



## Clinical characteristics of patients with concomitant oral lichen planus and thyroid disease

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**Objective.** To study the prevalence and profile of thyroid disease in a cohort of referred patients with oral lichen planus (OLP) in comparison with a random population sample and to examine the clinical characteristics of OLP patients with and without thyroid disease.

**Study Design.** Data from 1611 patients with OLP and 1615 patients from the general population were collected by using a standardized registration method. Patients with OLP using levothyroxine (OLP/levothyroxine+) were re-examined to collect information about existing OLP lesions and to confirm the thyroid disease diagnosis. The clinical characteristics of OLP lesions in this group were compared with those in an age- and gender-matched population of patients with OLP without a history of thyroid disease or levothyroxine medication (OLP/levothyroxine-).

**Results.** Nearly 11% (n = 170) of the patients with OLP were taking levothyroxine compared with 2.5% (n = 40) of the controls (multivariate odds ratio 2.99, 95% confidence interval 2.03-4.44;  $P < .0001$ ). No difference was found in the thyroid disease profile between the groups. At the time of re-examination, patients with OLP/levothyroxine- displayed more erythematous OLP lesions and complained of more severe symptoms compared with the OLP/levothyroxine+ group ( $P < .001$ ).

**Conclusions.** The prevalence of thyroid disease in patients with OLP was significantly higher than in the general population. The OLP lesions of patients with concomitant thyroid disease have a different presentation over time, which indicates a specific subgroup of OLP. (Oral Surg Oral Med Oral Pathol Oral Radiol 2015;120:602-608)

Oral lichen planus (OLP) is a common clinical and histopathologic reaction pattern elicited by yet unknown etiologic factors. As a heterogeneous condition, it is most likely that several different antigens, both self and exogenous, trigger the T-cell response that characterizes the pathogenesis of OLP.<sup>1,2</sup> Genetics and numerous systemic diseases, medications, dental materials, and microbes have been postulated over the last decades to be involved in the etiology of OLP. However, the existing evidence is sparse and does not allow one to draw definite conclusions.

In recent years, a growing body of scientific work has suggested a connection between thyroid disease and OLP. This implication is primarily taken from studies on medication profile that have shown an increased prevalence of thyroid agents among OLP patients.<sup>3,4</sup> With the implementation of epidemiologic tools and the inclusion of a large sample of patients, we also identified levothyroxine as the only thyroid medication significantly associated with OLP.<sup>5</sup> If OLP were to be caused by

levothyroxine, this would mean that a synthetic thyroid hormone, chemically identical to thyroxine, is able to provoke an oral lichenoid lesion. Another possibility is that the presence of an underlying thyroid condition could be the explanation for such findings in patients with OLP. Indeed, other studies have demonstrated that thyroid disease, particularly hypothyroidism, is more prevalent in OLP patients.<sup>6,7</sup> Although it is not possible to establish causality with the study design of the aforementioned studies, thyroid disorders might be involved in the etiology of a subgroup of patients with OLP.

No previous study has investigated if a specific type of thyroid disease is affecting patients with OLP. Furthermore, it is not known if the OLP lesions in these patients have a different clinical presentation compared with the remaining subpopulation of OLP patients. A systematic collection of clinical information from the last 20 years has enabled us to report data on thyroid disease from approximately 3200 patients with OLP and those from the general population. Our aim with this study was (1) to compare the profile of thyroid disease of a large cohort of referred patients with OLP with the general population and (2) to describe the

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### Statement of Clinical Relevance

Hypothyroidism was more prevalent in patients with oral lichen planus (OLP) than in the general population. Moreover, the OLP lesions in patients with thyroid disease were less severe, which points toward a specific subgroup of OLP patients.

