

# Needs Assessment of Anatomy for the Gastroenterology Masters Course among Teachers, Practitioners and Students: Coverage of Topics other than Topographic Anatomy

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## Abstract

**Context:** Absence of formally specified course content and objectives, instructional methodology, and assessment system for Anatomy in the MD Gastroenterology course of Bangladesh has led to confusion in the implementation of its residency curriculum with respect to Anatomy. Needs assessment of Anatomy for the would-be gastroenterologists among the stakeholders of the course would help solving this problem. This study aimed at having feedback on the coverage of topics of Anatomy other than topographic anatomy in teaching and assessment of the MD Gastroenterology course attended by them.

**Materials & Methods:** A Cross-Sectional study was carried out in the Department of Anatomy, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from July 2002 to December 2003. A questionnaire (based on analysis of a textbook of Gastroenterology) with close-ended questions was sent to nine teachers/practitioners, students (residents) and thesis part students of the MD Gastroenterology course.

**Results:** The number of topics that were felt to covered 'as required' by majority of the participants was 2 out of 11. For the most of the topics, teaching or assessment was felt to be 'more than required'. Though more than 70% respondents considered the course as customized and 75% tended to agree that teaching and assessment had been useful in clinical work, 55.6% thought that it had catered more recall-level knowledge, 85% did not think that a 'problem-based approach' had been taken in the course.

**Conclusion:** Considering the findings of this study positive steps can be taken to reorganize of Anatomy-portion of the course and making it clinically to the gastroenterologists.

**Key words:** Needs assessment, gastroenterology, teaching, assessment

## Introduction

The Doctor of Medicine (MD) course in Gastroenterology of the Institute of Postgraduate Medicine & Research (IPGMR) was inherited by Bangabandhu Sheikh Mujib Medical University (BSMMU). In that course, Basic Sciences including Anatomy was covered in Part-I (1<sup>st</sup> six month)<sup>1</sup>. But

objectives and educational strategy for the Anatomy-portion of the postgraduate courses are yet to be established. There are also no instructions, in which aspects postgraduate Anatomy course should be different from that of undergraduate. This creates a dilemma between teachers and students of the course about the course contents, learning objectives, teaching strategy and assessment of the Anatomy-portion of the course. A guideline is provided to the students by the Anatomy department of BSMMU, regarding course contents of the Anatomy-portion of different postgraduate clinical

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disciplines, but that does not fulfill the need of the course in the light of knowledge of educational sciences. A Medicine-biased course needs special attention on histology, cell biology rather than gross anatomical relations or musculoskeletal Anatomy. Moreover Gastroenterology course is a regional discipline, like Gyne-Obs and Hepatology, and requires specialized regional approach to different topics of Anatomy. So anatomical focus of this course would be much narrower, but should cover deeper aspects of relevant knowledge and skills demanded by the discipline.

In recent years the MD and MS courses of BSMMU of all clinical disciplines have been redesigned as residency programs. All the clinical masters courses of all the medical institutions of the country have been affiliated to BSMMU, some of them, including the only other MD Gastroenterology course of the country (that of BIRDEM) have also been converted to residency program. Now the question will arise how basic program like Anatomy should be integrated in the program. The Phase-A of this program includes 'applied basic sciences'<sup>2</sup>. But the description is common for all 'Medicine and Allied subjects'- being incomplete for Gastroenterology. It may be noted that the Gastroenterology textbook<sup>3</sup> which is followed by most of the students/residents has a special chapter on relevant Anatomy before addressing individual organs. Realizing this problem, the present study aimed at identifying the needs of the 'Anatomy-portion' of the present MD Gastroenterology course, which may help in selecting the course contents, instructional methodology and congruent assessment system for the course.

This particular paper deals with coverage of 'topics other than topographic anatomy (gross regional anatomy)' only. A separate paper would deal with 'topographic anatomy'.

Inputs from this feedback was expected to provide us with ideas about the needs of the Anatomy-portion of the course in the terms of teaching and assessment and suggest some guideline for formulating principles for organizing the course in a manner which bring some positive changes in making it effective in developing anatomical

competencies that would in producing able gastroenterologists.

### **Materials and Methods**

The present study was a cross-sectional study. It was carried out with a view to finding out the needs of the Anatomy-portion of the MD Gastroenterology course being run in Bangladesh by analyzing the topics covered and approaches taken in dealing with the topics in teaching and assessment in the Anatomy-portion of the MD Gastroenterology course of IPGMR (later BSMMU) attended by teachers, practitioners and students.

