

## Gum pigmentation: an unusual adverse effect of sublingual immunotherapy

Anne Goh<sup>1\*</sup>, Wen Chin Chiang<sup>1</sup>, Liew Woei Kang<sup>1</sup>, Rajeshwar Rao<sup>1</sup>, Hwee Hoon Lim<sup>1</sup>, and Chai Kiat Chng<sup>2</sup>

<sup>1</sup>Allergy Service, Department of Paediatrics, KK Women's and Children's Hospital, Singapore 229899, Singapore

<sup>2</sup>Dental Service, KK Women's and Children's Hospital, Singapore 229899, Singapore

Sublingual immunotherapy has gained acceptance amongst the paediatric community as it is very well tolerated and is safe. The adverse effects of this therapy is minimal consisting mainly of local side effects within the oral cavity such as itching of the mouth, swelling of the lips and less frequently abdominal pain, wheezing and urticaria has been described. This report is to highlight another local side effect of sublingual immunotherapy which has been observed in 3 of our patients. This is pigmentation of the gums which can occur anytime during the course of the immunotherapy. It resolves on stopping the immunotherapy and is likely due to a local inflammatory process occurring in the gums of these children. There is no associated pain or itching with the pigmentation. It can persist as long as the child is on the immunotherapy.

**Key words:** Gingiva; Pigmentation; Adverse effects; Sublingual immunotherapy

### INTRODUCTION

Sublingual immunotherapy (SLIT) has been used for allergic rhinitis due to house dust mite as far back as 1986 when the first randomised, double-blind, placebo controlled trial was published from UK [1]. Recent reviews of SLIT have demonstrated it to be efficacious and safe [2]. A review of SLIT for house dust mite allergy in Southeast Asian children suggest that there is benefit of SLIT for children with allergic rhinitis sensitised to house dust mite [3]. The main reported adverse effects include mainly local side effects such as itching of the mouth and throat, swelling

of the lips and tongue and less frequently abdominal pain, urticaria and wheezing [4]. We report here an unusual adverse effect of SLIT on 3 of our patients. A review of the literature and consultation with other experts in the field have not revealed similar reports to date.

### CASE REPORTS

#### Case 1

A 12-year-old Chinese boy was diagnosed with allergic

#### Correspondence: Anne Goh

Allergy Service, Department of Paediatrics, KK Women's and Children's Hospital, 100 Bukit Timah Road, Singapore 229899, Singapore

Tel: +65-6394-1122

Fax: +65-62917923

E-mail: Anne.Goh.EN@kkh.com.sg

**Received:** January 21, 2014

**Accepted:** May 25, 2014

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rhinitis at the age of 4 years old. He had a known history of eczema. He had a positive family history of asthma and allergic rhinitis in his father. His skin prick test showed sensitization to house dust mite mix and *Blomia tropicalis*. He was commenced on SLIT on March 3 2010 to *Dermatophagoides pteronyssinus* extract (Staloral) from Stallergenes when he was 8 years old. He initially complained of mild breathlessness on day 5 of commencing SLIT and intermittently subsequently only with exercise. He was started on inhaled steroids and managed as for asthma. He was continued on SLIT. He also complained initially of tongue swelling which resolved. He was tolerating SLIT well until 2 years after commencement when he complained of itch and a tingling sensation in the gum. Hyperpigmentation of the oral mucosa was noted on review 2 years after commencement of SLIT. He was advised to stop SLIT for 2 weeks and reviewed again. As the pigmentation appeared to have decreased, he was recommenced on SLIT. Four months after recommencing SLIT, he again complained of swelling of the tongue and worsening of the pigmentation. SLIT was eventually stopped and the pigmentation resolved completely 2 months later.

### Case 2

A 17-year-old Malay boy was diagnosed with allergic rhinitis at the age of 7 years old. He also was diagnosed with asthma and eczema. There was a positive family history of asthma and atopy with father having allergic rhinitis and an uncle and aunt with asthma. His skin prick test showed sensitisation to house dust mite mix and *Blomia tropicalis*. He was commenced on SLIT on May 21 2009 at the age of 14 years old on *D. pteronyssinus* and *B. tropicalis* (Staloral) extracts from Stallergenes. He initially complained of



Fig. 1. Pigmentation of the gums for case 2.

lip swelling on day 9 of SLIT which resolved and he tolerated the increased dosing without adverse effects. On the fifth week after initiation of SLIT, parents noticed gum pigmentation (Fig. 1). He was advised to stop SLIT for a week but he recommenced SLIT after 4 days. With recommencement of SLIT, the gum pigmentation worsened and SLIT was stopped 2 weeks later. The pigmentation started to lighten 1 week after stopping SLIT and completely resolved by 3 weeks.

