Assessment of Skills and Knowledge in Clinical Ophthalmology: A Survey among Undergraduate Medical Students in Malaysia

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Authors' contributions

This work was carried out in collaboration between both authors. Author SCR designed the study, wrote the protocol and the first draft of the manuscript. Author SM managed the analyses of the results of the study including statistical tests. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aim: To assess the skills (ability to perform an examination of the eye) and knowledge (ability to diagnose the eye diseases) of students after completing their posting using a structured questionnaire, which indicates the effectiveness of undergraduate ophthalmology training.
Methods: In this prospective survey questionnaire study, fourth year medical students of International Medical University in Malaysia who completed their ophthalmology posting were invited to participate voluntarily at the end of their posting after the end of posting examination.
Results: A total of 292 students who completed ophthalmology posting participated in this study. The students were able to perform all the core clinical skills comfortably, but the degree varied from > 90% in some skills to< 60% in some other skills. The students were able to diagnose the

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anterior segment eye diseases more frequently than fundus diseases. There was no significant difference (p >0.05) among different genders or ethnic groups in proportion of confidence to perform the clinical skills and ability to diagnose eye diseases.

Conclusion: The number of hours of ophthalmology education/ training received by medical students in their two weeks posting in International Medical University was adequate for acquiring theoretical and practical knowledge. This was evidenced by their ability to perform clinical skills and to diagnose common eye diseases comfortably. The self-reported assessment survey indicates that the training was effective.

Keywords: Undergraduate ophthalmic education; knowledge; clinical skills; assessment.

1. INTRODUCTION

Ophthalmic diseases are frequently treated by general practitioners (GPs), either in private clinics or government hospitals worldwide. About 2% of all general practice consultations in the United Kingdom consist of eye problems [1]. Eye symptoms are among the most common complaints of patients presenting to ambulatory health care practitioners in USA [2]. It is also interesting to note that the patients with acute red eye problems presenting to primary health care providers were often misdiagnosed or mismanaged [3]. The doctors must have good ophthalmic knowledge which they have acquired during their course of study, for their future practice.

The ophthalmology subject is taught in International Medical University (IMU) in the 4th year of medical course (8th semester) during two weeks posting using lectures, seminars, clinical teaching in the eye clinic, ward and operation theater. On the first day of posting, an introductory lecture on anatomy and physiology of eye is given, followed by demonstration of clinical skills of examination of the eye which include history taking of eye symptoms, torch light examination of eyelids, conjunctiva, cornea, anterior chamber, iris, pupil, lens; vision testing (distant vision, near vision, colour vision), eversion of upper eyelid, testing corneal sensation, testing ocular movements, assessment of intraocular pressure (finger digital tonometry), testing visual fields (confrontation test),fluorescein staining of cornea and fundus examination with direct ophthalmoscope. The students practice among the peers (one to one basis) under the supervision of the ophthalmology lecturer before going to the eye ward/ eye clinic for examining the patients.

Problem-based learning philosophy is practiced in the teaching methodology of ophthalmology subject in IMU through seminar topics on gradual loss of vision, sudden loss of vision, red eye, swelling of eyelids, watering of eye, double vision, injury to eye, child with eye symptoms, optic nerve diseases, and eye in systemic diseases. At the end of each topic presented by the student in the seminar, the lecturer highlights the practical points and take home message to the students. The teaching was done by a single teacher (SCR) throughout the posting period and it was consistent for all the rotations of students in this study.

On the last day of posting, the students' knowledge of eye diseases was assessed using true or false multiple choice questions and clinical diagnosis was assessed using clinical slides of eye diseases. The clinical skills were tested when the students were presenting the cases during bedside teaching sessions in the ward.

The available published data is on the assessment of knowledge and skills of Ophthalmology education/ training among the first year residents of all specialties in Canada [4], general practitioners in South Africa [5], family medicine residents in Canada [6], medical interns in Nigeria [7], primary care doctors in and around Bristol, UK [8]. All these studies are among the doctors who studied ophthalmology few years back.

The literature searches in PubMed, Scopus and Google scholar showed only one paper from Belgium [9] on the assessment of ophthalmology education/ training among medical students during their medical course. Therefore, this study was undertaken prospectively over a period of two years to assess the students' undergraduate ophthalmology education/ training (ability to perform the clinical skills and to diagnose eye diseases), immediately after completing their end of posting examination, using a structured self-reported questionnaire.

