Should clinical normality be examined in medical course?

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ABSTRACT

Introduction: In medical practice, some patients consult doctors for reassurance of normality, e.g. patients with throat discomfort. Therefore, medical graduates should be competent in diagnosing clinical normality. One way to assess clinical competence is by the objective structured clinical examination (OSCE).

Methods: In 2002-2006, five batches of medical students who completed their otorhinolaryngology posting in Universiti Malaysia Sarawak were examined with the same OSCE question on clinically normal vocal cords. There were five sub-questions concerning structures, clinical features, diagnosis and management. All students had prior slide show sessions regarding normal and abnormal laryngeal conditions.

Results: The total number of students in 2002, 2003, 2004, 2005 and 2006 was 25, 41, 20, 30 and 16, respectively, and 100 percent responded. The average percentage of students with correct answers was 19.4, 2.4, 2.2, 21.2, and 2.4, in the subquestions 0.1 to 0.5, respectively, leaving the remaining relatively larger percentages with incorrect answers of various clinical abnormalities. A reason for these findings is examination fever by the students, who also assumed that all the stations had clinical abnormalities and required differentiating abnormalities from abnormalities, and not from normality. Without clinical normality OSCE questions, the assessment of the undergraduates' clinical competence in real life would seem incomplete.

Conclusion: This study showed that a significantly large percentage of students answered incorrectly in the clinical normality OSCE. This may mean that more clinical normality OSCE questions should be included in the undergraduate medical examination to help undergraduates practise the need to look for, and become competent in, clinical normality in real life.

Keywords: clinical normality, medical course, medical education, medical student, undergraduate examination

Singapore Med J 2008; 49(4): 328-332

INTRODUCTION

In medical practice, patients consult doctors for diagnosis and treatment, but some merely seek reassurance, such as patients with throat discomfort seeking reassurance that they do not have throat cancer. It is therefore important to know enough of what is clinically normal, especially for medical students. One way to assess their competence is by examination. One of the many examination formats currently used worldwide is the objective structured clinical examination (OSCE).[1,2] The OSCE is conducted for clinical year students, and comprises questions regarding a patient or an object, such as a photograph, slide, instrument, equipment related to a clinical setting or scenario. It is a preparatory stepping-stone for actual clinical medical practice. OSCE questions can be set on clinical abnormality or normality. OSCE on clinical normality is rarely used. This study attempts to answer the question: "Should OSCE on clinical normality be used and examined during the medical course?", or more importantly, "Should clinical normality be examined during the medical course?"

METHODS

From 2002 to 2006, five batches of medical students, who completed their otorhinolaryngology posting in Universiti Malaysia Sarawak (UNIMAS), Malaysia, were examined at one "clinically normal" station on the same OSCE question, which comprised five subquestions, 0.1, 0.2, 0.3, 0.4, & 0.5 (Appendix I). The slide tested was a colour photograph seen through the slide viewer with adequate lighting. The subquestions, 0.1 to 0.5, were given on an A4 sheet of paper with adequate space under each subquestion for writing the answers. The OSCE session consisted of ten stations, including this clinically-normal station, and each subquestion was worth two marks. The maximum score achievable for this particular station was ten; the time given to complete the answers was five minutes. All five batches tested were students doing their third-year medical course, except for the 2006 batch, which

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Table I. Percentage of students with various answers given to subquestion 0.1.

Various answers given	Year of cohort (%)					Total*	Average* (%)
	2002	2003	2004	2005	2006		
Two vocal cords	12	32	15	25	13	97	19.4
One vocal cords	88	54	75	66	82	365	73
Two false vocal cords	0	9	0	3	0	12	2.4
Epiglottis	0	5	5	0	0	10	2
Structure unnamed	0	0	5	6	5	16	3.2

*2002–2006

Table II. Percentage of students with various answers given to subquestion 0.2.

Various answers given	Year of cohort (%)					Total*	Average* (%)
	2002	2003	2004	2005	2006		
Normal VC	4	0	5	3	0	12	2.4
Inflammation VC	28	36	30	27	50	171	34.2
Oedema VC	24	22	35	33	32	146	29.2
Fibrosis VC	0	2	0	7	0	9	1.8
Asymmetry VC	4	5	0	3	0	12	2.4
Shortening VC	0	2	0	0	0	2	0.4
Lengthening VC	0	2	0	0	0	2	0.4
Granulation VC	0	2	0	7	0	9	1.8
Nodule VC	8	2	0	3	6	19	3.8
Growth VC	8	6	15	10	11	50	10
Ulceration VC	4	2	10	7	0	23	4.6
Subglottic narrowing	12	2	0	0	0	14	2.8
Supraglottice narrowing	0	2	0	0	0	2	0.4
Web larynx	0	0	5	0	1	6	1.2

VC: vocal cord(s)
* 2002–2006

comprised candidates doing their fourth-year medical course. All students had prior teaching-learning sessions regarding the larynx in normal and abnormal states, and were shown relevant slides of both clinically normal and abnormal laryngeal conditions. During these teaching-learning sessions, they were given the chance to ask questions to clarify any doubts about the normal and abnormal laryngeal conditions. They were forewarned of a clinically-normal station in OSCE, as in real life, as some patients would visit their doctors for reassurance of a normal finding or a clean bill of health. Moreover, they were told that during the OSCE session, they could raise questions to the examiners who were on site to answer, and that information which other students should know of would be announced.

