

Preparing histology charts for 1st MBBS students and perception of students and faculty

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Abstract

Introduction: The students opined that they don't have guidance regarding drawing of Histology diagrams in the journals, which is important for the practical as well as the theory evaluations.

Aims and Objectives: To improve the understanding of histology in students. To augment the students ability for drawing good histology diagrams. To enhance the performance of the students in evaluation of histology.

Material and Method: To prepare the charts rough histological diagram were drawn with H & E pencil and it is validated by the senior teachers in the department of Anatomy. The charts were displayed on the notice board. Questionnaire was distributed to all the first MBBS students, postgraduate students and teaching faculty from department of Anatomy to get the feedback.

Result and Discussion: 1) 81 % first MBBS students, 100 % PG students and 100% teachers felt that histology charts make learning more interesting. 2) 83 % first MBBS students, 87% PG students and 80% teachers felt that histology charts develops the presentation skills in the students. 3) 67 % first MBBS students, 74% PG students and 60% teachers felt that histology charts improves the thinking ability. 4) 93 % first MBBS students, 100% PG students and 80% teachers felt that the department should provide the handbook of histology diagrams from the charts to the students.

Conclusions: The histology charts must be developed by each department of Anatomy for enhancing the drawing skills of the students improves understanding the subject, thinking ability and reduces the mistakes committed by the students and less time is required to draw the diagram.

Keywords: Haematoxylin and Eosin pencil, Histology Charts, Questionnaire.

Introduction

When a teacher in the department of Anatomy corrects the histology journal about 30 to 40% of the students gets grade C for the diagram. After inquiring with the students regarding the histology diagrams, they opine that there are no proper charts available and excess things are mentioned in the atlas which are not relevant for them. So the students pointed that they don't have guidance regarding from where to draw and what to draw in the journals, which is important for the practical as well as the theory exam.

In our department, an artist use to draw the histology diagrams. He use to make nice diagrams, with shades. Some of the labels written on the chart by the artist were not necessary. Artist does not know which part is relevant for the students. He would emphasize only on artistic view. So we had to explain him what to draw and from where to draw, which use take a lot of time. So we teachers decided to prepare all histological charts.

Aims and Objectives

To improve the understanding of histology in students. To augment the students ability for drawing

good histology diagrams. To enhance the performance of the students in evaluation of histology.

Material and Method

Material used are regular drawing texture paper A3 size, Black Calligraphy pen (1, 2, and 3 number), compass (for drawing the circle), Haematoxylin and Eosin pencils, Pink ball pen, Blue ink ball pen, Black sketch pen, Black pencil, Card board boxes and Scale. (Fig. 1)



Fig. 1: Instruments used to prepare the charts

During the preparation of the charts rough

histological diagram were drawn with H & E pencil and were validated by the senior teachers in the department of Anatomy. After validation the drawing was redrawn on A3 size paper.

A border was drawn 0.5cm on inner aspect of each side of the A3 size paper. After that, 2 sections were drawn on one A3 size paper. The diagram was drawn in the circle of diameter 20 cm. The circle was drawn by using the compass. (Fig. 1)

The main heading was written on the upper aspect of the circle. The back side of the paper the system name, unit and the number of the diagram was written for identifying the chart.

All the histology diagrams (Total 133) were drawn, which were required for the 1st MBBS students as per university syllabus. Low power diagrams were drawn normally: high power (magnified diagrams) diagrams, wherever it was necessary.

For total 25 practical's -71 charts were prepared and 133 histology diagrams were drawn.(Table 1) The diagrams drawn were from General microanatomy (Unit I) (Fig. 2 & 3) and Systemic anatomy (Unit II and III) (Fig. 4 & 5).