The questionnaire was based on the observations from a textbook of Gastroenterology, Book as Gastroenterology<sup>3</sup> that was used by most of the students of Gastroenterology and experiences gathered from examinations held in the Department of Anatomy at BSMMU. The available latest edition of the textbook was collected. The questionnaire addressed those areas where confusions existed and was formulated in such a way as to assess the feeling of the teachers, practitioners and students in as details as feasible.

Method of selection of the topics in the questionnaire

The content pages as well as main body of the textbook were read thoroughly for the purpose to formulate the questionnaire. Anatomy was considered in the following subheadings;

- a) Topographic Anatomy- having 16 subdivisions;
- b) Other than topographic anatomy- 11 subdivisions under the following:
  - i. Surface Anatomy; ii. Neuroanatomy; iii. Radiological anatomy; iv. Developmental Anatomy; v. Histology; vi. Cell Biology; vii. Basic Genetics

Topics like blood supply, nerve supply, lymphatic drainage, gross anatomical relations were included under Topographic Anatomy. On the other hand abdominal pain and palpation of an organ were noted under Neuroanatomy and Surface Anatomy respectively. Further subdivisions were also done.

Selections of teachers, practitioners, examiners and students for questionnaire

Names of the specialist gastroenterologists of the country were collected from the General Secretary of the society of Gastroenterologists. At the time of the study only nine Gastroenterologists were found

in the country who had completed an MD Gastroenterology course with Anatomy in Part-I (students who were FCPS didn't have to study Anatomy). Eight Professors, Associate Professors Assistant Professors had this criterion who served both as teacher and practitioners. They were included. A resident of the part (Residency) of the MD Gastroenterology course of BSMMU at the time of the study was also included. The other student was an FCPS, and thus was excluded.

## Results

The results show (Table-I) that only for the topics 'Cell Biology' and 'ultrastructure aspects of the relevant organs' did majority of the respondents (but 55.6% only) feel that the topics had been covered in teaching 'as required' but again not assessment. Regarding assessment, 50% though felt that 'Basic Genetics' and Cell Biology were covered 'as required'. For the remaining 2 topics half the respondents thought that the topics had been covered 'less than required' (in teaching).

For no topic it was the case that the majority of the respondents felt that it had been taught or assessed for 'less than required'. On the other hand for 4 out of the 11 topics teaching was thought to be 'more than required' and for 4, assessment was felt as done 'more than required' by more respondents (55.6%-62.5%) than not. For other 3 topics, half of the respondents had a feeling that either teaching or assessment had been 'more than required'.

More than 70% respondents thought that the Anatomy course they had attended was 'customized for the would be gastroenterologists' and 75% tended to agree that 'the nature of teaching and assessment had been such that it proved to be quite useful' in their clinical work (table-II) but more (55.6%) of the respondents thought that the approach had been 'directed more towards imparting/assessing' 'recall level of the anatomical knowledge' and more than 88% did not think that a 'problem-based approach' had been taken in the course.

**Table-I**

*Feedback from teachers, practitioners, students in/of Gastroenterology on how different topics of various aspects of Anatomy were covered in the teaching and assessment in the MD Gastroenterology course at IPGMR/BSMMU, Dhaka*

Topic (and 'n' for T/A)	Frequency of responses for each comment							
	U T	A	M T	A	A T	A	L T	A
1. Relevant surface anatomy of the abdomen (9/8)	1	1	50.0	57.1	25.0	28.6	25.0	14.3
2. Sectional anatomy of the abdomen and related part of the thorax (9/8)	1	1	62.5	42.9	25.0	42.9	12.5	14.3
3. Radiological anatomy of the abdomen and related part of the thorax (9/8)	1	1	37.5	57.1	25.0	28.6	37.5	14.3
4. Cell Biology (9/9)	0	1	33.3	37.5	55.6	50.0	11.1	12.5
5. Light microscopic structure of the relevant organs (9/8)	0	0	55.6	50.0	11.1	12.5	33.3	37.5
6. Ultrastructural aspects of the relevant organs (9/8)	0	1	11.1	57.1	55.6	28.6	33.3	14.3
7. Developmental anatomy and anomalies of the relevant organs (9/8)	0	0	55.0	62.5	33.3	25.0	11.1	12.5
8. Basic Genetics (DNA, RNA, chromosome and protein synthesis) (9/8)	0	0	22.2	25.0	44.4	50.0	33.3	25.0
9. Anatomy of the relevant physiological processes (e.g. peristalsis, gastric secretion, defecation) (9/8)	0	0	55.6	50.0	33.3	37.5	11.1	12.5
10. Anatomy of the relevant clinical procedures (e.g. abdominal palpation, endoscopy, liver biopsy) (9/8)	1	1	25.0	28.6	25.0	28.6	50.0	42.9
11. Anatomy of the relevant clinical disorders (9/8)	1	1	25.0	42.9	25.0	28.6	50.0	28.6

