saha A. Holistic approach of teaching of gross pathological specimen for 2nd professional MBBS students. *J. Evolution Med. Dent. Sci.* 2016;5 (47):2959-2963.

Table 1: Comparison of average attendance of students in practical classes on Anatomy

| Year | Total students | Average attendance of student | Percentage (%) |
|------|----------------|-------------------------------|----------------|
| 2016 | 150 | 113 | 75.33 |
| 2017 | 150 | 119 | 79.33 |
| 2018 | 150 | 142 | 94.67 |

Table 2: Comparison of average attendance of students in practical classes on Pathology

| Year | Total students | Average attendance of student | Percentage (%) |
|------|----------------|-------------------------------|----------------|
| 2016 | 133 | 98 | 73.68 |
| 2017 | 144 | 107 | 74.30 |
| 2018 | 141 | 132 | 93.61 |

Table 3: Comparison of result of 1st MBBS (Anatomy) student in mock tests of three consecutive months

| Mock Tests end of each month | Total No. of students | Passed students | Percentage (%) |
|------------------------------|-----------------------|-----------------|----------------|
| 1 st | 150 | 68 | 45.33 |
| 2 nd | 150 | 99 | 66.0 |
| 3 rd | 150 | 129 | 86.0 |

Table 4: Comparison of result of 2nd MBBS (Pathology) student in mock tests of three consecutive months

| Mock Tests end of each month | Total No. of students | Passed students | Percentage (%) |
|------------------------------|-----------------------|-----------------|----------------|
| 1 st | 141 | 76 | 53.90 |
| 2 nd | 141 | 111 | 78.72 |
| 3 rd | 141 | 129 | 91.49 |

Table 5: Comparison of internal assessment marks in Anatomy

| Year | Total No. of students | Passed students | Percentage (%) |
|------|-----------------------|-----------------|----------------|
| 2016 | 150 | 40 | 26.67 |
| 2017 | 150 | 44 | 29.33 |
| 2018 | 150 | 87 | 58.0 |

Table 6: Comparison of internal assessment marks in Pathology

| Year | Total No. of students | Passed students | Percentage (%) |
|------|-----------------------|-----------------|----------------|
| 2016 | 133 | 71 | 53.38 |
| 2017 | 144 | 73 | 50.69 |
| 2018 | 141 | 103 | 73.05 |

Photograph 1: Demonstration of gross specimen during practical class



Photograph 2: Orient trinocular microscope, 5.2.1 version of trinocular microscope software, Lenovo all in one computer system, Hi-Tec ultra smart television system



Photograph 3: Demonstration of Microscopic feature during practical class



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