2. MATERIALS AND METHODS

The admission of students is two times in a year in IMU. Four different cohort students posted in ophthalmology department by rotation in the clinical school Seremban were included in this prospective study. A structured questionnaire included the gender and race of students without any identity, statements on clinical skills testing, diagnosis of anterior segment and fundus diseases, and ocular emergencies; and it was prepared by the ophthalmologist who trained the students during two weeks posting. The questionnaire was pretested on a group of students who already have completed their ophthalmology posting, and validated. Few words were modified to enhance the understanding the points asked to answer. The participants in the pretest survey were excluded from the study.

The ability to test clinical skills included history taking, examination of anterior segment of the eye with torch light, performing swinging flash light test to detect relative afferent pupillary defect, testing extra ocular muscle movements, assessing intraocular pressure by fingers digital tonometry, assessing visual fields by confrontation test, performing fluorescein staining of cornea and performing fundus examination with direct ophthalmoscope.

The diagnosis of anterior segment diseases included stye, chalazion, conjunctivitis, pterygium, corneal abrasion, corneal foreign body, cataract, squint, sixth cranial nerve palsy, third cranial nerve palsy, and fundus diseases were diabetic retinopathy, hypertensive retinopathy, papilloedema, optic atrophy, glaucomatous cupping of optic disc; while the ocular emergencies/sight-threatening eye diseases were corneal ulcer, corneal perforating injury, hyphema, acute iridocyclitis, acute congestive glaucoma (Questionnaire Appendix-1).

The response to the above was given as "confident/ not confident" in the questionnaire because in a real scenario the doctor should be confident to perform the clinical skills and to diagnose the eye problem. Then only, the patient will get appropriate treatment. That is why "uncertain" response was not given.

After completing the end of posting examination, the students were briefed about the structured questionnaire and consent was taken for voluntary participation. They were told that there is no personal identity of students and the data will be kept confidential except for research purpose. They were asked to answer all the points in the questionnaire honestly.

The data entry and analysis was done using Statistical Package for the Social Sciences (SPSS) version 16.The paired "t-test" was used to compare the mean score for the ability to perform clinical skills and to diagnose eye diseases in males and females; and Analysis of Varience (ANOVA) test was used to compare the mean score for the ability to perform clinical skills and to diagnose eye diseases among three ethnic groups. The P value of <0.05 was considered as significant.

3. RESULTS

A total of 292 students posted to ophthalmology department participated in this study. Since this was conducted immediately after the end of posting examinations, the response rate was 100%. More than fifty percent of students were females; and Chinese were more in both genders (Table 1).

More than 90% of students were able to perform the clinical skills such as history taking, visual acuity test, testing of ocular movements and visual field test confidently (Table 2).

Students' ability to diagnose anterior segment diseases, fundus diseases and ocular emergencies is shown in Table 3. More than 90% of students were able to diagnose anterior segment eye diseases confidently except corneal abrasion (83.9%). Nearly two-thirds of students were able to diagnose fundus diseases confidently except optic atrophy (49.3%). More than 73% were able to diagnose ocular emergencies confidently except acute iridocyclitis (54.8%).

There was no significant difference (p >0.05) among different genders in the proportion of confidence to perform the clinical skills and ability to diagnose eye diseases (Table 4).

Similarly, there was no significant difference (p >0.05) among three ethnic groups in the proportion of confidence to perform the clinical skills and ability to diagnose eye diseases (Table 5).

Table 1. Gender and race distribution of respondents (n=292)

Gender	Malay	Chinese	Indian	Total
Male	27	85	13	125 (42.8%)
Female	77	68	22	167 (57.2%)
Total	104 (35.6%)	153 (52.4%)	35 (12.0%)	292 (100.0%)

Table 2. Students' ability to perform different clinical skills in the examination of eye patients (n=292)

Clinical skills	Confident to perform No. (%)	Not confident to perform No. (%)
History taking	274 (93.8)	18 (6.2)
Examination of eye with torch light	257 (88.0)	35 (12.0)
Visual acuity test	286 (97.9)	6 (2.1)
Swinging flash light test	207 (70.9)	85 (29.1)
Testing of ocular movements	291 (99.7)	1 (0.3)
Intraocular pressure (finger digital tonometry)	161 (55.1)	131 (44.9)
Visual field test	274 (93.8)	18 (6.2)
Fundus examination with Ophthalmoscope	212 (72.6)	80 (27.4)
Fluorescein staining of cornea	165 (56.5)	127 (43.5)

