

One minute preceptor – introduction and perception evaluation of a novel teaching tool for teaching routine histopathology slides to postgraduate students in pathology

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Abstract

Background: One minute preceptor (OMP) strategy is a 5 step or “micro-skills” teaching tool for use by faculty in busy ambulatory settings, however analysis of its utility in Pathology especially with respect to resident training has not been done before. Hence, our endeavour was to introduce OMP as a teaching tool for routine slide diagnosis and also to evaluate it.

Method: Post graduate residents as well as faculty in pathology were given validated questionnaires to assess perception evaluation and overall effectiveness of the teaching method, following an orientation programme on OMP. The outcomes were evaluated using Likert scale along with open ended questions and analysed using SPSS Software.

Result: 30 sessions of OMP were conducted by five faculty members and the eight learners in rotation. Comparison of the change in behaviour of the learner after intervention revealed a statistically significant difference in six out of the nine attributes evaluated. OMP was found to be more effective in improving exam skills, communicating the findings, thinking of logical differentials and in motivating the learner to do self study. OMP was also perceived to be less threatening, more helpful in learning and was strongly recommended to be incorporated as a teaching strategy for teaching routine histopathology slides. Among the faculty, most agreed that OMP was an effective teaching tool which helped identify specific lacunae in learner’s understanding and were willing to adopt OMP as a teaching methodology. However, they also felt that it was more time consuming.

Conclusion: The present study is the first of its kind which highlights the advantages and disadvantages of OMP as a teaching learning tool in the field of pathology especially for teaching routine histopathology slides. Although the sample size of this study was small, the positive response to OMP by both the learners and faculty cannot be overlooked.

Keywords: One Minute preceptor, Micro-skills, Resident training, Teaching learning methods, Histopathology slides

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Introduction

One minute preceptor (OMP) strategy was first described in early 1990s as a 5 step or “micro-skills” tool for an effective teaching encounter.¹ It was described originally for use by faculty in busy ambulatory settings, could be learned in 1-2 hours, practiced immediately and remembered for years.^{2,3} It comprises of five micro-skills: Get commitment; Probe for supporting evidence; Teach general rules; Reinforce what was done right; and Correct mistakes.¹

Slide diagnosis and interpretation is a very important aspect of post graduate learning in pathology. This is accomplished mainly by seeing slides during routine clinical work-up of cases which is complemented by structured slide seminar usually held once a week in various institutions. While slide seminars focus on rare cases from old collections and are more structured; the teaching during “routine slide” discussions are often unsatisfactory. This happens most

often due to lack of structure and more importantly due to lack of time on the part of faculty. OMP is a popular and widely used teaching tool which has been used in clinical specialities to teach short cases. Hence, we proposed that this OMP model could be used as an effective tool for teaching routine slides to post graduate residents. Our endeavour was to introduce this OMP model to both faculty as well as post graduate (PG) residents. Perception evaluation of the teaching method was done subsequently by taking feedback from the faculty as well as the PG residents.

Materials & Methods

Subjects

Subjects for the research project were first (2012-15) and second (2011-14) year Post graduate (PG) residents in pathology. All the residents were already exposed to the traditional/conventional teaching methods for routine slide diagnosis.

Questionnaire preparation

Questionnaires (Pre-test and Post-test) were prepared to assess the primary outcomes in the form of perception evaluation of the learner (Question Numbers 1-9) and secondary outcomes in the form of overall effectiveness of the teaching method (Question Numbers 10-13). The primary outcomes were evaluated

using a four point scale ranging from strongly agree (= 4); Agree (= 3); Disagree (=2) to strongly disagree (= 1). The secondary outcomes were evaluated using a five point scale ranging from -Very poor (=1); Poor (=2); Average (=3); Good (=4); to Excellent (=5). These were based on an already conducted survey by Furney et al.² Moreover, open ended questions were added at the end of the questionnaires (See Annexures I and II). In the post test form additional questions specifically regarding the OMP method were asked. Similarly, after the whole process the faculty involved in the teaching were given feedback forms comprising six directed questions regarding their perception about the OMP teaching process.

