Should clinical normality be examined in medical course?

Tiong T S

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 sub-questions 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 normalities, 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

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). 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 sub-questions, 0.1, 0.2, 0.3, 0.4, & 0.5 (Appendix 1). The slide tested was a colour photograph seen through the slide viewer with adequate lighting. The sub-questions, 0.1 to 0.5, were given on an A4 sheet of paper with adequate space under each sub-question for writing the answers. The OSCE session consisted of ten stations, including this clinically-normal station, and each sub-question 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
mobile, approximating tightly mobility of the cords, which normally should be equally function shinny with sharp vocal cords; as would be announced. and questions were told that during the OSCE session, they could raise a of abnormal laryngeal conditions. They were shown relevant slides of both clinically normal and learning sessions, abnormal laryngeal conditions. During these teaching course.

*VC:vocal cord(s)

Web larynx
Subglottice narrowing
Ulceration
Growth
Nodule
Granulation
Lengthening
Shortening
Oedema
Normal
Various answers

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

<table>
<thead>
<tr>
<th>Various answers given</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>Total*</th>
<th>Average* (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two vocal cords</td>
<td>12</td>
<td>32</td>
<td>15</td>
<td>25</td>
<td>13</td>
<td>97</td>
<td>19.4</td>
</tr>
<tr>
<td>One vocal cords</td>
<td>88</td>
<td>54</td>
<td>75</td>
<td>66</td>
<td>82</td>
<td>365</td>
<td>73</td>
</tr>
<tr>
<td>Two false vocal cords</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>Epiglottis</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Structure unnamed</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>16</td>
<td>3.2</td>
</tr>
</tbody>
</table>

*2002–2006

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

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

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 shiny 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 subquestion 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
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
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,\(^5\) is regarded as an assessment of clinical competence,\(^4\) and is used as a reasonable and valid evaluation tool.\(^5,^6\) 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.
REFERENCES
1. Malik AS, Malik RH. The undergraduate curriculum of Faculty of Medicine and Health Sciences, University Malaysia Sarawak in terms of Harden's 10 questions. Medical Teacher 2002; 24:616-21.
7. Standardized Patient Program, University of Toronto. Educating future physicians for Ontario. How to run an OSCE. (Video and manual), University of Toronto, University of Ottawa, Queen University, McMaster University, University of Western Ontario, 1994.

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?