

## SHORT COMMUNICATION

## Venous Lakes of the Lips: Prevalence and Associated Factors

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Venous lakes of the lips (VLL) is a common vascular lesion caused by a focal dilatation of venules, characterized clinically by soft, compressible, dark-blue to violaceous papules, which occurs most often on the lips of elderly patients. A single layer of flattened endothelial cells and a thick wall of fibrous tissue are observed upon histological examination (1). VLL persists throughout life. The clinical course of VLL is uncomplicated, apart from occasional associated haemorrhagic and cosmetic problems. Most reports have focused on surgical treatment (2–6), and there are no large published studies on the prevalence of VLL and possible associated factors. The aim of this report is to determine the prevalence of VLL in a general dermatological population and the possible presence of associated factors or risk factors.

## MATERIALS AND METHODS

All adult patients (> 18 years of age) affected by VLL who were examined in the specialized outpatient clinic of our dermatology department from September 2011 to June 2012 were included in the study. Data were collected on age and sex, site and number of VLL. Clinical data included: skin type (according to Fitzpatrick classification), past and present sun-exposure (classified as: outdoor workers; patients having lived in sunny countries for > 6 months; patients seeking suntan; occasional sun-exposed activities; patients having always avoided sun-exposure), the presence of > 20 seborrhoeic keratoses, actinic keratoses, angiomas, common or atypical naevi, past sunburns at a juvenile or adult age, relevant diseases, past or present known tumours, concomitant therapies, immunosuppressive therapies, or organ grafts. Prevalence was calculated as the percentage of patients with VLL out of all patients observed in the same period at the same outpatient clinic. In order to compare the studied parameters, a case-control study with sex- and age-matched patients without VLL was performed. Control cases were patients admitted to the same outpatient clinic for general dermatological consultation. The patients affected by VLL were referred to our department for general dermatological problems, not for VLL. Student's test was used to compare differences in prevalence of VLL between age groups.  $\chi^2$  test was used to compare percentages differences of the considered parameters. A threshold of 5% was considered statistically significant.

## RESULTS

A total of 1,408 patients were recorded. Of these, 52 (31 men, 21 women, sex ratio M:F = 1.48:1) presented VLL; a prevalence of 3.7%. The mean age of the general study population including VLL patients was 52.6 years, the mean age of patients with VLL was 76.7

years, of controls 75.8 years ( $p < 0.03$ ). VLL of the lower lips was observed 46 times, VLL of the upper lip 3 times, and 3 patients had VLL on both the lower and upper lips. Patients and controls did not significantly differ for skin type; but were slightly skewed; type II: 29/17, type III: 23/31, and type IV: 0/4. More than 5 angiomas was observed in 30 patients with VLL. No patients had undergone organ graft or immunosuppressant therapy. Common and/or atypical naevi ( $n > 20$ ) were observed in 16 patients with VLL and in 19 controls. Past sunburns at a juvenile or adult age were reported in 30 patients and 14 controls. A significantly higher presence of actinic keratosis was observed in patients ( $p < 0.05$ ). Table I shows the relevant parameters and the significant differences between patients with VLL and sex- and age-matched controls.

## DISCUSSION

There are only a few clinical reports on VLL, most of which are studies of therapeutic treatment. The lack of literature may be due to confusion and/or lack of agreement about the definition of VLL. VLL were first described under this name by Bean & Walsh in 1956 (8) as dark-blue soft, compressible papules 2–10 mm or more in diameter, most often localized on the ears, face, lips (15%) and neck in elderly men (mean age 65 years). The authors described a histological picture of a thin, usually single-cell, layer of the venular endothelial lining and a marked senile elastosis in the surrounding tissue (8). Furthermore, ultra-structural studies (1) confirmed the presence of vascular spaces lined with normal endothelial cells, with open junctions, no fenestration (differently from senile angiomas). No muscular layer was found. Ir-

Table I. Parameters considered among patients with venous lake of the lips and sex and age-matched controls

Parameters	Patients <i>n</i> = 52	Controls <i>n</i> = 52	Significance
Seborrhoeic keratoses (> 20)	17	16	n.s.
Actinic keratoses (> 10)	37	18	$p < 0.05$
Angiomas (> 5)	30	17	n.s.
Sunburns	30	14	$p < 0.05$
Outdoors activities	14	7	n.s.
Tumours	8	2	n.s.
Naevi (> 20)	16	19	n.s.
Age, years, (mean $\pm$ SD)	76.7 $\pm$ 13.95	75.8 $\pm$ 13.98	n.s.
Sex ratio (M:F)	1:48:1	1:48:1	

regular bundles of collagen and elastic fibres impinged on the vessel walls. French literature uses the term “*flaques sanguines*”, describing them as venous lakes or varicose dilatations located in particular on the ears or face (9). Bean & Walsh (8) attributed the lesions to sun exposure and ageing. Smoking is thought to play a role in lip localization, but the pathogenesis remains unknown. This study represents the most relevant numerical casistic reported about VLL and indicates a prevalence of 3.7% for outpatients observed in a dermatology clinic. This percentage only indicates a prevalence and probably does not reflect the real incidence in the adult population. The mean age of the patients affected by VLL in our study was significantly higher than the mean age of the observed general population. Our results show a significant prevalence of actinic keratosis in VLL patients. Sunburns at juvenile ages are equally more often observed in patients with VLL. These two data may indicate a role for sun exposure in the pathogenesis of VLL. Although not significantly different, we have observed that patients with VLL had a slight prevalence of fair skin type than controls. The same slight prevalence, although not significant, was observed as regards the reported presence of outdoor activities. As suggested previously (1, 10), the typical actinic changes in the elastic and collagen fibres seen at histological examination support this connection. The presence of solid tumours in patients with VLL, although not significantly different from that in control patients, may be a chance result. Smoking is a possible risk factor for VLL (8), which also requires further evaluation.

In conclusion, based on our experience, VLL represents a minor dermatological and aesthetic problem, in

which external factors, such as sun exposure in predisposed elderly patients, may play a role.

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