

RESEARCH COMMUNICATION

Neoplasia/dysplasia Surveillance of Oral Lichen Planus in Malaysia: A Preliminary Study using Topography Maps

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Abstract

Background: Conventional methods for writing case notes detailing the progress of oral lichen planus (OLP), a precancerous condition that requires long-term surveillance, is both time-consuming and tedious for the busy clinician. **Objectives:** To design and perform a simple surveillance on OLP patients based on colour-coded topography mouth maps (TMM). **Materials and methods:** Three colour-coded TMM were employed: red for OLP in high risk oral mucosal sites, yellow for cases showing improvement and green for asymptomatic lesions at each recall visit. In this preliminary study, these were applied on 30 histologically confirmed OLP individuals attending the Oral Medicine Clinic at the Department of Oral Pathology, Oral Medicine & Periodontology, Faculty of Dentistry, University of Malaya. The sites and extent of OLP lesions were charted on either red, yellow or green TMM based on defined criteria. This surveillance evaluated OLP in relation to patient's age, race, gender, underlying systemic conditions, oral habits, initial onset of OLP, oral manifestations and presence/absence of clinically suspicious areas. **Results:** Study sample comprised 4 (13.3%) Malays, 9 (30.0%) Chinese and 17 (56.7%) Indians. Most OLP patients belong to the green TMM (n=14, 46.6%) group followed by red (n=11, 36.7%) and yellow (n=5, 16.7%) groups. Of the 11 cases with red TMM, rebiopsy was performed on 4 cases but no dysplasia was detected. Any local confounding factors namely periodontal disease or faulty dental restorations were managed accordingly. **Conclusions:** TMM is simple to use and aided the clinicians in terms of time saving and patient management. Hence, follow-up of OLP patients can be carried out more efficiently and appropriately. TMM can be used for surveillance of other oral precancerous lesions and conditions.

Key Words: Oral lichen planus - precancerous lesions - dysplasia - surveillance

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Introduction

Lichen planus is a chronic inflammatory autoimmune disease that can affect the skin, the oral mucosa, scalp and nails (Neville and Day, 2002; Epstein et al., 2007; Scully and Carrozzo, 2008). The disease affects 0.5-2% of the population with a predilection for females (female to male ratio of 3: 2) and a mean onset age in the fourth to fifth decade. Although considerable controversy still surrounds its status as a precancerous condition, currently, a large body of evidence favours the need for recall of these oral lichen planus (OLP) patients to screen for possible malignant transformation (Lo Muzio et al., 1998; Mattsson et al., 2002; Mignogna et al., 2001; 2006; Rad et al., 2009; Rajentheran et al., 2008; van der Meij et al., 2003).

The Oral Medicine Clinic in the Department of Oral Pathology, Oral Medicine and Periodontology, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia, is one of the main tertiary referral centers for oral diseases including screening for oral precancerous and cancerous lesions/conditions. It is currently served by four Oral

Medicine specialists. Although OLP is relatively uncommon in Malaysia, affecting 0.38% of the general population (Zain et al., 1997), a substantial number of patients attending the Oral Medicine clinic present with OLP. In addition, a previous study disclosed that the risk of malignant transformation of OLP in Malaysians is about 1.2% (Yaacob et al., 2002).

Two of the authors (LSMJ and TSP), final year dental undergraduates undertook this study of OLP surveillance as part of their elective programme. In the course of this study, they found that compiling data on progress of OLP patients based on case notes were both tedious and time-consuming. They then devised the use of colour-coded topography mouth maps (TMM) to chart the lesions and monitor the disease course in these patients at each review visit.

Materials and Methods

Institutional approval (Ethics No. DF OP0903/0021(U) was obtained prior to the commencement of this study. Selection of OLP patients was based on the