Overall Process

Pre-test feedback was collected from the post graduate residents regarding their experiences with the conventional teaching programme. This was followed by an orientation programme regarding introduction of the concept of "One Minute Preceptor" for the faculty as well as the PG residents. Histopathology Slides with moderate to severe level of difficulty were chosen from the routine slides. These slides were evaluated by two faculty members for the level of difficulty. The slides were then given to the student for a period of five minutes after which he/she was expected to write a description of the slide. This was followed by a one minute discussion during which a commitment to one diagnosis or at least two differential diagnoses were sought with supporting evidence. Following this, two minutes were dedicated to teaching general rules, reinforcing what was done right and correcting mistakes.¹ 30 such sessions were conducted with each PG student in rotation. This was done by involvement of five faculty members and each post graduate student underwent 2-3 sessions. Post-test feedback forms were collected from the PG student. Moreover the faculty members involved were asked specific feedback regarding OMP methodology.

Evaluation

A qualitative and quantitative evaluation of pre-test and post-test feedbacks was performed and further analysed using statistical methods (Student 't' test for two samples assuming equal variance) using SPSS Software.

Results

Eight post graduate residents (learners), four from first year and four from second year participated in the survey. Survey response rate was 100% for both pre-test as well as post-test questionnaires. The learners were given pre-test questionnaires to fill after which an orientation programme was conducted on One Minute Preceptor (OMP). After 30 sessions of OMP conducted by five faculty members with the eight learners in rotation; post-test questionnaires were filled by the

residents. Comparison of the change in behaviour of the learner after intervention is given in Table 1 and pictorial representation in Fig. 1. There was a statistically significant difference ($P < 0.05$) in behaviour in six of the nine attributes.

The learners thought OMP to be better compared to the traditional teaching methods as it allowed for their involvement in the decision making process ($P = 0.005$) and reasoning behind the decision making process ($P = 0.005$). Moreover they felt that OMP was an extremely effective method for evaluation of their knowledge and skills ($P < 0.001$) as well as teaching them general rules ($P < 0.001$). It was also a better method for giving feedback ($P = 0.032$) and reasoning for being correct/incorrect ($P = 0.011$). However no significant difference was found for asking the diagnosis ($P = 0.320$), providing positive feedback ($P = 0.054$) and offering suggestions for improvement ($P = 0.175$) by the OMP method.

To know the overall effectiveness of the teaching session by OMP method four questions were asked in the questionnaire (Question 10-13, annexure I and questions 13-16 in annexure II). The summary of the findings are given in Table 2 and Fig. 2. In all the four parameters the OMP was found to be a significantly more efficient tool than the traditional routine histopathology slide teaching.

Hence, OMP was found to be more effective in improving exam skills ($P = 0.000$), effectively communicating the findings ($P < 0.001$), thinking of logical differentials ($P = 0.011$) and in motivating the learner to do outside reading ($P = 0.026$). The descriptive evaluation of the three parameters which were only included in the post test form are shown in Table 3 and Fig. 3. OMP was perceived to be less threatening by all with six out of eight residents strongly agreeing. It was also perceived to be more helpful in learning and all the residents agreed to the fact that OMP should be incorporated as a teaching strategy for teaching routine histopathology slides.

After the sessions of OMP, the five faculty members involved in the teaching were requested to fill a questionnaire regarding their experiences with OMP. The findings are summarized in Table 4 and Fig. 4.

Most of the faculty members strongly agreed that OMP is a useful and an effective tool which improves teaching ability and helps identify specific lacunae in learner's understanding. However, they also felt that it was more time consuming but not cumbersome. It must also be mentioned that all the faculty members were willing to adopt OMP as a teaching methodology.

Among the open ended questions, only four learners (50%) provided strategies for improvement in the pre-test form which include more use of 0-multihead microscope, exam oriented teaching and teaching of differential diagnosis. Amongst the advantages of OMP method in post-test form three of the learners felt that it was more personalized form of

teaching. Others (one each) said that it helped improve their exam/writing skills. The only disadvantage that two of the learners pointed out was that it was time consuming.

One of the faculty members each felt that this method helped the learner in ability to think and moreover encouraged the faculty to listen before starting to “take over” the case.