Fig. 2: List of charts of General Microanatomy (Unit- 1)



Fig. 3: General Microanatomy (Unit- 1) some

charts



Fig. 4: List of charts of systemic microanatomy (Unit- 2 & 3)

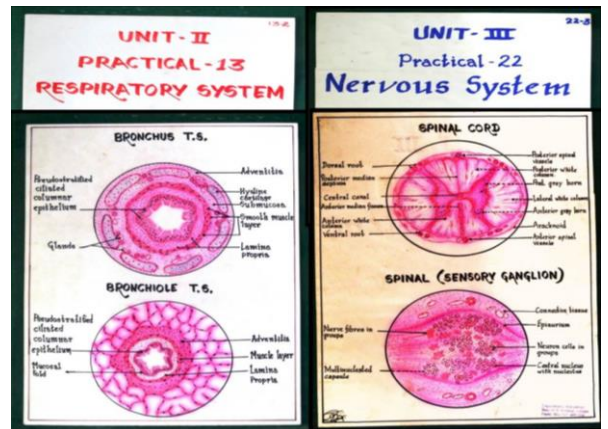


Fig. 5: Systemic Microanatomy (Unit 2 & 3) some charts



Fig. 6: Charts displayed on the notice board



Fig. 7: Card board boxes for preservation of charts

Table 1: Histology charts

	Name of the practical	Charts	Diagrams
(Unit –I) General Microanatomy	1 & 2- introduction and Microscope	1	1
	3- Epithelial tissue	7	14
	4- Connective tissue	3	6
	5- Muscular tissue	5	9
	6- Nervous tissue	1	2
	7- Cartilage	3	6
	8- Bone	2	4
	9- Blood vessels	3	6
	10- Exocrine glands	3	6
	11- Lymphoid tissue	3	6
	12- Integumentary system	4	7
	13- Respiratory system	2	3
	14- Alimentary system- I	3	6
	Unit -II Systemic Microanatomy	15- Alimentary system- II	3
16- Alimentary system- III		3	5
17- Urinary system		5	10
18- Male reproductive system		3	5
19- Female reproductive system		2	3
20- Female accessory reproductive system		2	4
Unit -III Systemic Microanatomy	21- Endocrine system	2	4
	22- Nervous System	4	7
	23- Eye-I	2	4
	24- Eye- II	2	4
	25- Lip, Tongue and Ear	3	5
Total	25	71	133

The muscles, vessels, connective tissue and the ducts were drawn by the eosin pencil and eosin colour ball pen for the good picture quality. The nucleus was drawn by the blue ink ball pen. Drawing the lymphoid tissue required more patience because we had to concentrate on each lymphocyte, its shape and size. Same was the case with the ground bone, for each osteocyte was to be drawn by the black ball pen. Diagrams having special staining were also drawn.

The important and relevant structures in the diagram were labelled: 3 to 4 on each side by the calligraphy pen number -1. The name of the

diagram was written by calligraphy pen number - 2 above the corresponding diagram. The system name and practical number is written on the reverse of the A3 size paper by blue and red colour calligraphy pen number-3.

The diagrams were drawn from histology books:

Difiore's atlas of histology with functional correlations.⁽¹⁾

Wheatear's functional histology text and colour atlas.⁽²⁾

Inderbir Singh's textbook of human histology with colour atlas and practical guide.⁽³⁾

Textbook of human histology with a “practical manual and colour atlas” for medical students with diagrams for practical exercises.⁽⁴⁾

A textbook of histology: a colour atlas and text paperback.⁽⁵⁾

After drawing the diagrams the A3 size paper was laminated with 2 cm. margin from all sides for the board pins by which they were displayed on the notice board. (Fig. 6)

The laminated sheets were kept in the card board boxes (x- ray boxes) practical wise for preservation. Unit, system name and practical number were written on the boxes for convenience. These boxes were kept in the cupboard with their practical number for safety. (Fig. 7)

The charts were displayed on the notice board for one week after completion of the histology lecture and at the end all the charts were displayed for revision. (Fig. 6) The students can avail the charts anytime for drawing the diagrams and for revision. A questionnaire was prepared and validated by the senior teachers in the department of Anatomy. This questionnaire was distributed to the 180 students of first MBBS after the preliminary examination. It was also given to the 18

postgraduate students and 20 teaching faculty from department of Anatomy to get the feedback.

Questionnaire was as follows:

Histology charts make learning more interesting.

Histology charts develops the presentation skills in the students.

Histology charts improves the thinking ability.

Histology charts makes the drawing easier than drawing from the atlas.

Drawing the diagrams from the histology charts is easy and time saving.