Model answers for the clinically-normal question are as follows: 0.1: Larynx showing left and right true and false vocal cords; 0.2: Both cords appear smooth, avascular and shinny with sharp straight edges; 0.3: Normal vocal cords on appearance; 0.4: They need to be examined for their function by asking the patient to say "EE", to check the mobility of the cords, which normally should be equally mobile, approximating tightly in the midline; and 0.5: The treatment is to assure the patient of the normal findings, and to alleviate any anxiety and worry. Should any other symptoms such as hoarseness of voice develop, immediate ENT consultation is advisable.

Answers were marked and cross-marked by at least two examiners. The percentages of students with their various answers to the subquestions were calculated and tabulated.

RESULTS

The numbers of students in the five batches from years 2002, 2003, 2004, 2005 and 2006 were 25, 41, 20, 30 and 16, respectively. The total number of students was 132 and all of them completed the examination (response rate 100%). The percentage frequencies of the various answers submitted for each subquestions are summarised in Tables I–V. A great majority of the students answered all the subquestions. The students mentioned three findings most frequently in Table II, the findings of vocal cord inflammation, oedema and ulceration; in Table III, the most likely diagnoses were chronic laryngitis, acute laryngitis and vocal cord nodule(s); in Table IV, the required additional information for diagnostic

Table III. Percentage of students with various answers given to subquestion 0.3.

Various answers given	Year of cohort (%)					Total*	Average* (%)
	2002	2003	2004	2005	2006		
Normal vocal cords	4	0	4	3	0	11	2.2
Acute laryngitis	12	7	24	25	35	103	20.6
Chronic laryngitis	8	12	15	17	14	66	23.2
Vocal cord hypertrophy	4	0	0	0	6	10	2
Vocal cord fibrosis	0	5	0	0	0	5	1
Reinke oedema	0	9	5	7	6	27	5.4
Epiglottitis	0	2	0	0	0	2	0.4
Pharyngitis	0	2	0	0	0	2	0.4
Vocal cord paralysis	4	12	0	3	0	19	3.8
Vocal strain	4	0	0	0	0	4	0.8
SLN palsy	4	2	0	0	0	6	1.2
Vocal cord granuloma	0	2	0	3	0	5	1
Vocal cord nodules	12	7	12	10	6	47	9.4
Vocal polyp	12	2	0	7	13	34	6.8
Vocal cord tumour	0	5	0	3	2	10	2
Contact ulcers	4	0	0	7	0	11	2.2
Carcinoma larynx	8	2	13	15	12	50	10
Laryngocele	0	2	0	0	0	2	0.4
Subglottic stenosis	12	0	5	0	0	17	3.4
Vocal cord abscess	0	0	5	0	0	5	1
Web larynx	0	0	5	0	6	11	2.2

SLN: superior laryngeal nerve
*2002–2006

Table IV. Percentage of students with various answers given to subquestion 0.4.

Various answers given	Year of cohort (%)					Total*	Average* (%)
	2002	2003	2004	2005	2006		
Vocal cord mobility IDL	40	9	5	30	25	109	21.2
IDL saying "EE"	0	19	0	25	22	66	13.2
IDL saying "Ah"	0	7	0	4	3	14	4.8
DL	4	0	0	0	3	7	1.4
Biopsy	0	15	5	15	12	47	9.4
Throat swab culture/sensitivity	4	9	5	4	3	25	8.2
White cell count	0	2	0	0	3	5	1
Cough reflex	0	2	0	0	0	2	0.4
Neck node	0	5	0	7	10	22	4.4
Alcohol smoking?	4	0	0	0	0	4	0.8
Upper respiratory tract infection	4	0	5	0	0	9	1.8
Hoarse or stridor	20	0	20	0	0	40	8
Vocal cord mass histology	8	0	0	15	12	35	7
Past tracheostomy	4	0	0	0	0	4	0.8
Voice abuse	4	0	5	0	3	12	2.4
Past perichondritis	4	0	0	0	0	4	0.8
Onset mode	0	0	5	0	0	5	1
Head neck exam	0	0	5	0	3	8	1.6
Sputum, haemoptysis	0	0	5	0	3	8	1.6
Hot potato voice	0	0	5	0	0	5	1

IDL: indirect laryngoscopy; DL: direct laryngoscopy
*2002–2006

confirmation was vocal cord mobility, getting patient to say "EE" on indirect laryngoscopy, and throat swab culture and sensitivity; and in Table V, the recommended treatments included antibiotics, excisional biopsy and speech therapy. The average percentages of students who had correct answers was 19.4, 2.4, 2.2, 21.2, and 2.4, in subquestions 0.1, 0.2, 0.3, 0.4 and 0.5, respectively. The remaining students submitted had incorrect answers of the

Table V. Percentage of students with various answers given to subquestion 0.5.