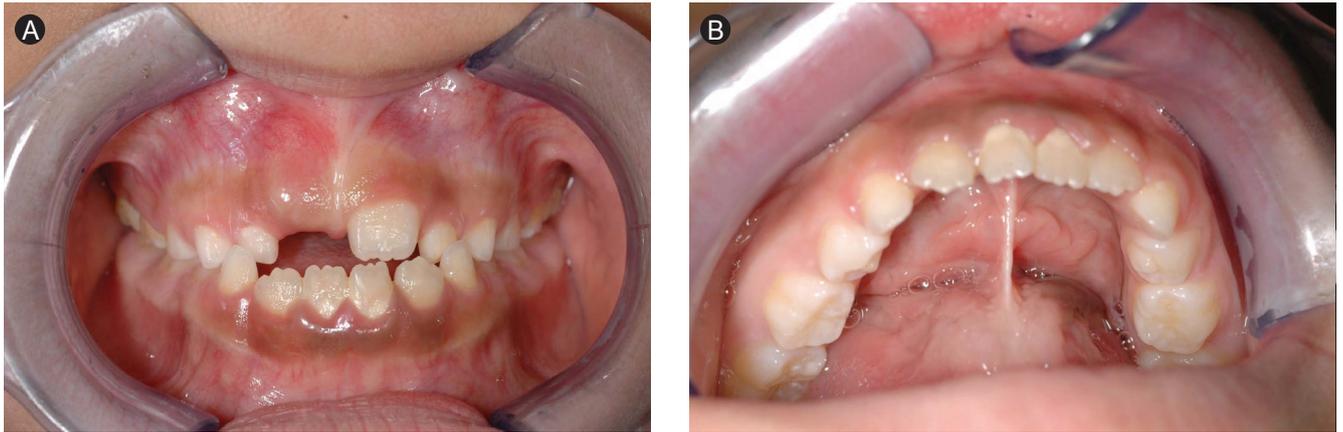
### Case 3: gum pigmentation in SLIT

A 10-year-old Chinese boy was diagnosed with asthma and allergic rhinitis since the age of 3 years old. He also developed eczema and severe allergic conjunctivitis from 5 years of age. His skin prick test showed sensitisation to house dust mite mix and *B. tropicalis*. He was commenced on SLIT on February 27 2012 with *D. pteronyssinus* and *B. tropicalis* extracts (Staloral) from Stallergenes. He experienced mild abdominal pain and tongue swelling during the initial period of SLIT but these symptoms resolved and he was tolerating SLIT well. Gum pigmentation was noted 6 months after initiating SLIT (Fig. 2). Patient is still on SLIT 4 months after the onset of the gum pigmentation. The pigmentation is still present.

## DISCUSSION

Our hospital has had 49 patients started on SLIT. Three of 49 (6.1%) of the patients presented with this side effect. Forty-two of 49 children (85.7%) were on combination extracts of *D. pteronyssinus* and *B. tropicalis*. Four children were on *D. pteronyssinus* allergen extract alone and three were on a combination with *D. pteronyssinus* and *Dermatophagoides farinae*. The extracts for the SLIT are obtained from Stallergenes and all our patients are started on extracts from the same company. The only difference is that in our centre, if patients are on 2 house dust mite extracts, these are given as separate extracts rather than as a combination extract. All 3 tolerated initiation of SLIT with the usual adverse effects of lip and tongue swelling, itch and mild abdominal pain as previously described. The onset of gum pigmentation can occur any time after commencing SLIT as in one child, it occurred on the fifth week after commencement while in the other child, it occurred 2 years later. Besides the gum pigmentation, there is usually no other complaints of pain or itch though the itch can precede the onset of the pigmentation. Two of the children were referred to the dental surgeon in our hospital and the dental opinion is that

## Gum pigmentation in SLIT



**Fig. 2.** (A) Pigmentation of the gums case 3. (B) Pigmentation of the buccal mucosa under the tongue for case 3.

it is likely to be a lichenoid-like inflammatory reaction due to local delivery of the immunotherapy agent. All 3 children were commenced on SLIT at different time periods and there have been no similar complaints within the family members of these children. The conclusion that it is likely related to the SLIT was because in one child, resolution was seen with the discontinuation of SLIT and recurrence of the problem occurred on restarting SLIT. The last patient decided to continue on SLIT and the pigmentation is still present after 4 months of the appearance of the pigmentation. This gum pigmentation is likely due to a local inflammatory reaction of the gums and complete resolution is expected once SLIT is stopped. However it can recur once SLIT is recommenced. It can persist as long as the child is continued on SLIT.

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