T: Teaching A: Assessment

U: Undecided M: More than required A: As required L: Less than required

Each Figure under U, M, A and L represents the respective percentage frequency (approximate),

Each percentage value was calculated after excluding the "Undecided" responses from respective 'n's.

**Table-II**

*Questionnaire-based comments of the teachers, practitioners and students on the Anatomy-portion of the MD Gastroenterology course they have completed at IPGMR / BSMMU, Dhaka*

Statement	Frequency of responses for each comment					
	n	U	Agree	Tend to agree	Tend to disagree	Disagree
1. The Anatomy-portion of my course was customized for the would-be gastroenterologists	8	12.5	71.4	14.3	14.3	0.0
2. The approach to the Anatomy-portion of my course was directed more towards imparting/assessing recall level of anatomical knowledge rather than understanding or application level	9	0.0	55.6	22.2	11.1	11.1
3. A problem-based approach was taken in dealing with relevant anatomical topics in my course	8	12.5	14.3	0.0	0.0	85.7
4. The nature of teaching and assessment of my course was such that it proved to be quite useful in my work	8	0.0	25.0	75.0	0.0	0.0
5. In the assessment examination of my course, the more superficial and broader aspects of Anatomy were addressed rather than the deeper and more specific aspects of Anatomy	9	0.0	22.2	22.2	33.3	22.2

n: Number of respondent for the particular topics. U: Undecided  
 Each figure in the table (excepting that for 'n') represents the respective percentage frequency (approximate).  
 Each percentage value has been calculated after excluding the 'Undecided' responses.

**Discussion**

Any educational program should be continuously evaluated and monitored carefully so that the students can achieve the knowledge, skill and attitude that are set for the program. Similarly any undergraduate or postgraduate medical course should be evaluated in the context whether it meets the demand of its stakeholders. But in our country there is no official curriculum for Masters Courses of various clinical disciplines run by different universities. So the courses are lacking in learning objectives, course content, educational strategy (organization of a course), learning methods and assessment system as stated by Begum<sup>4</sup>. Course content is an integral part of the curriculum and Anatomy Department of BSMMU provide the students of MD Gastroenterology with a list of contents but that is not approved by any organization or body. It is understandable that making decisions about the content of a course is

a 'basic building block' of any curriculum design<sup>5</sup>. There is also "unofficial" guideline for how different anatomical topics should be addressed in the assessment. In this study, the questionnaire addressed those topics of Anatomy, the inclusion/exclusion of which is disputed among teachers, examiners and students of MD Gastroenterology and try to find out the needs of the Anatomy-portion of the present course with an intention to take some positive measures for the course.

The approach to be taken: It is understood from the results that approach towards course contents is more important than the content itself. How to address the body or anatomical issue of a particular organ or an anatomical topic is included as content of a course. It is unyielding to judge that topic or issue from the viewpoint of that particular course. Some short description of the approach is to be taken is necessary to address the issue or topic.

Even if a detailed list of parts, organs and topics are available to the teachers, examiners and students, each of them may differ from one another in justifying different ways of dealing with those parts, organs and topics. Moore<sup>6</sup> realized that teaching of gross anatomy varies according to the objectives of the course so that students can correlate, explain and integrate “what they learn with their clinical life”. It may be much useful if the clinical procedures and clinical disorders in one hand and anatomy in the other could be correlated in the course content, It is possible if detailed instructional objectives are formulated so that the students can understand the application of different anatomical topics in real life clinical situations. This integration is much more feasible in case of postgraduate course than undergraduate courses and more accountable for MD Gastroenterology course which has a regional flavor.