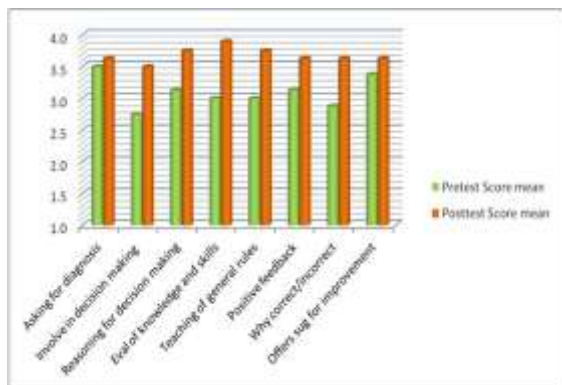


Fig. 1

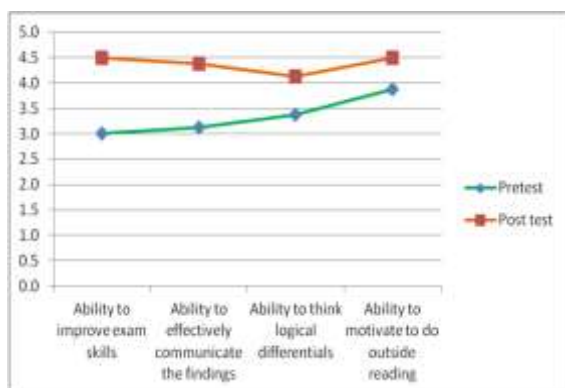


Fig. 2

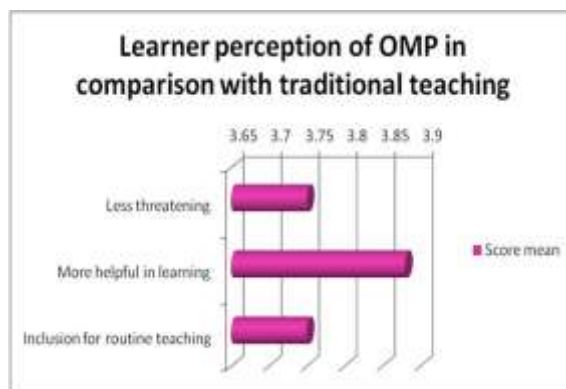


Fig. 3

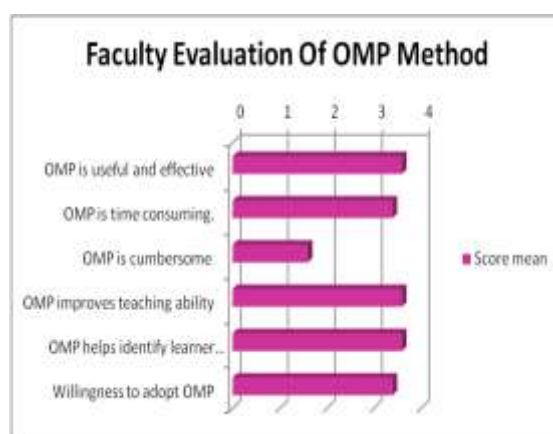


Fig. 4

Table 1: Evaluation of learner perception before and after the intervention (sessions on OMP)

Q. No	Salient features of the Questions	Pre-test Score mean	Post test Score mean	df	p-value
1	Asking for diagnosis	3.50	3.63	14	0.320
2	Involvement in decision making process	2.75	3.50	14	0.005
3	Reasoning behind decision making	3.13	3.75	14	0.005
4	Evaluation of knowledge and skills	3.00	3.9	14	<<0.001
5	Teaching of general rules/pearls	3.00	3.75	14	<0.001
6	Positive feedback	3.13	3.63	14	0.054
7	Why correct/incorrect	2.88	3.63	14	0.011
8	Offers suggestion for improvement	3.38	3.63	14	0.175
9	Give feedback frequently	2.75	3.38	14	0.032

Table 2: Evaluation of Learner perception of overall effectiveness of OMP as a teaching tool

Q. No	Salient features of the ability	Pre-test Score mean	Post test Score mean	df	p-value
10	Ability to improve exam skills	3.00	4.50	14	0.000
11	Ability to effectively communicate the findings	3.13	4.38	14	<<0.001
12	Ability to think logical differentials	3.38	4.13	14	0.011
13	Ability to motivate to do outside reading	3.88	4.5	14	0.026

Table 3: Post-test evaluation of the learner's perception regarding OMP as a teaching tool