Table 3. Students' ability in the diagnosis of eye diseases (n=292)

Eye diseases	Confident to diagnose No. (%)	Not confident to diagnose No. (%)
Anterior Segment eye diseases		
Stye	286 (97.9)	6 (2.1)
Chalazion	271 (92.8)	21 (7.2)
Conjunctivitis	290 (99.3)	2 (0.7)
Pterygium	286 (97.9)	6 (2.1)
Corneal abrasion	245 (83.9)	47 (16.1)
Corneal foreign body	266 (91.1)	26 (8.9)
Cataract	292 (100.0	0 (0.0)
Squint	287 (98.3)	5 (1.7)
6th Cranial nerve palsy	270 (92.5)	22 (7.5)
3[r] Cranial nerve palsy	260 (89.0)	32 (11.0)
Fundus diseases		
Diabetic retinopathy	230 (78.8)	62 (21.2)
Hypertensive retinopathy	195 (66.8)	97 (33.2)
Papilloedema	205 (70.2)	87 (29.8)
Optic atrophy	144 (49.3)	148 (50.7)
Glaucomatous cupping of disc	179 (61.3)	113 (38.7)
Ocular emergencies/ sight threatening eye diseases		
Corneal ulcer	269 (92.1)	23 (7.9)
Corneal perforating injury	215 (73.6)	77 (26.4)
Hyphema	278 (95.2)	14 (4.8)
Acute iridocyclitis	160 (54.8)	132 (45.2)
Acute congestive glaucoma	212 (72.6)	80 (27.4)

There was no statistically significant difference (p >0.05) among different genders in the mean score of the ability to perform clinical skills, ability to diagnose anterior segment eye diseases, fundus diseases and ocular emergencies (Table 6).

Similarly, there was no statistically significant difference (p >0.05) among different ethnic groups in the mean score of the ability to perform clinical skills, ability to diagnose anterior segment eye diseases, fundus diseases and ocular emergencies (Table 7).

4. DISCUSSION

The training of undergraduate medical students in basic knowledge and skills should be aimed to provide an appropriate level of primary eye care and for referral of sight-threatening eye diseases to ophthalmologists for further management. The inadequate eye care by primary health care doctors indicates the lack of sufficient training in ophthalmology during the clerkship in the medical course. Based on the prevalence of eye diseases and availability of eye specialist services, the content of the curriculum may be different in different countries; and the duration of ophthalmology posting in the medical course varies all over the world depending on the allotment of time for specialties posting in undergraduate medical curriculum.

Table 4. Gender based categorization of students' ability to perform clinical skills and diagnose eye diseases in males (n=125) and females (n=167)

Parameter	Gender	Confident		Not confident		p value
		No.	(%)	No.	(%)	
Ability to perform skills	Male	123	(98.4)	2	(1.6)	0.23
	Female	166	(99.4)	1	(0.6)	
Ability to diagnose anterior segment eye diseases	Male	123	(98.4)	2	(1.6)	0.41
	Female	163	(97.6)	4	(2.4)	
Ability to diagnose fundus diseases	Male	84	(67.2)	41	(32.8)	0.58
	Female	127	(76.0)	40	(24.0)	
Ability to diagnose red eye conditions	Male	116	(92.8)	9	(7.2)	0.36
	Female	159	(95.2)	8	(4.8)	

Table 5. Ethnic based categorization of students' ability to perform clinical skills and diagnose eye diseases in Malays (n=104), Chinese (n=153) and Indians (n=35)

Parameter	Race	Confident		Not confident		p value
		No.	(%)	No.	(%)	
Ability to perform the clinical skills	Malay	103	(99.0)	1	(1.0)	0.23
	Chinese	152	(99.3)	1	(0.7)	
	Indian	34	(97.1)	1	(2.9)	
Ability to diagnose anterior segment eye diseases	Malay	102	(98.1)	2	(1.9)	0.41
	Chinese	150	(98.0)	3	(2.0)	
	Indian	34	(97.1)	1	(2.9)	
Ability to diagnose fundus diseases	Malay	74	(71.2)	30	(28.8)	0.58
	Chinese	112	(73.2)	41	(26.8)	
	Indian	25	(71.4)	10	(28.6)	
Ability to fundus diseases	Malay	100	(96.2)	4	(3.8)	0.36
	Chinese	144	(94.1)	9	(5.9)	
	Indian	31	(88.6)	4	(11.4)	