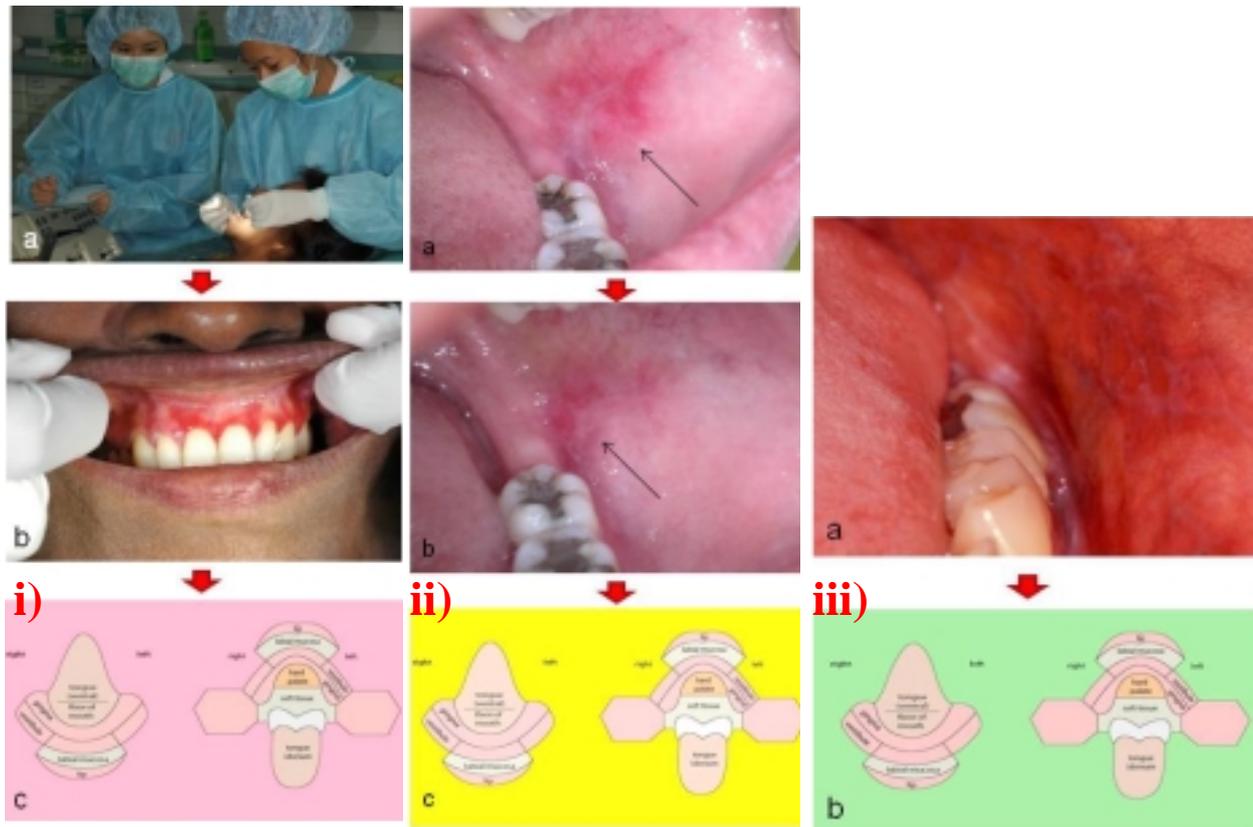


Figure 1. Oral lichen planus (OLP) surveillance using topography mouth maps (TMM). i) a, examination of patient, b, intraoral view of patient with atrophic OLP on maxillary anterior gingiva, and c, charting of lesions on red TMM. ii) a, atrophic OLP in left buccal mucosa before treatment, b, improvement of lesion after treatment, and c, assignment of case to yellow TMM; iii), asymptomatic reticular OLP in the left buccal mucosa, and b charting in green TMM

modified World Health Organization diagnostic criteria (Rad et al, 2009). Thirty cases from the files (SCH) of the Oral Medicine Clinic, Faculty of Dentistry, University of Malaya were selected.

Standard oral mucosa topography maps (Figure 1) were designed for surveillance of OLP lesions in these patients. These consisted of three colour-coded forms: red, yellow and green. Red maps were indicated for patients presenting with atrophic-erosive and plaque forms of OLP as well as for lesions in the tongue and floor of mouth. These cases were placed on a monthly recall visit. Yellow maps were assigned to those patients that showed improvement of their OLP lesions at all other oral mucosal sites except the tongue and floor of mouth and their review was on a 3-monthly basis. Green maps were for patients with asymptomatic reticular form of OLP in all other oral mucosal sites except the tongue and floor of mouth, and for OLP patients who are lesion-free. Asymptomatic cases were followed on a 6-monthly interval while lesion-free patients were seen annually.

For each selected case, a pre-designed questionnaire was used to obtain information of the patient’s past medical and dental histories, and high risk habits. This was followed by a routine extraoral and intraoral examination of the oral cavity. Charting of the lesions in the TMM was made based on consensus of all three examiners.

Results

In our sample, there were 8 male (26.7%) and 22 female (73.3%) patients with a male to female ratio of 1:2.75. These consisted of 4 Malays (13.3%), 9 Chinese (30.0%) and 17 Indians (56.7%). Four patients represented new cases who attended the Oral Medicine clinic for the first time. For these new cases, detailed history-taking followed by clinical examination and appropriate laboratory investigations (haematology tests, swabs and smears to rule out Candida) were carried out by the Supervisor (SCH). To establish a diagnosis of OLP, incisional biopsies for histopathological examination and direct immunofluorescent studies were performed. The remaining 26 patients were histologically confirmed cases of OLP attending the Oral Medicine clinic on a regular follow-up/review visit. The maximum period of follow up for these cases was 18 years (mean duration: 3.6 years, range: 0.0 to 18.0 years). The only significant oral habit observed was betel-quid chewing for more than 30 years in one patient.

A total of 62 lesions were obtained from our 30 OLP cases. The most common site involved was the gingiva (25.8%), followed by buccal mucosa (24.2%), vestibules (19.4%), tongue (14.5%), upper labial mucosa (4.8%) and lower labial mucosa (4.8%). The rest of the lesions were found on less common sites namely lips (3.2%), palate (1.6%) and floor of mouth (1.6%). The most common clinical form of OLP was the reticular type (48.4%) followed by atrophic (24.2%), plaque (14.5%), mixed (11.3%) and erosive (1.6%) forms.