Q. No	Characteristic of OMP	Score mean	Standard deviation
1	OMP is less threatening	3.75	0.46
2	OMP is more helpful in learning than traditional method.	3.88	0.35
3	OMP should be included for routine slide teaching.	3.75	0.46

Table 4: Faculty feedback regarding the OMP method

Q. No	Characteristic of OMP	Score mean	Maximum score(Freq)	Minimum score(Freq)	S.D
Q1	OMP is a useful and an effective tool.	3.6	4(3)	3(2)	0.55
Q2	OMP method is time consuming.	3.4	4(3)	2(1)	0.89
Q3	OMP is cumbersome and may not be useful	1.6	2(3)	1(2)	0.55
Q4	OMP improves teaching ability	3.6	4(3)	3(2)	0.55
Q5	OMP helps identify specific lacunae in learner's understanding	3.6	4(3)	3(2)	0.55
Q6	Willingness to adopt OMP as a teaching method	3.4	4(2)	3(3)	0.55

Discussion

Several barriers have been identified which impede an effective clinical teaching session the most important being time constraint.¹ Several strategies have been described recently in medical education literature to address this problem some of which include: One minute preceptor (OMP); SNAPPS (Summarize, Narrow, Analyze, Probe, Plan and Self-directed learning); Aunt Minnie and Activated Demonstration.¹⁻⁴ Amongst all these and more, OMP has been evaluated most extensively and has shown to improve preceptor diagnosis of patients' medical problems as well as puts emphasis on disease- specific teaching.¹⁻³ In a study of 164 third and fourth year students at two medical schools, the students preferred OMP precepting model to the traditional teaching model ($p=0.001$).⁵ OMP has also shown to improve preceptors' performance in the form of getting diagnostic commitment, motivating the learner for independent learning and providing feedback.¹ In another study, The residents trained after one hour lunch time training session of OMP were rated higher by their students as compared to control residents.² Similarly, our learners also rated OMP higher for their involvement in decision making process ($P=0.005$); evaluation of knowledge and skills ($P<<0.001$) and giving feedback ($P=0.032$). Since traditional teaching method have no formal feedback

mechanisms, according to us, this represents a major advantage of OMP and helps the learner to reflect on their mistakes and provides a chance for improvement. This has also been corroborated by other studies.² Another area which gives OMP an edge is teaching of a general rule which is generally not done by the faculty especially in the busy routine reporting sessions when the report has to be dispatched on time.

Our learners rated this method higher as it helped them to improve exam skills ($P=0.000$) and to communicate their findings in a better manner ($P=0.01$). Moreover, they found the environment less threatening and friendlier than the traditional method (mean score- 3.75; $sd=0.46$). Histopathology slide diagnosis is considered a difficult and at the same time most valuable exercise during a post graduate examination. This occurs due to lack of practice and inability to communicate the findings in a clear and concise manner. As "assessment derives performance", the above factors have helped make OMP popular with the learners. This may also be in part due to the fact that the learners were encouraged to write their findings before presenting them. Although this makes the process more time consuming as was noted by some of our learners and faculty members, more practice with the method and introduction at the start of the course will certainly help. Moreover, it is suggested that all the

slides in the tray may not be taught by this method. One or two slides of moderate to severe difficulty from the routine tray may be picked up for the teaching by OMP as was done in the present study. This will give the advantage of a good learning experience within the restricted time frame.

The faculty feedback also corroborated OMP to be a useful tool which improves teaching ability (mean score=3.6; sd=0.55) and helps to identify specific lacunae in learner's understanding of the subject (mean score=3.6; sd=0.55). OMP has been studied extensively in clinical specialties like family medicine, internal medicine and even in dental school teaching.⁶⁻⁹ However, its use in para-clinical branches for some specific clinical teaching encounters has been very limited. There is one example in literature where OMP has been used as a time efficient teaching tool in gross anatomy laboratory with success.¹⁰ However, utility of this teaching tool for routine slide teaching in pathology has never been studied.

Conclusion

The present study is the first of its kind which has highlighted the advantages as well as disadvantages of One Minute Preceptor in the field of pathology especially for teaching routine histopathology slides. Although the sample size of this study is small, the positive response to OMP by both the learners and faculty cannot be overlooked. However, future studies on application to a wider group of teachers and learners in pathology is needed to elucidate more on the methodology and the modifications required for its use in the department of pathology.

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