Table 6. Mean score for the ability of clinical skills and ability to diagnose eye diseases in males (n=125) and females (n=167)

Parameter	Male Mean±SD	Female Mean±SD	p value
Ability to perform the clinical skills	7.29±1.15	7.28±1.21	0.96
Ability to diagnose anterior segment eye diseases	12.48±1.63	12.41±1.63	0.73
Ability to diagnose fundus diseases	3.18±1.74	3.33±1.68	0.45
Ability to diagnose red eye conditions	6.80 ±1.35	6.85±1.26	0.74

The International Council of Ophthalmology (ICO) task force developed guidelines which outline knowledge (theory and clinical skills) that medical students should achieve upon completion of medical course; and has prepared the undergraduate ophthalmology curriculum incorporating core clinical exposure areas and clinical skills (Table 8), [10].

The results of our study cannot be compared with the published data, mainly because those studies were done among general practitioners [5], medical interns [7], family medicine residents [6], and internal medicine postgraduate students [4] who have learnt their ophthalmology many years ago; while our study was done on the last day after their end of posting examination when they are still students and have not completed their medical course. Moreover, all the students are fresh in their memory of knowledge and clinical skills in the examination of eye.

However, the published data from various studies on the above groups of doctors indicates the level of effectiveness of ophthalmic training they had during their undergraduate course in different countries. Any deficiencies/ weaknesses noted can be corrected for future training of medical students in any country.

In the United States medical schools, mandatory formal ophthalmic teaching decreased from 68% in 2000 to 30% in 2004 [11]; while the exposure of ophthalmology to medical students varied from one to few days in 49.2% and 1-2 weeks in 37.1% of respondents in their medical schools [4].

Seventy-nine percent of medical schools in UK had an average length of 7.6 days (range 3.5 – 15 days) of ophthalmic attachment in medical course. There was variation as to how it was included in the curriculum, in teaching methods, and in the assessment (written and practical examination in some schools to informal or non-existant ones in others) [12].

In a study of assessment of ophthalmology education for trainee primary care physicians (Canadian and international medical graduates) from Canada, Chan et al. [6] reported an average of 27.1 ± 35.1 hours of class room-based (range 0-300 hours) and 39.8 ± 47.1 hours) of clinic-based (range 0-200 hours) undergraduate ophthalmology teaching. Overall, international medical graduates received more ophthalmology instruction than Canadian medicalgraduates.

Table 7. Mean score for the ability of clinical skills and ability to diagnose eye diseases in different ethnic groups --Malays (n=104), Chinese (n=153) and Indians (n=35)

Parameter	Malay Mean±SD	Chinese Mean±SD	Indian Mean±SD	p value
Ability to perform the clinical skills	7.44±1.14	7.21±1.22	7.14±1.08	0.23
Ability to diagnose anterior segment eye diseases	12.54±1.58	12.45±1.61	12.11±1.81	0.41
Ability to diagnose fundus diseases	3.18±1.65	3.36±1.74	3.09±1.73	0.58
Ability to diagnose red eye conditions	6.84±1.37	6.89±1.16	6.54±1.59	0.36

Table 8. Core clinical exposure areas and clinical skills in undergraduate ophthalmology curriculum - International Council of Ophthalmology

Core clinical exposure areas	Core clinical skills
Cornea and external diseases	Completion of ocular history
Lens and cataract	Visual acuity testing
Neuro-ophthalmology	Fluorescein staining of cornea
Vitreoretinal diseases	Anterior chamber assessment
Glaucoma	Pupillary light reflex assessment
Paediatric ophthalmology and strabismus	Extraocular motility examination
Diseases of eyelid, lacrimal system and orbit	Intraocular pressure assessment
Intraocular tumours	Visual field examination
Refraction and contact lens	Fundoscopy with direct ophthalmoscope
Refractive surgery	Indications for referral to ophthalmologist

International Council of Ophthalmology has suggested that the core clinical competencies outlined in the curriculum guidelines can be taught in 5-8 days of instruction during clerkship of 1-2 weeks clinical posting [10]. When compared to other countries in the world as reported in the literature, there are 9 ½ days of ophthalmology teaching during 2 weeks posting in 4[th]year of the medical course in 88% of 34 medical colleges in Malaysia. In the remaining medical colleges (12%) the posting of ophthalmology is for 3 weeks. (2-3 weeks ophthalmology posting is schedules in the curriculum as per the Medical Council of Malaysia).