The data of the Results, pointed out that the present Anatomy-portion of the course is burdened with content overload that is approach of the course is more generalized and failed to understand the need of a regionalized discipline like MD Gastroenterology. This problem calls for customization of the course content in terms of reducing the range topics, focusing on specifically relevant topic with greater depth of focus. Thus students attention should be drawn to the “why” and “how” aspect of Anatomy rather “what” and “where” aspects of the subject. It means Anatomy-portion of this course should be designed in such a way that promotes student’s applied, analytical and critical thinking ability to encounter the clinical problems they have to deal. Scott<sup>7</sup> cited several authors to justify the idea that “while medical students are highly motivated towards obtaining their license to practice, they understandingly develop lack of motivation to learn seemingly irrelevant material such as that is usually offered in the early years in most medical schools”. For any particular topic of Anatomy, its applied and clinical aspects (7 and 8 of Table 1) were less emphasized area in the course of BSMMU, and should receive proper attention, which helps the students in relating their learning to fulfill their clinical ambition.

It is interesting to note that Anatomy textbooks also evolved from a more “basic science” type to a more “clinically oriented” type books containing pages of information, cases, questions and answers on

clinical problems<sup>8,9</sup>. These parts of the books are rarely paid adequate interest. Problem-based approach should be taken to impart anatomical knowledge to the postgraduate students of any discipline including MD Gastroenterology. A common problem is like this: some examiners would confine his/her questions on identification of various parts of the brain as it is available in front (this skill were achieved by the students at the undergraduate level), but may not ask a single question on neuroanatomy, which is a relevant topic for an would-be gastroenterologist (e.g., the autonomic nervous system in general, or the enteric nervous system in particular). This happens because objectives of the course are not properly clarified in any document.

It is understood that aspects like Cell Biology, Genetics, General Histology etc. are relevant for the course along with the specific portions of Topographic Anatomy, Systemic Embryology, Radiological Anatomy, Surface Anatomy, Clinical Anatomy etc. This approach would be helpful in reducing the range of topics for MD Gastroenterology course as well as increasing the depth of focus for the Anatomy-portion of the course. Similar example can be drawn from Anatomy textbooks for other disciplines, Dentistry: “Clinical Anatomy for Dentistry”<sup>9</sup>, Anesthesiology: “Anatomy for Aneasthetists”<sup>10</sup>.

Coverage of different anatomical topics in the course attended/completed by the respondents: It is evident from the results that coverage of different anatomical topics were not often “as required” either in teaching or in assessment in the Anatomy-portion of the MD Gastroenterology course. This observation indicates that some topics were overemphasized while others were less emphasized. Careful identification of those anatomical topics would be useful for selecting meaningful course content. It is also found from the study that data on different components of Anatomy have their individual importance in the context of clinical knowledge and practice.

Importance of different components of Anatomy and the question of integration: Integration of different anatomical topics with related clinical disciplines increases their potentials. Not only that, various amounts of integration between anatomical topics are also important and utilizable for

understanding the disease process. Cormac<sup>11</sup> felt that Histology, formerly concerned with describing the details of body structure, now addresses such matters as how tissue components carry out specific functions, how cells communicate and interact, and how body regulates and coordinates its manifold cellular activities. Thus Histology is integrated with Cell Biology for better understanding. At various universities of the world, Human Embryology is taught in closely integrated fashion with Microscopic Anatomy and Cell Biology.

Importance of understanding Anatomy as a visual subject: Vidic<sup>2</sup> and Suarez<sup>12</sup> considered Anatomy as a visual subject. Figures enhance the understanding of the text or reinforce the concepts of the structures described in written form. So, often they are more efficient to convey complex anatomical information. Considering this notion, recent textbooks of Anatomy increase the number of illustrations with each edition, as observed by Amin<sup>13</sup> and Uddin<sup>14</sup>. It is conceived that identifying structures in a viscus separated from body, in a disarticulated bone or in an H & E stained slide under a low-power microscopic objectives might not serve as an effective tool for an MD Gastroenterology student. In situ pictures or models of organs in their actual orientation, diagrammatic functionally-oriented pictures, high-power photomicrographs and electron micrographs might prove more useful in the understanding of structure-function relationships for a student of MD Gastroenterology.

### Conclusion

Considering the findings of this study some positive steps can be taken to reorganize of Anatomy-portion of the course and making it clinically relevant to the gastroenterologists. Further study may involve in depth interviews of key informants and focus group discussions rather than surveys. The Delphi technique may yield better results, as can be understood from Bernard<sup>15</sup>.

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