From the TMM charting, most OLP patients were

placed on green TMM (n=14, 46.7%) followed by red for 11 patients (36.7%) and yellow maps on 5 (16.7%). Of the 11 cases with red TMM, rebiopsy was performed on 4 cases but no dysplasia was detected. Any local confounding factors namely periodontal disease or faulty dental restorations were managed accordingly.

In the red TMM group (n=11) placed on monthly recall visits, 6 patients attended their review appointments. Two cases showed improvement and were moved to the yellow TMM group. The other 4 cases underwent rebiopsy of their clinically suspicious lesions to rule out possibility of impending malignancy or dysplasia.

In the yellow TMM group (n=5) placed on 3 monthly recall visits, 3 cases presented with residual asymptomatic reticular OLP lesions in the buccal mucosa and were moved to the green TMM group.

In the green TMM group, 9 cases with asymptomatic OLP cases in non-high risk sites were placed on 6-monthly followup whereas the remaining 5 OLP patients who were lesion-free were placed on annual follow-up.

Discussion

Oral cancer is the sixth most common malignancy worldwide. In Malaysia, oral cancer remains a major health problem (Ng et al., 1985; 1986; Ng and Siar, 1992; Siar et al., 1990). It is now well established that early detection of oral precancerous and cancerous lesions/conditions can improve the clinical outcome for patients. A previous nationwide survey on oral mucosal lesions was carried out to screen for potentially malignant oral epithelial lesions and conditions, and for the early detection of oral cancer (Zain et al, 1996; 1997). OLP was classified as a precancerous condition in this survey and accounted for 0.38% of oral mucosal lesions. In another Malaysian study based on a retrospective analysis of 77 cases of OLP, a single case of malignant transformation was reported (Yaacob et al., 2002).

In consideration of the fact that majority viewed OLP as a precancerous condition, a monitoring system for OLP patients has been recommended (Mattsson et al., 2002). This is to facilitate the early diagnosis of oral cancer and thereby reducing morbidity and mortality from oral cancer arising in these patients. One suggestion is that OLP patients should have regular follow-up examinations from two to four times annually (Scully et al., 1998). Since OLP is one of the most prevalent oral mucosal lesions, a surveillance programme entails utilization of substantial economic resources, and hence, a reconsideration of the background of the need for a recall is warranted (Mattsson et al, 2002). In addition, in countries with few dentists or other oral health care providers, it is most likely difficult for any recall routines for OLP to be implemented (Warnakulasuriya and Nanayakkara, 1991).

As OLP has been accepted as a precancerous condition in this Institution, follow-ups are mandatory. During each follow-up visit, the patients' complaints, clinical examinations and managements were carried out by the clinicians, and the conventional method was to record these findings/ evaluations in these patients' folders. Consequently a thick compilation of patient's records

often accumulates. The main disadvantage of this conventional method of record keeping is that the clinicians frequently have to spend considerable time to read through these case notes.

For ease of follow-ups, our study has introduced a simple and economical method for surveillance of OLP. Coloured-coded maps were utilized to classify patients according to the severity of the disease and frequency of recall visits. The advantage of this method is that it can help save the clinicians' time by viewing only the mouth maps on coloured papers and obviates the need to plough through their records. As 'pictures can tell a thousand words', clinicians can look at the locations and descriptions of lesions at a glance, instead of spending time reading the patients' records.

Different colour codings will also guide a clinician to determine the frequency of follow-up needed for each case. The idea was developed based on the colours of the traffic lights. Moreover, clinicians will be able to determine the progress of patients' conditions by referring to the colours of mouth maps used for every visit.

Red colour mouth maps are allocated to patients that require more frequent monitoring. The red colour can easily attract a clinician's attention to follow up the patient in one month's time and for re-biopsy if indicated. Patients presenting with atrophic, erosive and bullous OLP are assigned red mouth maps because it is known that these forms of OLP carry a higher risk of malignant transformation than reticular or plaque forms (Mattsson et al., 2002; van der Meij et al., 2003; Rad et al., 2009). Similarly, patients with OLP affecting the tongue and floor of mouth are assigned red mouth maps as these locations are considered high risk sites for oral cancer development.

It is known that the precise location within the mouth seems to have a profound influence on the risk of malignant transformation (Napier and Speight, 2008). Potentially malignant lesions including leukoplakia are more frequently found in the buccal mucosa yet those found on the lateral borders of the tongue and floor of mouth are more frequently associated with malignant transformation to oral squamous cell carcinoma. In those cases that showed improvement in subsequent follow-ups, yellow mouth maps were used, and they will be reviewed after 3 months. Patients who have asymptomatic OLP lesions in oral mucosal sites other than the tongue or floor of mouth are placed on a 6-monthly recall visit, whereas those OLP patients who are now lesion-free are placed on a 12-monthly recall visit.

In summary, this study proposed the use of colour-coded TMM to subcategorize OLP patients into those requiring one, 3, 6 or 12 monthly recall. These maps are easy to apply and overcome the need to write or read detail case notes. Its potential application for screening other oral potentially malignant lesions and conditions can be considered.

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