The amount of time spent on ophthalmology teaching varied from 2 to 18 days (average 8.9 days) in Australian and Asian medical schools [13]. The curriculum and the clinical training of students in IMU fulfilled the guidelines recommended by ICO in terms of theoretical knowledge (18 hours, 23%) as well as clinical skills (59 hours, 77%) and the duration of ophthalmology teaching/training was 9 ½ days.

However, as per Medical Council of India regulations on graduate medical education, the undergraduate ophthalmology exposure is for 10 weeks (4 weeks in 4th semester, 4 weeks in 6th semester and 2 weeks in 9th semester) in the medical course. The students have to pass professional examination in ophthalmology subject in 7th semester comprising theory paper, clinical examination, and viva, before they appear final professional examination [14].

Small group sessions provide an opportunity for gaining hands-on experience and the same have been shown to be effective in teaching skills of direct ophthalmoscopy [15]. In IMU, the students were 8-10 in each group during ophthalmology posting throughout the study period and thus there was ample opportunity for students to learn and practice all the clinical skills while examining the patients.

In a questionnaire survey of 365 final year medical students of two medical colleges in Belgium, to determine whether undergraduate students actually perform basic clinical skills (in eight body systems) during different clerkships, Remmen et al found out that examination skills in ophthalmology were not practiced, performed, or mastered by the respondents [9].

In our study, the students were able to perform all the core clinical skills recommended by ICO

comfortably, but the degree was variable to be above 90% in history taking, visual acuity testing, testing ocular movements, visual field testing, followed by examination of eye with torch light, fundus examination with direct ophthalmoscope, swinging flash light test, and less than 60% in fluorescein stain test and finger digital tonometry of intraocular pressure assessment (Table 2). The students were able to diagnose the anterior segment diseases of the eye more frequently than fundus diseases (Table 3). These results cannot be compared with the published data because the previous studies were conducted few years after completing their ophthalmic education, in contrast to the present study which was done after the end of posting examination.

Ophthalmology skills reinforcement in later years of the medical course after basic training during ophthalmology posting have shown improved performance; and attention should be directed towards this to assure the competence of medical graduates [16].

In a study in Canada done by Chan et al. [6], the majority (80%) of primary care physicians in training responded as feeling only 'somewhat comfortable' or 'not at all comfortable' in assessing and managing common eye problems, including ocular emergencies.

In a questionnaire study of 111 general practitioners (GP) in Cape Town Metropole, South Africa, van Zyl et al. [5] reported that GPs appear to lack sufficient knowledge to manage primary eye care health problems, presumably due to lack of adequate undergraduate ophthalmic training.

Ah-Chan et al. [17] conducted a questionnaire study among ophthalmologists, optometrists and GPs (total 414) to assess ophthalmology curriculum in Otago, New Zealand. All three groups agreed with the contents of the curriculum and the overall response was similar. The ability to measure visual acuity (97%) and pupillary reflexes (93%), perform ophthalmoscopy (92%), and assess visual fields (68%) were regarded as 'important or essential' by the majority of respondents. Only 53% of respondents consider the ability to diagnose chronic open angle glaucoma important. The respondents stressed the importance of the diagnosis of predominantly anterior segment disease contrasting with the traditional bias towards the teaching of ophthalmoscopy and posterior segment disease. The majority of respondents stressed the importance of

graduating medical students being able to treat bacterial and allergic conjunctivitis, stye, blepharitis, corneal abrasion, and corneal and conjunctival foreign bodies, areas present but not normally emphasized in current curricula [17].

The effectiveness of undergraduate teaching in ophthalmology was studied among 133 primary care practitioners in and around Bristol by Shuttleworth and Marsh [8]. More than three-fourth of the respondents (78%) felt their undergraduate ophthalmic medical education to be inadequate. However, 83% of the 86 primary care doctors who had attended postgraduate update courses in ophthalmology felt these to be adequate. Despite the availability of an ophthalmoscope and distance vision chart, only 56% felt confident with the ophthalmoscope and only 61% reported that their distance chart was set up in accord with manufacturer's instructions [8].

