Part 1: case study
A 45-year-old, healthy man visited his dentist for tooth pain and was informed that his mouth contained a “disease in disguise.”

Upon oral examination, buccal-mucosa showed hyperkeratotic white, slightly elevated, diffuse patchy lesion extending toward the commissures of the mouth on the left side.
The lesion was non-scrappable in nature.
The patient had a habit of smoking five to six bidis (a crude form of cigarette used in India) a day for the past four years.

1) What provisional diagnosis would you make of this lesion?
   a. Leukoplakia
   b. Linea alba
   c. Lichen planus
   d. Leukoedema
   e. Candidiasis

Answer: A provisional diagnosis of homogenous type of oral leukoplakia was made.

Now let’s explore step-by-step given the patient’s information and assemble all the clues together to arrive at a diagnosis.

Clue No. 1
Age/sex/general health = 45-year-old healthy man

2) Each of the lesions below is found in a patient that falls into this age/sex category. Match the lesion to the appropriate sex/general health category.

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Sex/general health</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Candidiasis</td>
<td>1. Male predilection</td>
</tr>
<tr>
<td>b. Lichen Planus</td>
<td>2. Female predilection</td>
</tr>
<tr>
<td>c. Leukoedema</td>
<td>3. Commonly seen in a debilitating and malnourished group of society</td>
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</tbody>
</table>

Clue No. 2
Pattern = Hyperkeratotic white, slightly elevated, diffuse patchy lesion extending toward the commissures of the mouth.

3) Match the pattern to the appropriate lesion.
Pattern  
- a. Thin elevated white line at the occlusal plane  
- b. White patch or plaque (homogeneous type)/mixed red and white lesion (non-homogeneous type)  
- c. White “milks curd” (pseudo-membranous type)/white patch or plaque (hypertrrophic type)/red (atrophic type)  
- d. Milky white alterations of the buccal mucosa, bilateral  
- e. Raised thin white lines in arcuate pattern (reticular type)/white elevated plaque (plaque type)/red (erythematous) areas with thin striae at the periphery (atrophic and erosive type).

Lesions  
1. a) Leukoplakia  
2. b) Linea alba  
3. c) Candidiasis  
4. d) Lichen planus  
5. e) Leukoedema

We can narrow down the various specific clinical types of the lesions and exclude linea alba from the differential diagnosis (D/D):  
- a. Leukoplakia (homogeneous type)  
- b. Lichen planus (plaque type)  
- c. Leukoedema  
- d. Candidiasis (hypertrrophic/pseudomembranous type)

Clue No. 5  
Is the lesion scrapable (S) or non-scrapable (NS)?

4) Letters a–d are NS; letter e is S.  

Some association; e = SK.

Answers  
3) 1 = b; 2 = a; 3 = c; 4 = e; 5 = d  
6) a = True; b = True; c = True; d = False; e = False; f = True  
7) a = True; b = True; c = False; d = True

Treatment and prognosis

8) Mark true (T) or false (F) next to the following questions:  
- a) For the persistent lesion, definitive diagnosis is established by tissue biopsy.  
- b) Definitive treatment involves surgical excision or cryosurgery and laser ablation.  
- c) The dysplastic changes typically begin in the superficial zones of the epithelium.  
- d) The higher the extent of epithelial involvement, the higher the grade of dysplasia.

Histology assessment

7) Mark true (T) or false (F) next to the following statements:  
- a) It may show atrophy or hyperplasia (acanthosis) and may or may not demonstrate epithelial dysplasia.  
- b) The majority of leukopla-kias will not show dysplasia and correspond to the hyperplasia category.  
- c) The dysplastic changes typically begin in the superficial zones of the epithelium.  
- d) The higher the extent of epithelial involvement, the higher the grade of dysplasia.

Part II: Digging deeper  
Let’s explore your knowledge of oral leukoplakia.

6) Mark true (T) or false (F) next to the following statements:  
- a) A predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion.  
- b) It is a pure clinical term and has nothing to do with some specific histology.  
- c) The etiology proposed includes tobacco, alcohol, candidiasis, electrogalvanic reactions and (possibly) herpes simplex and papillomavirus have been implicated.  
- d) True leukoplakia is most often related to alcohol usage  
- e) Oral hairy leukoplakia is a type of leukoplakia with hair-like projections on the buccal mucosa.  
- f) It has two main clinical types. Homogeneous type: lesions are white, uniformly flat and thin and exhibit shallow cracks of the surface keratin. Non-homogeneous type: lesions are mixed, i.e., red and white with nodular or verrucous type of growth.

Clue 4  
Smoking five to six bidis per day for the last four years.

5) Mark smoking (SK) or non-smoking (NSK) next to each lesion.

a) Leukoplakia  
- b) Linea alba  
- c) Lichen planus  
- d) Leukoedema  
- e) Candidiasis

Thus, we now have four D/ Ds due to work upon (excluding linea alba). Other features that help in reaching a diagnosis:  
- Stretch: Leukoedema will fade away.  
- Antifungal treatment: Candidiasis will be cured.  
- Site: Plaque type of lichen planus is most often seen on the dorsum surface of the tongue.  
It is generally nodular in nature with or without areas of reticular type of lichen pla-nus around it.

Most clinicians can easily distinguish lichen planus from leukoplakia; however, if you have difficulty in doing so or are in doubt, please do a biopsy.

Foremost, the biopsy is done to diagnose. It is also com-pleted to discover any dysplas-tic features associated with lichen planus.

In this case, a biopsy was done for the lesion and the histopathological diagnosis made was moderate epithelial dysplasia.

About the author  
Dr. Monica Malhotra is an assistant professor at the Sudha Rustagi Dental College in India and also maintains a private practice.

In 2008 she was presented with a national award for the best scientific study presentation by the Indian Association of Oral and Maxillofacial Pathology.

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