Histology charts help in the reducing the mistakes while drawing the diagrams.

Histology charts improves the understanding the subject.

The department should provide the handbook of histology diagrams from the charts to the students.

The questionnaire was based on five point Likert scale: 1) strongly Agreed (SA), 2) Agree (A), 3) Uncertain (UC), 4) Disagree (DA), 5) Strongly Disagreed (SDA).

Observation

Table 2: Questionnaire to First MBBS students

Questionnaire		SA	A	UC	DA	SDA
1	Histology charts make learning more interesting.	45.1	36.6	13.4	4.3	0.6
2	Histology charts develops the presentation skills in the students.	34.8	48.2	9.15	7.3	0.6
3	Histology charts improves the thinking ability.	31.1	37.2	20.7	8.5	2.4
4	Histology charts makes the drawing easier than drawing from the atlas.	74.3	18.3	4.88	1.22	1.2
5	Drawing the diagrams from the histology charts is easy and time saving.	27.4	20.1	14.6	26	12.2
6	Histology charts help in the reducing the mistakes while drawing the diagrams.	47.6	40.2	8.54	1.8	1.8
7	Histology charts improves the understanding the subject.	39	42.1	14.6	1.2	3.0
8	The department should provide the handbook of histology diagrams from the charts to the students.	87.2	6.71	3.05	2.44	0.60

Table 3: Questionnaire to postgraduate students of Anatomy

Questionnaire		SA	A	UC	DA	SDA
1	Histology charts make learning more interesting.	75	25	0	0	0
2	Histology charts develops the presentation skills in the students.	87.5	0	12.5	0	0
3	Histology charts improves the thinking ability.	62.5	12.5	25	0	0
4	Histology charts makes the drawing easier than drawing from the atlas.	75	12.5	0	12.5	0
5	Drawing the diagrams from the histology charts is easy and time saving.	75	0	12.5	12.5	0
6	Histology charts help in the reducing the mistakes while drawing the diagrams.	37.5	50	0	0	12.5

7	Histology charts improves the understanding the subject.	62.5	25	12.5	0	0
8	The department should provide the handbook of histology diagrams from the charts to the students.	75	25	0	0	0

Table 4: Questionnaire to Teachers in Anatomy

	Questionnaire	SA	A	UC	DA	SDA
1	Histology charts make learning more interesting.	80	20	0	0	0
2	Histology charts develops the presentation skills in the students.	60	20	20	0	0
3	Histology charts improves the thinking ability.	40	20	40	0	0
4	Histology charts makes the drawing easier than drawing from the atlas.	60	40	0	0	0
5	Drawing the diagrams from the histology charts is easy and time saving.	40	50	10	0	0
6	Histology charts help in the reducing the mistakes while drawing the diagrams.	60	20	20	0	0
7	Histology charts improves the understanding the subject.	40	40	20	0	0
8	The department should provide the handbook of histology diagrams from the charts to the students.	60	20	20	0	0

Result and Discussion

From the Questionnaire it was found that:

81% first MBBS students, 100% PG students and 100% teachers felt that histology charts make learning more interesting.

83% first MBBS students, 87% PG students and 80% teachers felt that histology charts develops the presentation skills in the students.

67% first MBBS students, 74% PG students and 60% teachers felt that histology charts improves the thinking ability.

92% first MBBS students, 88% PG students and 100% teachers felt that histology charts makes the drawing easier than drawing from the atlas.

48% first MBBS students, 75% PG students and 90% teachers felt that drawing the diagrams from the histology charts is easy and time saving.

88% first MBBS students, 87% PG students and 80% teachers felt that histology charts help in the reducing the mistakes while drawing the diagrams.

81% first MBBS students, 87% PG students and 80% teachers felt that histology charts improves the understanding the subject.

93% first MBBS students, 100% PG students and 80% teachers felt that the department should provide the handbook of histology diagrams from the charts to the students.

examination. The histology charts must be developed by each department of Anatomy for enhancing the drawing skills of the students improves understanding the subject, thinking ability and reduces the mistakes committed by the students and less time is required to draw the diagrams.

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Conclusions

These diagrams are helpful in identifying the slides in the histology spots and drawing the histology diagrams in theory and practical