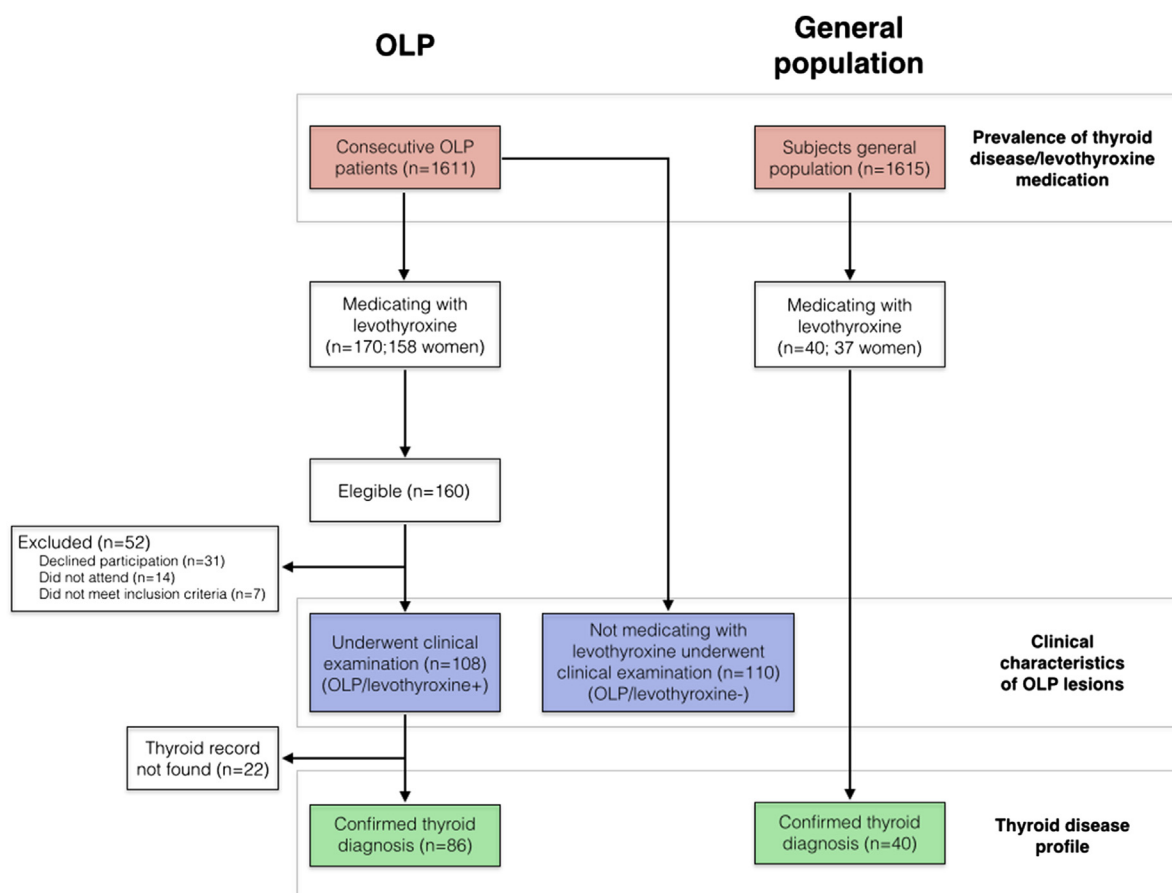


Fig. 1. Study design from the screening to the clinical examination and confirmation of thyroid diagnoses in patients with oral lichen planus (OLP) and patients from a random population sample, the WHO MONICA project, Gothenburg, Sweden.

clinical characteristics of patients with concomitant OLP and thyroid disease.

## MATERIALS AND METHODS

### Participants

The study comprised 2 groups. The first consisted of patients diagnosed with OLP and was divided into 2 groups on the basis of the presence of levothyroxine supplementation. The second was a control group from a previous population study to determine the prevalence of levothyroxine use and thyroid disease in the background population.

**Patients with OLP.** A total of 1611 patients (mean age = 57.8 years; range 15-93; women n = 1041) diagnosed with OLP were identified in our database. Of these, 170 patients were also taking levothyroxine at the time of the primary examination (OLP/levothyroxine+) (Figure 1). Specialists in oral medicine made the diagnosis of OLP following the clinical and histopathologic criteria established by the World Health Organization (WHO).<sup>8</sup> However, biopsy was only performed when the disease was divergent from the typical clinical manifestations, as has been previously suggested.<sup>9</sup> All lesions had to

present with reticular or papular features with or without plaque, erythema, or ulcerations. Gingival OLP with erythema but without reticulum or papules, which is sometimes referred to as an “oral lichenoid lesion,”<sup>10</sup> was also included. The classification of OLP was consistent throughout the entire study, from the time of primary examinations to the follow-up visits. Patients who presented with other types of oral mucosal lesions, including lichenoid contact reactions observed at the lateral border of the tongue or on the buccal mucosa and in close contact with amalgam restorations, were excluded from the study.

Patients with concomitant OLP and thyroid disease (OLP/levothyroxine+) were compared with an age- and gender-matched group of patients with OLP without any known thyroid disease or medication with levothyroxine (OLP/levothyroxine-). The latter patients were selected from the remaining patients diagnosed with OLP (Figure 1).

**Controls.** The prevalence of levothyroxine supplementation and thyroid disease was also studied in a random population sample from the same city. In 1995, 1200 men and 1200 women from the population

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