Various answers given	Year of cohort (%)					Total*	Average* (%)
	2002	2003	2004	2005	2006		
No treatment; reassurance	4	0	0	3	0	7	1.4
Not serious	0	2	0	0	3	5	1
Rest	32	35	10	30	25	132	2.6
Hydration	9	9		6	6	30	6
Speech therapy	16	5	5	21	16	63	12.6
Irritant avoidance	0	7	0	3	6	16	3.2
Antibiotic	20	7	30	15	20	92	18.4
Analgesic	0	0	10	0	0	10	2
Excisional biopsy	20	12	15	10	15	72	14.4
VC lateralisation	0	2	0	0	0	2	0.4
Radiotherapy	0	2	5	6	3	16	3.2
Cricoplasty	0	2	0	0	0	2	0.4
Laryngectomy + XRT	0	0	5	3	3	11	2.2
Chemotherapy + XRT	0	0	5	3	0	8	1.6
Excision vocal cord + XRT	0	0	5	0	3	8	1.6
Incision drainage	0	0	5	0	0	5	1

XRT: Radiotherapy
*2002–2006

various clinical abnormalities.

DISCUSSION

The poor results, especially in the clinical subquestions 0.2, 0.3 and 0.5, were noted among all the five batches of students. The majority of the students failed to describe the normal vocal cords and function and were subsequently wrong in their management, despite pre-examination teaching-learning sessions on the larynx in both normal and abnormal states. A suggested reason for the students' poor performance is examination fever. They might have assumed incorrectly that all the OSCE stations contained clinical abnormalities and thus they were required to differentiate abnormalities from abnormalities, and not from normality. Perhaps this is due to the influence of the traditional examination format, where questions are focused on identifying clinical abnormalities rather than distinguishing abnormalities from normality.

OSCE, introduced by Harden in 1972,[3] is regarded as an assessment of clinical competence,[4] and is used as a reasonable and valid evaluation tool.[2,5,6] In fact, OSCE is said to represent the gold standard in medical student assessment.[7] The present study utilised the OSCE as it was considered an appropriate examination tool to assess the medical students in terms of their clinical competence. This is relevant to their future medical practice, where there is a real possibility that they encounter a patient seeking their expert opinion and advice. The patient would expect reassurance and a peace of mind, if his case is found to be clinically normal, rather than be subjected to unwarranted investigations and inappropriate and unnecessary treatments.

As OSCE questions on clinical normality are rarely used, medical students seem to be conditioning themselves to seek clinical abnormalities where there are none. This may account for the findings in the present study. If this is indeed the case, and taking into account the importance of identifying the correct diagnosis and appropriate management, then it would seem reasonable to suggest that more OSCE questions on clinical normality should be included in these sessions. Doing this may help alert the students to the need to look out for clinical normality as in a real clinical situation.

In conclusion, this study of OSCE with clinical normality covered five batches of clinical year students in UNIMAS for the years 2002–2006. The students were asked the same OSCE question with clinically-normal vocal cords, and their answers were analysed in terms of correctness. The results show that majority of the students failed to describe the normal vocal cords and function and were subsequently wrong in their management. The likelihood of this misdiagnosis happening was discussed and its impact on clinical competence in real life was significant. It is strongly suggested that more OSCE questions on clinical normality should be included in the undergraduate medical examination.

ACKNOWLEDGEMENTS

The author would like to thank the Faculty of Medicine & Health Sciences, UNIMAS, for permission to use the students' examination results. Sincere thanks are also extended to the participating students, the examiners and the support staff involved.

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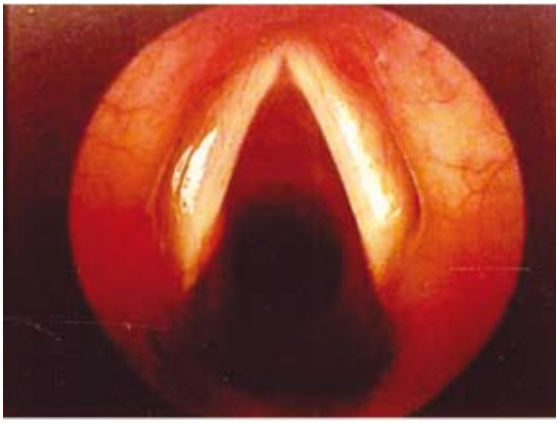
Appendix I

OSCE question: Study the slide of a 40-year-old woman, who complained of four years of throat discomfort.



1. Describe the structures inspected.
2. Describe your findings.
3. What is your most likely diagnosis?
4. What additional information on examination is required to confirm your diagnosis?
5. What is your treatment?