In general, the GPs, lack adequate training, confidence, and skills in ophthalmology. They should be encouraged to participate in the workshops/ short courses conducted on week ends to enhance knowledge and skills in vision testing, screening for anterior segment diseases, assessment of diabetic retinopathy, open angle glaucoma, minor procedures like corneal foreign body removal, syringing the lacrimal sac, incision and curettage of chalazion, first aid in ocular injuries etc [18].

The ophthalmology education is not uniform in different medical schools in the well- developed countries as well as in the developing countries. In some of the medical schools, the training in ophthalmology is only for few days and in some others students are not exposed at all. Even though the posting of ophthalmology is for 2 weeks in the majority of medical schools in Malaysia, the syllabus taught and the clinical training may not be the same which depends on the availability of a number of teachers and the facilities for training (teaching hospital). The emphasis by trainers on subject areas and availability of clinical material for teaching purpose will influence the medical students in gaining clinical knowledge in ophthalmology. Moreover, there is no standardized undergraduate ophthalmology curriculum in Malaysian medical schools.

5. CONCLUSIONS

The number of hours of ophthalmology education/ training received by medical students in their two weeks posting in International Medical University was adequate for acquiring theoretical and practical knowledge. This was evident by their ability to perform clinical skills and to diagnose common eye diseases comfortably. The self-reported assessment survey indicates that the training was effective.

6. RECOMMENDATION

Implementing a standard undergraduate ophthalmology curriculum, based on the guidelines of International Council of Ophthalmology, and increasing duration of training using effective teaching methods in all medical schools in the country will enhance the students' ability to become more confident in handling eye related cases in their future practice. In view of different levels of intelligence students in different medical colleges, conducting a nation-wide survey of similar nature after their graduation (during house officer posting) may provide the level of their retention of knowledge and skills learned during their undergraduate ophthalmology education. Organizing series of "updating clinical skills workshops" by University Ophthalmologists/ Ministry of Health eye specialists on the weekends for house officers will be very useful for improving their skills in ophthalmology which helps a lot in future primary eye care services in the country as well as in their postgraduate training in any specialty.

ETHICAL APPROVAL

This study was approved by Faculty of Medicine Ethics Committee of International Medical University.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX-1

Survey questionnaire for assessment of skills and knowledge in clinical ophthalmology among medical students of International Medical University, Malaysia

Please circle the appropriate answer to the following

1. Gender: Male/Female
2. Race: Malay/ Chinese/ Indian

Clinical skills

3. Taking history related to eye problem in a patient: Confident/ Not confident
4. Examintion of anterior segment of the eye with torch light: Confident/ Not confident
5. Performing swinging flash light test to detect relative afferent pupillary defect: Confident/ Not confident
6. Testing extraocular muscle movements: Confident/ Not confident
7. Assessing visual fields by confrontation test: Confident/ Not confident
8. Performing fundus examination with direct ophthalmoscope: Confident/ Not confident
9. Assessing intraocular pressure by fingers digital tonometry: Confident/ Not confident
10. Performing fluorescein staining of cornea: Confident/ Not confident

Diagnosis of anterior segment eye diseases

11. Stye: Confident/ Not confident
12. Chalazion: Confident/ Not confident
13. Conjunctivitis: Confident/ Not confident
14. Pterygium: Confident/ Not confident
15. Corneal abrasion: Confident/ Not confident
16. Corneal foreign body: Confident/ Not confident
17. Cataract: Confident/ Not confident
18. Squint: Confident/ Not confident
19. Sixth cranial nerve palsy: Confident/ Not confident
20. Third cranial nerve palsy: Confident/ Not confident

Diagnosis of fundus diseases

21. Diabetic retinopathy: Confident/ Not confident
22. Hypertensive retinopathy: Confident/ Not confident
23. Papilloedema: Confident/ Not confident
24. Optic atrophy: Confident/ Not confident
25. Glaucomatous cupping of optic disc: Confident/ Not confident

Ocular emergencies/sight threatening eye diseases

26. Corneal ulcer: Confident/ Not confident
27. Corneal perforating injury: Confident/ Not confident
28. Hyphema: Confident/ Not confident
29. Acute iridocyclitis: Confident/ Not confident
30. Acute congestive glaucoma: Confident/ Not confident